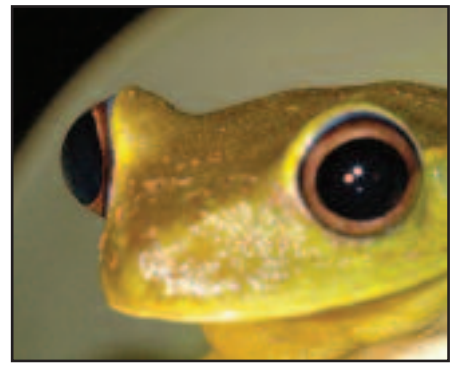
KNOWLEDGE AND SUSTAINABLE USE OF BRAZILIAN BIODIVERSITY: BIOTA-FAPESP PROGRAM

FAPESP

THE STATE OF SÃO PAULO
RESEARCH FOUNDATION



KNOWLEDGE AND SUSTAINABLE USE OF BRAZILIAN BIODIVERSITY:

BIOTA-FAPESP PROGRAM

SÃO PAULO – BRAZIL
2008

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The foundations for environmental conservation

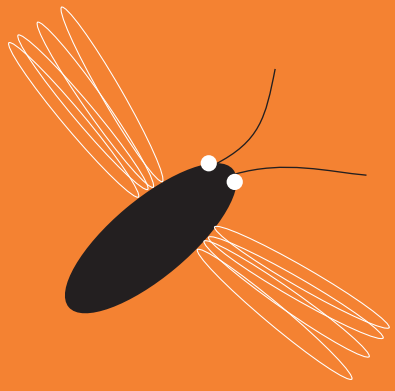
Brazil is the country with the greatest biodiversity, being home to between 15 and 20 per cent of the total number of species on the planet, in six large biomas: Amazonia, Caatinga, Atlantic Rainforest, Cerrado, Pantanal and Pampa. The exact dimension of this biological wealth will probably never be known, given the continental dimensions of the country, the extent of its marine platform and the complexity of its ecosystems. A considerable part of this patrimony has been, and continues to be, irreversibly lost, even before it was known, due principally to the fragmentation of habitats, excessive exploitation of natural resources and contamination of the ground, the waters and the atmosphere.

Knowledge and conservation of these biomas and their flora, fauna and microorganisms is essential, for the very preservation of life on the planet. Aware of this, the State of São Paulo Research Foundation (FAPESP), one of Brazil's principal agencies for the funding of scientific and technological research, has played an outstanding role in these endeavors to map the biodiversity in the State of São Paulo. Located in the southeast of Brazil, on the frontier between tropical and subtropical regions, São Paulo presents an enormous topographical and climatic diversity, representing an area of transition (ecotone) between two biomas – Atlantic Rainforest and Cerrado – with different ecosystems and enormous biological richness.

In addition to supporting individual projects which lead to a better understanding of Brazilian nature, as it has done for more than four decades, FAPESP supports projects of long duration, with multi-institutional bases, such as the thematic *Phanerogamic Flora of the State of São Paulo*, a survey of the diversity of plants with flowers begun in 1994, which uncovered a large number of new species and the results of which are being published.

In 1999, working closely with the scientific community, FAPESP created the Biota-FAPESP Program, aimed not only at discovering, mapping and analyzing the origins, diversity and distribution of the flora and fauna of the State of São Paulo, but also at evaluating the possibilities of sustainable exploitation of plants or animals with economic potential and assisting in the formulation of conservation policies on forest remnants.

In nine years, the Program has supported 84 projects – including Thematic Projects, Support for Regular Research or awards developed in the Support for Young Researchers Program – and 400 grants, ranging from Scientific Initiation to Post-doctorate . This publication includes information on projects approved under Biota-FAPESP since the start of the program on March, 25 1999, up to July 2008. It also includes a collection of features on the Program, published in *Pesquisa FAPESP* magazine.



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Biota-FAPESP Program

The Biota-FAPESP Program has been called the Virtual Institute of Biodiversity owing to the form of its organization, integrating researchers from several institutions and their students. Scientists from the leading public universities in the State of São Paulo, research institutes and non-governmental organizations participate in projects to discover, map and analyze the biodiversity distributed in land and marine environments and in other ecosystems, as well as proposing alternatives and public policies to preserve it. Biota-FAPESP involves around 1,200 professionals (900 researchers and students from São Paulo, 150 collaborators from other states and 80 from abroad).

The 84 research projects supported have resulted in the identification and description of 500 new species of plants and animals, the training of 180 masters and 60 PhDs, information records on more than 12 thousand species and databases with the contents of 35 biological collections. An endeavor that can be translated into the publication of 700 articles in scientific periodicals, 20 books and two atlases.

The information produced by the Biota-FAPESP Program (www.biota.org.br) is in databases open to the scientific community of Brazil and abroad. Standardization of the collections has made it possible to construct the Environmental Information System, SinBiota (http://sinbiota.cria.org.br), which registers and integrates the collections of plants or animals carried out in the State of São Paulo, with geographical coordinates of thousands of species, which may be consulted using the scientific name of the plant or animal, or the name of the collector, or the locality or date of collection.

It is also possible to see the geographical distribution of the points of collection since SinBiota is laid out on a cartographic base detailing remnants of native vegetation, reforested areas with exotic species (*Pinnus* and *Eucalyptus*), conservation units, the river and road networks and the urban areas. This is the second database: the Biota-FAPESP Program Atlas, which incorporates the Forest Inventory of São Paulo, a survey coordinated by the Forestry Institute. Elaborated on the basis of field surveys, aerial photos and satellite images, the Inventory monitors the area occupied by remnants of native vegetation in the State of São Paulo.

Based on a larger system, *Species Link* (http://splink.cria.org.br), has accumulated 2 million records of data resulting from research activities or contained in archives of national and foreign biological collections.

Other developments of Biota-FAPESP are the electronic scientific magazine *Neotropica* (www.biotaneotropica.org.br), with the relevant results of studies on biodiversity in the Neotropical region, associated or not with the Program, and the Biota Network of Bioprospection and Biotrials (BIOprospecTA – www.bioprospecta.org.br), which integrates research groups in the State of São Paulo engaged, directly or indirectly, with the prospection of new compounds of economic interest in microorganisms, macroscopic fungi, plants, invertebrates (including marine) and vertebrates.

In 2007, in conjunction with the Ministry of State for the Environment, the Program produced the book *Guidelines for the conservation and restoration of the State of São Paulo* (launched in November 2008) and a series of maps which constitute the scientific support to orient the strategies of conservation, preservation and restoration of the native biodiversity in the State of São Paulo.

Based on the book and on the maps – especially the map of Priority Areas for Increasing Connectivity (*see at the end of the publication*) –, the Ministry of State for the Environment established, by means of a resolution (SMA – 14), in March 2008, the procedures for the suppression of native vegetation for the division of land into lots or any building in urban areas, laying down that the analysis of all requests for use of areas with native Forest should be based on the categories of importance for the preservation and creation of conservation units as defined by the publication coordinated by the Biota-FAPESP program.

In September of the same year, a joint resolution of the ministries of the Environment and of Agriculture and Supplies (SMA – SAA 004) laid out the technical guidelines for the licensing of enterprises from the sugar-alcohol sector in the State of São Paulo, based also on data produced by the Biota-FAPESP Program.

FAPESP: in step with social and economic development

FAPESP's strategy for promoting science and technology in the State of São Paulo adheres to three principles: the training of human resources, support for academic research – especially fundamental in nature, and support for research undertaken with a view to applications. At the same time, the Foundation has maintained, from the date it was instituted, its commitment to promoting the dissemination and application of results of the investments it makes in research in all areas of knowledge. In this role as inducer and promoter of applications of science, the Foundation acts in harmony with the aspirations of the São Paulo and Brazilian society and the country's needs for social and economic development.

To achieve its mission of training qualified human resources and generating knowledge, FAPESP has different lines of funding: grants, at different levels and in different modalities, and financial support for regular and thematic research projects, awarded to researchers at doctoral level in research institutes or institutions of higher education in the State of São Paulo.

In research geared to applications the Foundation supports academic projects geared to specific themes, such as biodiversity, neuroscience, bioenergy and global climate changes, and also the linking up of academic research with research in businesses or in government, or even research projects in small enterprises.

The Biota-FAPESP Program is multidisciplinary and includes principally Thematic Projects – of long duration and with extensive objectives – Support for Regular Research and projects from the Young Researchers in Emerging Centers. Working alongside experienced scientists, around 400 grant-holders are making contributions to the scientific discoveries of Biota-FAPESP.

MINISTRY OF STATE FOR THE ENVIRONMENT
MINISTER'S OFFICE

PUBLISHED ON 14-03-88 – SECTION I – PAGE.36

RESOLUTION SMA-14 OF 13 MARCH 2008.

Defines procedures for the suppression of native vegetation for the division of land into lots for any building in the urban area.

The **MINISTER OF STATE FOR THE ENVIRONMENT**, in the use of the powers invested in him by Article 94 of the State Decree nº 30,555, of 3 October 1989:

Considering the establishment in article 14 paragraph "a" of the Federal Law nº 4,771, of 15 September 1965, which defines in addition to the general precepts to which use of the forests is subject, The Federal or State Public Authority may prescribe other norms which meet local peculiarities;

Considering the convenience of defining the basic criteria and general guidelines for the granting of authorizations for the suppression of native vegetation in order to divide land into lots or any building for urban use;

Resolves:

Article 1 - The authorization for the suppression of native vegetation for the division of land into lots or for any building in the urban area, in this last case excepting those building for Works of public interest the object of Resolution SMA 13-2008, should comply with what is laid down in this Resolution and other pertinent legal norms, by means of the presentation of a specific technical study.

Article 2 - The authorization for the suppression of native vegetation for dividing land into lots or any building in the urban area may be granted by meeting the following conditions:

I) authorization may only be conceded for the suppression of vegetation when the preservation of native vegetation in the corresponding area is guaranteed to correspond to, at least, 20% of the area of the property.

II) with respect to that stipulated in clause I, the authorization for the suppression of vegetation may be granted for up to 70 % of the area of the fragment of native vegetation existing in the property, in the case of vegetation in the initial stage of regeneration, and for up to 50 % of the area of the fragment of vegetation existing in the property, in the case of native vegetation in the medium stage of regeneration.

III) with respect to that stipulated in clause I, in the case of property located on the urban perimeter defined before the publication of Federal Law 11,428-2006, the suppression of vegetation in advanced stage of regeneration may be granted for up to 30% of the area occupied by the fragment of native vegetation existing on the property.

IV) the remaining vegetation on the property should be annotated in the margin of the registration of the property in the competent Land Registry Office as Green Area, with annotation being exempt in the case of lots less than 1,000 m2 in area.

§ 1 - Areas of permanent preservation can be annotated as Green Areas, in accordance with Resolution CONAMA 369-2006.

§ 2 - Where two or more stages of regeneration exist within the property which is the subject of analysis, the criteria will be applied which corresponds to the more advanced stage of regeneration.

§ 3º - In dealing with property located in the urban perimeter defined after the publication of Federal Law 11428-2006 the suppression of native vegetation in advanced stage of regeneration will not be authorized.

§ 4 - In petitions requesting the suppression of vegetation for lots located in established construction sites, the Green Areas existing in the construction site should be verified, which if covered by native vegetation could be considered for the purpose of meeting the percentage of vegetation to be preserved, taking into account, in these cases, the total area of the fragment of vegetation existing within the construction site, as well as the total area of the construction site.

Article 3 - The authorization for the suppression of native vegetation for the division of land into lots or for any building in the urban area, will only be granted when in conformity with the Urban Development Plan or through authorization from the Municipality.

Article 4 - In the processes of licensing properties devoid of native vegetation a Green Area should be constituted corresponding to, at least, 20% (twenty per cent) of the total terrain.

Sole paragraph – in the case of an area covered in native vegetation not existing in the percentage envisaged in the ordinance, a signed commitment will be required for the forestry recomposition of the green area through the planting of native species, allowing planting of exotic species as pioneers.

Article 5 - In the technical analysis of the requests for the suppression of vegetation the locality of the vegetation to be suppressed should be evaluated to ascertain whether it is located in areas indicated for preservation and creation of conservation units of complete protection or in priority areas for the establishment of urban green areas, legal reserves or private reserves of the national patrimony and for the restoration of ecological corridors linking up fragments of native vegetation, in accordance with the "Project Guidelines for Conservation and Restoration of Biodiversity in the State of São Paulo", coordinated by the Biota-FAPESP Program.

Sole paragraph – In the case of requests for suppression of vegetation in areas indicated in the ordinance, supplementary compensatory measures may be demanded in relation to the ecological importance of the fragment.

Article 6 - This regulation comes into force on the date of its publication, revoking previous dispositions.

FRANCISCO GRAZIANO NETO
Minister of State for the Environment

MINISTRY OF STATE FOR THE ENVIRONMENT
MINISTER'S OFFICE

PUBLISHED ON 20-09-08 – SECTION I – PAGE 93-94

JOINT RESOLUTION SMA-SAA N 004 OF 18 SEPTEMBER 2008.

Defines Agro-environmental Zoning
for the sugar-alcohol sector
in the State of São Paulo.

The Ministers of State for the Environment and for Agriculture and Supplies, in the use of the powers invested in them, Considering the importance of sugarcane activity in the State of São Paulo and its growing expansion, in compliance with the terms of the Agro-environmental Protocol signed between the Government of São Paulo and the sector; Considering the need to refine the procedures for environmental licensing of sugar-alcohol enterprises and the management of agricultural areas, and to stimulate the sustainable production of ethanol respecting natural resources and controlling pollution, with socio-environmental responsibility; Considering the need for regulation of the technical criteria for the establishment of conditions and differentiated requirements in processes of environmental licensing;

RESOLVE:

Article 1 – Agro-environmental Zoning for the sugar-alcohol sector in the State of São Paulo is defined, in accordance with the annexed map, which establishes the following classification for areas:

I – Adequate, which corresponds to the territory with edaphoclimatic suitability favorable to the development of the cultivation of sugarcane and without specific environmental restrictions;

II – Adequate with Environmental Restrictions, which corresponds to the territory with edaphoclimatic suitability favorable to the cultivation of sugarcane and incidence of Areas of Environmental Protection – (AEP); areas of medium priority for the increase of connectivity in accordance with the indication of the Biota-FAPESP Project; and hydrographic basins considered critical;

III – Adequate with Environmental Restrictions, which corresponds to the territory with edaphoclimatic suitability favorable to the cultivation of sugarcane and with incidence of buffer zones of the Integral Protection Conservation Units – IPCU; areas of high priority for the increase of connectivity indicated by the Biota-FAPESP Project; and areas of high vulnerability of subterranean waters in the State of São Paulo, in accordance with publication IG-CETESB-DAEE - 1997; and

IV – Inadequate, which corresponds to State and Federal Integral Protection Conservation Units – IPCU; to fragments classified as of extreme biological importance for conservation, indicated by the Biota-FAPESP Project for the creation of Integral Protection Conservation Units – IPCU; to Wild Life Zones in the Areas of Environmental Protection – AEPs; to the areas with edaphoclimatic restrictions for the cultivation of sugarcane; and to areas with declivity of more than 20%.

Article 2 – The units of the Ministries for the Environment and for Agriculture and Supplies should take into consideration this mapping for the development of their activities in their respective fields of action.

Article 3 – This regulation comes into force on the date of its publication.

FRANCISCO GRAZIANO NETO
Minister of State for the Environment

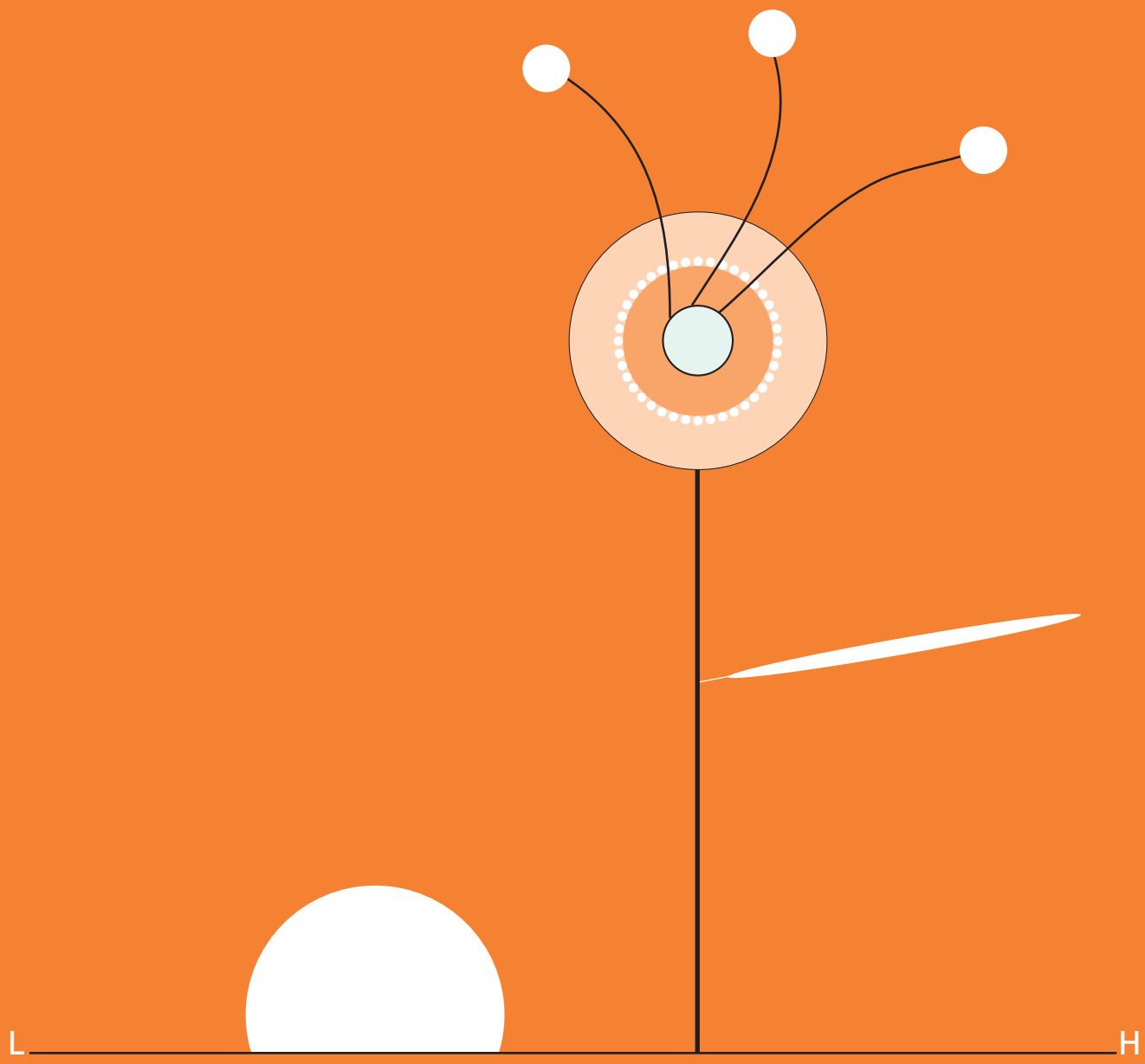
JOÃO DE ALMEIDA SAMPAIO FILHO
Minister of State for Agriculture and Supplies

Summary

Thematic Projects – Biota, 17

Pequí
(*Caryocar brasiliense*)

Thematic Projects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Agronomy

1 Vegetal biodiversity and edaphic organisms in ecosystems of natural and impacted narrowleaf Brazilian pine in the State of São Paulo

Process
2001/05146-6

Coordinator
Elke Jurandy Bran Nogueira Cardoso

Institution
Luiz de Queiroz College of Agriculture / University of São Paulo (Esalq/USP)

Start: Apr 2004
Finish: Mar 2008

Araucaria angustifolia is an endangered tree of high economic value, which belongs to the Brazilian subtropical forest of high altitude. This species is considered under risk of extinction due to its previous exploration and dizimation, mainly for its valuable wood. Although *A. angustifolia* nowadays occupies only a very restricted area of the State of São Paulo, this ecosystem presents a high biodiversity of plants, animaIs and microorganisms. The loss of this biodiversity could imply the loss of sustainability of the forests. The main objectives of this research project are to survey the plant and microbial biodiversity of the ecosystem and their interactions. The specific objecives are: a) to characterize the floristic biodiversity; b) to identify the structure ofthe associated soil-bome microbial community, using molecular (DGGE) and biochemical (Biolog) techniques; c) to isolate and identify, through morphologic and molecular methods, the arbuscular mycorrhizal fungi associated to *Araucaria*; d) to isolate and identify the associated diazotrophic, rhizospheric or endophytic bacteria; e) to evaluate the soil biochemical processes, as C or N microbial biomass, CO_2 evolution, the metabolic coefficient and enzymatic soil activity; t) to study the genetic variability between individuaIs of the *Araucaria* forest employing molecular markers -RAPD and AFLP or DNA sequences of organelles; g) to survey the diversity of the macrofauna and to estimate the importance of certain functional groups; h) to obtain this information with regard to the two contrasting seasons (summer and winter), in two regions of the State of São Paulo (Campos do Jordão and Apiaí), in native and disturbed ecosystems.

Biology

2 Fauna and flora of renmant forest fragments in northwestern São Paulo State: basis for biodiversity conservation studies

Process
2004/04820-3

Coordinator
Orlando Necchi Junior

Institution
São José do Rio Preto Institute of Biosciences, Arts and Exact Sciences / São Paulo State University (Ibilce/Unesp)

Start: Dec 2005
Finish: Mar 2010

Forest fragmentation is an increasing and notorious process in the tropical region. A clearly understanding of this process and its consequences is fundamental to avoid biodiversity losses and a/so to correctly manage the sustainable use of the remaining biota. A perfect and disturbing example of this process refers to the northwestern region of the State of São Paulo, characterized by the presence of Semideciduous Stational Forests and Savannahs, which are restricted to 9% of their original area and were replaced by pastures, crops, and urbanization. In consequence, the region is considered the most deforested and fragmented in São Paulo State, and also the one with the smallest number of conservational units. This situation will not be reverted without a suitable environmental management. Even so, the area still harbors a high species richness, which paradoxically has been scarcely studied. The main objective of this project refers to the inventory of several taxonomic groups (algae, bryophytes, fungi, plants, and aquatic and terrestrial invertebrate and vertebrate animals). Twenty forest fragments, selected according to their size and surrounding matrix (e.g. sugar cane, citrus, pasture, rubber trees, and urban areas), will be sampled. The principal expected products are: 1) a diagnosis of the environment, providing a solid database allowing a better conservation of the biota; 2) a draft with the possible effects of the fragmentation in the population dynamics and physiology of species; 3) a description of the role of the fragments as maintainers of the regional biodiversity and as reservoirs of potential species to act in the colonization of other areas and a/so in the agriculture biological control. The project will add important new findings to the knowledge of the biodiversity of this region. Finally, its most signifi-

cant relevance concerns to the construction of a solid basis for future studies and actions on the conservation of this valuable biota.

Botany

3 Phycological flora in the State of São Paulo

Process
1998/04955-3

Coordinator
Carlos Eduardo de Mattos Bicudo

Institution
Institute of Botany / Ministry of State for the Environmental (SMA-SP)

Start: Jul 1999
Finish: Sep 2003

Despite algae studies in Brazil having already over 160 years of publications, the first 124 years are almost solely the contributions of foreign specialists that either visited sparse sites of the Brazilian territory in search of algae material or received in their own countries small lots of material collected for study. Only in the last 40 years did Brazilian students take over the task of studying the algal biodiversity of the State of São Paulo. Analysis of the 47 publications that deal with the taxonomy of the macroscopic marine benthic algae of the State of São Paulo demonstrated that the State's algalflora is represented by 308 taxa (corrected list), 198 (64.3%) of which are of Rhodophyceae, 68 (22.1%) of Chlorophyceae, and 42 (13.6%) of Phaeophyceae. However, many gaps still exist in the information on the São Paulo State macroscopic marine benthic algalflora due to, mainly, the lack of institutional or individual programs that aim at including the survey of the São Paulo State seaweed flora in an organized manner. Furthermore, due to methodology limitations the macroscopic marine benthic algae community of the intertidal zone of rocky beaches and estuaries remained unstudied, except for a few instances. The infralittoral, only accessible by diving or dredging equipment, was completely ignored. Therefore, it is absolutely necessary to taxonomically explore the infralittoral rocky shores since the algalflora of these areas may support different community compositions when compared to the supralittoral. Another aspect for consideration is the very probable underestimation of the taxa number for the State of São Paulo due to the superficiality of some of the floristic surveys. The 12 publications that constitute the entire taxonomic literature on marine bluegreen alga e for São Paulo list the occurrence of 108 taxa in the state's supralittoral zone. It is important to note, however, that three of these publications date from the period 1930-1963 and the others from 1983 on, which proves that the study effort of this algal group is still extremely recent. Furthermore, the area that has been covered up to now is extremely restricted, so that the total number of taxa already identified (108) is severely underestimated and does not at all represent the real taxonomic diversity of the marine Cyanophyceae of the State of São Paulo. Regarding freshwater forms, a preliminary analysis based on inaccurate catalogues totaled 2,226 taxa already documented for the State of São Paulo. These figures are distributed as follows: 1,053 of Zygnemaphyceae, 388 of Cyanophyceae, 299 of Chlorophyceae, 110 of Euglenophyceae, 62 of Xanthophyceae, 61 of Bacillariophyceae, 49 of Oedogoniophyceae, 46 of Chrysophyceae, 43 of Cryptophyceae, 41 of Dinophyceae, 31 of Charophyceae, 21 of Prasinophyceae, 14 of Rhodophyceae, and 8 of Raphidophyceae. It soon becomes clear that some of these totais are extremely distorted because they are very dependent on the existence or absence of specialists in the different algal groups. Consequently, because there are specialists presently working on Charophyceae, Cryptophyceae, Cyanophyceae, Euglenophyceae, Rhodophyceae, and Zygnemaphyceae, the numbers referring to their respective totais of taxa reasonably reflect this reality. On the other hand, the numbers referring to Bacillariophyceae, Chlorophyceae, Chrysophyceae, Dinophyceae, and Xanthophyceae are absolutely incorrect and underestimated due to the present lack of specialists in these groups. Another point to be discussed is that some comparatively small algal classes in terms of species number and infraspecific taxa, such as Charophyceae, Cryptophyceae, and Rhodophyceae, have already been surveyed at the State of São Paulo levei within a major project that aims at surveying the state's freshwater algalflora. The existing plan that includes specific gathering of material of the various algae groups by specialists that will obviously increase the accuracy of the information collected. Numbers of taxa presently available for the Charophyceae, Cryptophyceae, and Rhodophyceae are, therefore, extremely reliable. Some other groups, like the Cyanophyceae and Zygnemaphyceae, still are in an inventory phase at the state level. This implies that the total number of taxa already mentioned for these groups are, on one hand, relatively high compared to the others, but on the other hand, Glose to reality, in spite of still being incomplete. The total numbers of taxa for the other groups (Oedogoniophyceae, Euglenophyceae, Bacillariophyceae, Chrysophyceae, Xanthophyceae, and Dinophyceae) are to a

greater or lesser extent inaccurate and for from being Glose to reality. Finally, groups such as the Eustigmatophyceae and the Chrysophyceae, which possess a siliceous exoskeleton, have not yet had floristic inventory started due to the lack of specialists, incomplete dominion of specific methodology, or lack of highly specialized equipment (transmission and/or scanning electron microscopes). Consequently, the total number of freshwater algal taxa that occur in the State of São Paulo will easily double or even triple if an organized, extensive, joint program of surveying the algal biodiversity of the state is established. The main objectives of the present plan are: (1) know the biodiversity of the different algal groups in the area of the State of São Paulo through the survey of the state's algalflora, including seaweeds, freshwater phytoplanktonic and periphytic forms, and soil and subaerial forms; (2) to foster the capacity of the State of São Paulo and of the public and private organizations of the whole country to manage, monitor, and utilize its biodiversity of algae; (3) detect areas in the State of São Paulo in which loss of biodiversity is occurring, considering spatial and temporal scales; (4) evaluate the efectiveness of the conservation effort in the State of São Paulo for algae through the identification of areas and priority components for conservation; (5) enable the State of São Paulo to estimate the value of its algal biodiversity and of some of its services such as: conservation of water resources, biological control, etc; (6) provide training of specialized personnel in taxonomy and systematics of algae mainly in the State of São Paulo, but also in other states in the country; (7) subsidize projects in ecology, genetics, citology, molecular biology, etc, which will demand previous, essential knowledge of the local algalflora composition; and (8) improve the quality of formal and informal teaching of Biological Sciences and Environmental Education in the State of São Paulo, but also in other states of the country regarding knowledge, conservation, and rational utilization of its algal biodiversity. The Phycology Section, the Coordination Center for the II Algalflora of the State of São Paulo, already has and will place at disposal of the project the following: (1) a complete survey of the literature containing references to algae material for the State of São Paulo; (2) a corrected list of the macroscopic marine benthic forms and an inaccurate one of the continental (phytoplankton, periphyton, soil, and subaerial) ones; (3) a herbarium containing more than 15,000 *exsiccatae* of macroscopic marine benthic forms and almost 3,000 vials containing fixed and preserved material of the freshwater forms; (4) the libraries of the Instituto de Botânica and those of each faculty member in the Phycology Section of the Institute of Botany, the best and most complete phycological library with emphasis on taxonomy and systematics of algae in Latin America; (5) a vehicle for field work; (6) laboratorial infrastructure represented by sampling devices and equipment, stoves for the drying of material, microscopes, chemicals and vials, etc; (7) more than 35 years of tradition in the taxonomy and systematics of both marine and freshwater algal forms, which led the National Council for Scientific and Technological Development (CNPq) to consider the Phycology Section of the Institute of Botany a National Center of Excellence in the area. Some products from the development of the present project will be: (1) produce a series of 13 volumes of the São Paulo State algalflora; (2) produce manuals for identification of algae to be used in high schools and universities throughout the country; (3) produce slides, CD-roms, and other illustrative materials for use in teaching and research institutions of the country; (4) train taxonomists and systematatists of algae for the state, country, and other countries in Latin America; (5) subsidize project on environmental impact evaluation, ecology, genetics, physiology, cytology, molecular biology, etc that will necessarily demand fundamental knowledge of the local floristic compositon.

4 Conservation and sustainable use of the plant biodiversity from the Cerrado and Atlantic Rainforest: the storage carbohydrates and their role on the adaptation and maintainance of plants in their natural habitat

PROCESS
1998/05124-8

COORDINATOR
Marcos Silveira Buckeridge

INSTITUTION
Institute of Botany / Ministry of State for the Environmental (SMA-SP)

START: APR 1999
FINISH: AUG 2005

There are periods when plants temporarily lose their capacity to maintain their own autotrophy, i.e. when the photosynthetic system becomes temporarily non operational (dormancy for example). Those periods can be considered as the weakest links of the life cycle of plants, since they become totally dependent on their reserves in order to restart growth when environmental conditions are favorable. Plants store reserves of organic compounds (carbohydrates and lipids mainly for carbon and energy resource),

and proteins (for nitrogen), which are mobilised during specific periods and under straight metabolic control. Thus, the energetic needs and at the same time carbon are provided as raw material for restarting of growth. The latter demands high quantities of carbon mainly for processes as respiration, cell division and elongation. The main storage carbohydrates' in plants can be divided into intracellular and extracellular reserves. Those accumulated within the cells can be found in the vacuole (fructans, sucrose and raffinose series) or into the cytoplasm (starch) and those stored in the extracellular space are composed of polysaccharides such as hemicelluloses and pectin's. Each type of polysaccharide used as a reserve corresponds to one or more strategies of surviving, including water imbibition and defence. In this way, it is possible that the maintenance of biodiversity in tropical environments presents a relatively high dependence on the period of accumulation and mobilization of reserves. It is therefore important to study these phenomena in detail if one wishes to understand how biodiversity can be maintained or used in a sustainable fashion. On this basis, the present proposition intends to study the biosynthesis and degradation of some of the main storage carbohydrates from plants native to Cerrado (a savanna-like vegetation) and the Tropical Forest. The physiological and cytochemical consequences for the following growth and development will be studied concomitantly. We expect these results to contribute towards a strong scientific basis for the conservation and recuperation of those ecosystems (Cerrado and Tropical Forest) consistently being degraded. We also expect the results to provide means for the sustainable use of the biodiversity.

5 Morphological, anatomical, histochemical and ultra-structural studies in plants of the Cerrado (*lato sensu*) in the State of São Paulo

PROCESS
2000/12469-3

COORDINATOR
Sílvia Rodrigues Machado

INSTITUTION
Botucatu Institute of Biosciences /
São Paulo State University (Unesp)

START: NOV 2001
FINISH: SEP 2006

Several factors have contributed to the devastation of the Cerrado, such as the use of wood for energy production (firewood and charcoal), agricultural use or extensive cattle raising, impact caused by tourism, and mineral exploration. This situation has got worse as vegetal resources have been indiscriminately destroyed, without a knowledge of the many different biological aspects of species representative of this biome. Although some structural peculiarities of the Cerrado, plants are well known, data in literature are limited to a few species and are of restricted access, being part of unpublished Ph.D. and Master theses. Many morphological, anatomical, histochemical, and ultrastructural aspects of most representatives of this biome are unknown despite the richness and diversity of this vegetation. The general objective of this project is to perform a comprehensive and integrated morphological, anatomical, and ultrastructural study of the Cerrado species in São Paulo State, in order to detect their common characteristics. The specific objectives are: to study the morphology and anatomy of subterranean organs, leaves, fruits, and seeds; to characterize the micromorphology of leaf, fruit, and seed surface; to describe the morphology of the seedling at different stages of post-seminal development; to survey the structures of vegetative propagation, determining the nature of the subterranean systems and identifying the main reserve compounds; and to characterize the morphology and histochemistry of the gland structures present in vegetative and reproductive organs. Representative species of the Cerrado vegetation in São Paulo State will be selected according to existing floristic surveys, including species of the Anacardiaceae, Apocynaceae, Asteraceae, Erythroxylaceae, Euphorbiaceae, Leguminosae, Malpighiaceae, Melastomataceae, Myrtaceae and Vochysiaceae. The studies on post-seminal development will be performed in a germinator and in a greenhouse. For the anatomical studies, slides will be prepared with usual techniques, using hand-cut and michrotome sections from material embedded in paraffin, paraplast, and historesin. For the histochemical studies, the samples will be fixed in an appropriate medium and sections win be stained with specific reagents, The ultrastructural studies will include analyses by scanning and transmission electron microscopy, using samples prepared according to conventional protocols. The team's interest in this type of vegetation, the previous ability of working together in research projects, and the necessity of interaction of diverse specialities will help this project provide prompt and consistent data.

6 Atlantic Rainforest aromatic in São Paulo State: chemical composition of volatile oils and biological activity analysis

PROCESS
2002/12215-7

COORDINATOR
Paulo Roberto Hrihorowitsch Moreno

INSTITUTION
Institute of Chemistry /
University of São Paulo (USP)

START: JUN 2004
FINISH: MAY 2008

This proposal aims at to contribute with the knowledge of the chemical constitution of volatile oils found in native species of the Atlantic Rain Forest as well as verifying the putative pharmacological activity of these oils (antibacterial, antifungal, anti-inflammatory and antitumour activities). The species whose oils presented constituents interesting for the aroma or pharmaceutical industries will be selected for posterior studies of *in vivo* and *in vitro* propagation aiming at the sustainable use and the maintenance of germoplasm. The main goal of this proposal is to contribute for the sustainability of the biome, pointing its economic potential in accordance with the current demands. The search of the sustainable development has influence either in the process of selection of potential species or in the methods of production of the raw material. The employment of natural products in the cosmetic industries or in those specialized in Phytomedicines is limited by the scale of the collection and the sustainable use of the forest. In the great majority of the cases, the industry looks for new cultivars that will guarantee the scale of production of the raw materials. In this way, the development of the biotechnology, particularly that of genetic engineering, facilitates the culture of medicinal and aromatic plants far of its natural habitat, contributing to evolve from extractive to culturing.

7 Embryogenetic studies as a basis for strategies of reproduction and conservation of tree species

PROCESS
2004/03333-1

COORDINATOR
Eny Iochevet Segal Floh

INSTITUTION
Institute of Biosciences /
University of São Paulo (USP)

START: MAR 2005
FINISH: FEB 2009

The use of plant cell tissue and organ cultures has emerged as important tool when the propagation of tropical woody plants in the reforestation programs is concerned. This technique has been adopted for plants in which the massive propagation has been precluded by low productivity and or low viability of seeds, long-term seed maturation, and limited vegetative propagation. In this regard, *in vitro* somatic embryogenesis has been successfully applied in production of somatic cell and viable embryos, in a morphogenetic process closely related to the natural process of zygotic embryogenesis. The major aim of this project is to investigate major physiological, biochemical and molecular changes during the somatic embryogenesis of *Araucaria angustifolia* and *Ocotea catharinensis*, two economically important woody plants in the Atlantic Rainforest of southern Brazil. The results would pave the way to determine a general biotechnological process required to propagate and to manage important tropical woody plants.

8 Diversity of red macroalgae (Rhodophyta) of São Paulo State, Brazil, based on barcoding, morphology and geographic distribution (RHODO-SP)

PROCESS
2007/51270-7

COORDINATOR
Mariana Cabral de Oliveira

INSTITUTION
Institute of Biosciences /
University of São Paulo (USP)

START: APR 2008
FINISH: MAR 2012

In this project we propose the screening of the red macroalgae (Rhodophyta) biodiversity for the State of São Paulo (Brazil), which includes more than 50% of the diversity known for this group in the country. For that, the barcoding technique will be used, supplemented with morphological and geographic distribution. These data will be integrated to the data from

Biota (1998/04955-3), to generate data, sample and DNA banks. Studies on the biodiversity of marine algae of São Paulo have been carried out since 1950; however, this knowledge is based only on morphological data and only sporadically supplemented with molecular data. The taxonomic identification of red algae is notoriously difficult due to: a relatively simple morphology and anatomy, which are convergent in many species; phenotypic plasticity; and complex life-cycles with heteromorphic stages. The comparisons of DNA sequences have been fundamental for biodiversity studies and for the inference of the relationships among the different groups of organisms. Molecular markers that allow the identification of species have been denominated "barcoding" The barcoding technique generates a great amount of data in relatively short time. These data, organized and available in databanks, can be used for many different types of research, including biodiversity screenings, conservation and the detection of cryptic and exotic species; development of DNA probes for various applications, taxonomy and phylogenetic studies, ecophysiology, forensics, etc. This project is pioneer in the country for algae, and might be used as a model for other similar projects in the country.

Ecology

9 Species and interaction diversity in plants and phytophagous insects

Process
1998/05085-2

Coordinator
Thomas Michael Lewinsohn

Institution
Institute of Biology /
Campinas State University (Unicamp)

Start: May 1999
Finish: Jul 2004

This project proposes to expand the inventory of a model system to allow the development and testing of descriptive and predictive models for the structure of biological diversity and its response to different factors. We intend to investigate components of ecological communities chosen on a functional and structural basis. In this way, it should be feasible to ascertain more directly the relationship of biological diversity to its historical and functional determinants. We also expect to produce effective methods to parameterise biological diversity with regard to environment-altering processes, as a tool to monitor ecological effects of environmental change, to priorize conservation areas, and so forth. The model system for this project are the Compositae (Asteraceae) and their associated phytophagous insects. Based on previous experience, we intend to inventory systematically the host association of different phytophagous groups (especially *Lepidoptera*, *Diptera* and *Coleoptera*) and if possible their parasitoids, with Asteraceae in different habitats and areas with various degrees and kinds of disturbance. We will prioritise Cerrado areas, due to the interest in conservation of Cerrado and extensive pre-existing information. Other areas to be prioritised include highland meadows in mountain ranges (Serra do Mar, Mantiqueira, and Espinhaço) and bogs in various biomes. We will also prioritise invading and ruderal species in agroecosystems and disturbed habitats. Field work will be essentially carried out throughout the State of São Paulo and neighboring states. The objectives of this study include: to investigate the structure of biological diversity in subsets of natural communities composed of plants and their associated phytophagous insects and natural enemies; to develop methods to separate total biological diversity in components of different spatial, temporal and structural scales; to correlate diversity in these systems with that of other taxa or community subunits; to investigate the structure of species interactions in these model systems by applying existing analyses and theory or by developing new approaches; to investigate the contribution of genetical, phylogenetic, chemical and ecological factors in determining species diversity or interaction diversity and its variation on different spatial, structural and time scales; to investigate the response of species diversity, interaction diversity and species composition to various regimes or histories of disturbance or impact.

10 Diversity of zooplankton in relation to the conservation and degradation of the aquatic ecosystems in the State of São Paulo

Process
1998/05091-2

Coordinator
Takako Matsumura Tundisi

Institution
São Carlos International Institute of Ecology Ltd

Start: Mar 1999
Finish: Nov 2003

The project is aimed at the analysis of the zooplanktonic biodiversity and its relationship with the trophic state of the continental aquatic systems in the State of São Paulo. It is intended to establish relationships between diversity, organic pollution and toxic substances. Great emphasis will be given to the study of the taxonomy, biology, physiology and ecology of the principal zooplanktonic groups: Protozoa, Rotifera, Clarocera and Copepoda. Transference of scientific knowledge to the public in general, through involvement of the Project, with the 1st and 2nd grades of the public school network.

11 Lepidoptera of the State of São Paulo: diversity, distribuition resources and use for environmental analysis and monitoring

PROCESS
1998/05101-8

COORDINATOR
Keith Spalding Brown Junior

INSTITUTION
Institute of Biology /
Campinas State University (Unicamp)

START: JAN 2000
FINISH: JUN 2007

Information about the distribution and ecology of many large invertebrate groups is very scarce in São Paulo, especially in the interior where the original vegetation is strongly fragmented. Such information could lead to important theoretical and practical knowledge, essential for the evaluation and conservation of biological diversity and endemic or threatened species, in the remaining natural systems. Inventories of up to 3000 species in nine reasonably well-known families of herbivorous Lepidoptera (silk-moths - Saturniidae, hawk-moths -Sphingidae, tiger-moths - Arctiidae, loopers - Geometridae, and the five families of butterflies)and their environments and resources, will be made in 44 subregions in the state, with the 40 in the interior representing various types and sizes of forest or Cerrado fragments. Each region will be visited and inventoried by observation and standard censuses (collecting only when necessary for identification, or for additional biological or chemical study) and mapped by project teams for 1-3 days twice a year during three years, working together with local naturalists whenever possible. The data-base thus obtained (combined with previous information, most already colleted), as well as identification and monitoring manuals, will be made available to local natural history and conservation groups and persons throughout the state, on the Internet and by other media. New and already existing reference collections will be organized and supported in various parts of São Paulo. Sites or interactions of special importance will be studied and recommended, when necessary, for permanent protection. Optimal indicator groups of *Lepidoptera* will be identified and standardized, so that monitor strained in each region can use them to follow environmental changes.

12 Strengthening of the Biota-FAPESP information system and study of the development of a GIS for the Program

PROCESS
1998/05117-1

COORDINATOR
Carlos Alfredo Joly

INSTITUTION
Institute of Biology /
Campinas State University (Unicamp)

START: JAN 1999
FINISH: AUG 2003

The information system to support Biota-FAPESP aims at contributing towards the conservation and sustainable use of São Paulo's State biodiversity, promoting and facilitating the access of information to the scientific community, government and society in general. The system was launched in July, 1997, as an open, cooperative and integrating network, using the internet as a means of communication and dissemination of information. It was a very important supporting tool for the workshop "Basis for the Conservation of São Paulo's State Biodiversity" held in July, 1997 (http://www.bdt.org.br/bdt/biotasp/workshop/). Biota-FAPESP aims at integrating scientific information per se and with different fields of interest such as legislation, conservation units etc., aiming at both a thematic and geographic approach. It aims at collaborating adn complementing existing initiatives and includes the launching of the *Biota Neotropica* an online publication space for the national and international scientific community. The study of GIS available on the internet requires the establishment of standards and a follow-up of new developments (software, systems) on the net. It will be necessary to relate databases to GIS systems, producing images and maps as an output. Production and distribution of images online and on CDs to both scientific and educational communities is sought as a first step, following the development/ adoption of a web GIS interface.

13 The conservation feasibility of the Cerrado remnants in São Paulo State

PROCESS
1998/05251-0

COORDINATOR
Marisa Dantas Bitencourt

INSTITUTION
Institute of Biosciences /
University of São Paulo (USP)

START: APR 1999
FINISH: SEP 2003

The hight rate of Cerrado disappearance, pointed out in the last *Forest Inventory* in the State of São Paulo, showed the urgency in establishing conservation and restoration means to maintain those remnants. The interdiciplinarity of the teams envolved is the guarantee of success in indicating the Cerrado areas where the ecological and economical conservation is feasible. Taking the advantage of the IF effort and the experience of the teams in Cerrado, this project aim to: a) upgrade the physiognomic classes within those remnants; b) indicate their conservation status and degradation agents; c) indicate how their (per fragment) plant species can be economically feasible; d) evaluate the legal instruments to incentive conservation and disincentive degradation; and e) inform non academic community about those findings. The number of remnants studied will result from a previous spatial analysis hierarchichy, scheduled depending on time and money.

14 Biodiversity conservation in fragmented landscapes at the atlantic plateau of São Paulo (Brazil)

PROCESS
1999/05123-4

COORDINATOR
Jean Paul Walter Metzger

INSTITUTION
Institute of Biosciences /
University of São Paulo (USP)

START: MAR 2000
FINISH: FEB 2005

Habitat fragmentation is presently one of the most serious ecological problems at present. In the tropics, a huge number of species is being lost every day even before becoming known by science. Since fragmented habitats will be the pattern in the future, environmental management actions must be taken to avoid the ruin of biological diversity and all benefits derived of it. This projects intends to study some vital effects of fragmentation in a landscape formed by secondary tropical forest fragments of the Atlantic Rainforest biome (23"35'S,23050'S; and 46°45'W, 47°15'W) and to provide ecological basis for regional management, in order to promote the persistance of the highest number of species in the landscape. In this context, the main objective of this project is to verify what spatial arrangement and which landscape elements are needed to maintain the biological diversity, by: i) describing the history of fragmentation and regeneration of the landscape; ii) relating fragrment size and matrix type to species diversity of some taxonomic groups, including trees, birds and primates; iii) relating the landscape structure with the presence/abundance of forest (meta)populations, according to their sensitivity to fragmentation; iv) investigating the ecological processes which determine the maintenance of (meta)populations, particularly those related with the influence of the surrounding matrix and forest connectivity. These objectives match the requests of the Biota-FAPESP Program. The project design includes eight sub-projects, dealing with the same landscapes and groups of forest fragments, with complementary objectives. We propose an approach that involves a multiple scale analysis, where either the whole landscape and the fragments will be focused on, detailing on the matrix and corridor effects; studies will be carried out at the population and community levels, where a wide range of taxa will be examined (woody plants, primates, birds); umbrella-species and key-processes which may maintain high biodiversity will be the sought. Different theories on landscape ecology will be tested and parameters of the spatial landscape structure and of habitat quality will be integrated to metapopulation models, particularly the incidence function model. To understand the present landscape structure and its history of fragmentation and regeneration, two types of landscapes will be distinguished- one formed by a forest matrix, and another by an agricultural matrix. They will be characterized considering- i)landscape connectivity and heterogeneity, forest fragmentation and isolation (sub-project1); ii) geomorphological and pedological features, and main physical geo-indicators for measuring the magnitude and velocity of key abiotic processes (sub-project 2). Each fragment will be characterized by: i) size; ii) heterogeneity of the forest eco-units; iii)internal environmental quality and heterogeneity of the eco-units; iv) shape and edge effects; v) border comple-

xity; vi) degree of isolation and connectivity, and the potential for (re)colonization; vii) age and history of regeneration, as obtained by the analysis of aerial photographs from 1962, 1973 and 1988 (sub-projects 1 and 3). To relate biodiversity patterns with forest fragment size and matrix type, twelve fragments will be studied in detail, concerning: 1) species composition and diversity of adult trees (sub-project 3); ii) species composition and diversity of tree seedlings and saplings (sub-project 7); iii) the abundance of six bird species (sub-project 6); iv) the biomass and density of primates (sub-project 5). The influence of matrix and corridors on seed flows (sub-project 8), forest regeneration (sub-project 7), movement of selected bird species (sub-project 6) will be analyzed in more detail, dealing with a reduced number of fragments. Fragment size and connectivity will also be related with patch-occupancy patterns of species more and less sensitive to fragmentation, to estimate extinction risks and potentials for species (re)colonization. By working with high- and low-demanding species, we may verify the conditions at which the high demanding species are kept in the landscape, as well as the landscape types which support only low demanding species. Here, 50 to 60 fragments will be considered, from 4-5 ha to 90 ha, being around half of them in the landscape with a forest regeneration matrix, and the others in the landscape with agricultural matrix. Initially, the following organisms will have their patch-occupancy patterns considered- i) six bird species (sub-project 6); ii) one endemic palm-tree species (sub-project 4); iii) several tree species (sub-project 3). The comparison of these two groups of fragments in terms of size, environmental quality (sub-project 3) and spatial attributes (isolation, connectivity, matrix type) (sub-project 1) must indicate the factors which dictate the permanence of a given species in the landscape. Incidence function models will be applied to analyse patch-occupancy patterns and simulate the species occurrence in different scenarios of the landscape evolution. This approach will allow us to identify the best fragment conditions for maintaining the species in the landscape in a long term basis, assuming they behave as metapopulation, providing direct ecological basis for the conservation management of tropical forest fragments. One of the main results of the project proposed will be the generation of a database with spatialized information on the regional physiography, structure and dynamics of the regional flora and landscape, besides publications in specialized journals, diffusion articles, multimidia material, such as CD-Rom and on-line data base, and a guide for the regional woody species, directed to non-specialists, particularly children of public regional schools.

15 Structure and functioning of hydrographic basins of meso- and micro- scale in the State of São Paulo: bases for generating and sustaining biodiversity

PROCESS
1999/05279-4

COORDINATOR
Luiz Antônio Martinelli

INSTITUTION
Center for Nuclear Energy in Agriculture / University of São Paulo (Cena/USP)

START: JAN 2000
FINISH: AUG 2004

The paradigm of this project is that biodiversity in a watershed is generated and preserved by interactions between the physical environment, biogeochemical processes and human actions. Therefore, based on this statement, biodiversity can not be properly addressed without a comprehensive characterization of the structure and functioning of a watershed. The Biota-FAPESP Program open an unique opportunity to closely investigate the effects of landscape attributes and ecosystem biogeochemistry on the biodiversity, since this programe encompass several studies devoted to these topics. In this project we intend to address the biogeochemistry of meso-scale (103 to 104 km^2) and micro-scale (101 to 102 km^2) Watersheds as a subsidiary information to understand the results of ongoing biodiversity studies of the Biota-FAPESP Program. The link between environmental factors and biodiversity will be made: (1) by working in the same basins or sub-basins of the Biota-FAPESP Projects devoted to address aquatic biodiversity and (2) through specific parameters and analysis that link landscape attributes and ecosystem biogeochemistry with those related to biodiversity. At the meso-scale level our specific objective is to determine if chemical and physical attributes of rivers and atmospheric composition respond differentially across a gradient of anthropogenic impacts. The approach in this case will be to compare meso-scale basins with different degrees of human impacts. The specific scientific questions to be answered are: Question 1 - What are the effects of the domestic sewage, industrial effluents and land-use ou carbon, nitrogen and phosphorus distributions in rivers under different degrees of impact? In order to answer Question 1 we intend to compare key parameters of aquatic biogeochemistry among watersheds with different levels of human impact. Question 2 - What are the effects of urbanization, industrial activ-

ities, and land-use on the atmospheric composition in watersheds under different degrees of impact? In order to answer Question 2 we propose to compare the wet and dry deposition in the selected watersheds. At micro-scale we intend to address the biogeochemistry of small watersheds in order to answer the following scientific questions: Question 2: Is biodiversity related with some measurable chemical or biological variable in the water? Question 3: Is biodiversity related with some measurable landscape attribute of the watershed and specifically those of the riparian zone? Our approach to answer these questions is to compare micro-scale watersheds within a gradient of biodiversity.

16 Diversity, dynamic and conservation of trees in forests in the State of São Paulo: studies in permanent plots

PROCESS
1999/09635-0

COORDINATOR
Ricardo Ribeiro Rodrigues

INSTITUTION
Luiz de Queiroz College of Agriculture / University of São Paulo (Esalq/USP)

START: OCT 2001
FINISH: MAY 2007

The project *Diversity, dynamics and conservation in São Paulo State Forests: 40ha of permanent parcels* will be carried out in four Conservation Units (P.E. Ilha do Cardoso, E.E. de Carlos Botelho, E.E. de Caitetus, E.E. de Assis), representing the four main forest formations of São Paulo State (Restinga Forest, Slope Atlantic Rainforest, Semideciduous Seasonal Forest and Cerradão). 256 permanent sub-parcels of 400m^2 will be placed in each area, in a major parcel of 320x320m, totalizing 10.24ha of represented area in each area and 40.96ha at the four areas. The major parcel in each area will be placed using images produced by multiespectral videography. In each subparcel all specimens with PAP bigger or equal to 15cm will be sampled, georeferenced and identified. In each represented area soil (three dephts in each parcel) and topography (1:500 scale) will be characterized in detail; a continued characterization (4 years) of weather, ground water and light will be carried out, considering all units of the forest mosaic, and also a characterization of the microbian soil fauna, through the 16S rDNA profile produced by DGGE method. A characterization of the species occurring in each area (in various forms of life) will be carried out, and illustrated guides for field recognition of each forest species sampled will be elaborated. The structure will be characterized with two phytossociological, physionomic and sylvigenic surveys, with intervals of 3 years between them and the spatial distribution will be estimated through K function. Literature models of generation and maintenance of biodiversity and forest dynamics will be tested for the community and species and compared between the areas. The vegetational data will be correlated with physical data of each area, between areas, in order to understand the difference between the vegetational types and adequate practices of management and conservation. The data will be also compared with those generated in permanent parcels for typically tropical formations.

17 Ethnoecology of the sea and of the land on the São Paulo coast of the Atlantic Rainforest: fishing areas and use of natural resources

PROCESS
2001/05263-2

COORDINATOR
Alpina Begossi

INSTITUTION
Nucleus for Environmental Study and Research / Campinas State University (Nepam/Unicamp)

START: MAR 2003
FINISH: FEB 2007

The general objective of this study is to continue the survey on the use of natural resources by the inhabitants of coastal areas of São Paulo Atlantic Rainforest, in particular by caiçara artisanal fishers. We intend to continue mapping de areas used for artisanal fishing, and the analyses of the vegetation and fish catch used, such as for consumption and medicine. We also intend to include ethnoecological studies, focusing on the local knowledge concerning fish habitat, feeding behavior and nomenclature. We choose three representative areas of the Sao Paulo coast, areas that are important regarding the management and conservation of the natural resources, as well as complementary areas in relation to previous research projects: the region close to Bertioga (south), Ilhabela (center), and Ubatuba (Picinguaba-Puruba-north). Therefore, these three patches or spots will be case studies looking for general patterns of interaction caiçaras-natural resources for the São Paulo coast. Expected results include, besides publi-

cations in scientific journals, two books: one about ethnoichthyology and the other about ethnobotany of São Paulo coast.

18 Atlantic Ombrophylus Dense Forest: floristic composition, structure and functioning within the Serra do Mar State Park

PROCESS
2003/12595-7

COORDINATOR
Carlos Alfredo Joly

INSTITUTION
Institute of Biology /
Campinas State University (Unicamp)

START: JUN 2005
FINISH: MAY 2009

Structure and floristic composition will be determined in the following Atlantic Rainforest types: Low Land Ombrophylus Dense Forest (5 to 50 m above sea level), Submontana Ombrophylus Dense Forest (50 to 500 m above sea level), and Montana Ombrophylus Dense Forest (500 to 1.200 m above sea level). All trees with a DBH? 4,8 cm that fall inside 14 1ha permanent plots, divided into a grid of 10 x 10 meter parcels, will be considered. The 14 permanent plots will be established along the altitudinal gradient, 4 independent plots in each forest type plus 1 plot of Restinga Forest (sand dunes type of forest) and 1 extra plot of Low Altitude Ombrophylus Dense Forest. In the case of botanical families with relevant ecological roles, such as the Leguminosae in the nitrogen cycle, or Bromeliaceae, Melastomataceae, Rubiaceae, Solanaceae, Moraceae and Piperaceae responsible for the maintenance of key populations of pollinators and dispersors, a comprehensive floristic survey will include herbaceous, lianas and epiphytes. Data analysis will be conducted using the FITOPAC computer program. Where appropriate, more detailed analyses will be conducted using multivariate methods such as Canonical Correlation, Correspondence Analysis, PCA and PCO. The database on composition and structure of the forest will allow a choice of species for more detailed studies on reproduction biology; seed anatomy and reserves; germination; photosynthesis and water use efficiency; nitrogen assimilation, transport and metabolism; plant populations structure and dynamics; techniques; genetic structure of plant populations using molecular markers; determination of forest age by DBH classes and using 14C; determination of annual average growth rates of key species; and phenology. Multivariate analyses will be used to check for functional groups, or groups of species that share a common behavior and ecology. The comparison of different groups along the altitudinal gradient will allow investigation of the effect of altitude in the functioning of these groups. Simultaneously, the inputs of nitrogen through precipitation, biological fixation, and soil mineralization and nitrification will be determined, along with key parameters of N losses through denitrification and export by streams, allowing a preliminary nitrogen mass balance along the altitudinal gradient. Water and carbon balance of the forest will be estimated along with the seasonal variation of this balance through use of micrometeorological towers and Eddy-covariance technique. The photosynthesis/respiration balance of the ecosystem will be used to determine the role of the forest as a sink or source of carbon to the atmosphere. Our final goal is to integrate the results of all activities listed above, scaling-up from individual trees, to families, to functional groups, and finally to phytophysiognomies, allowing us to understand forest structure and functioning. The outcomes of this project will allow, for the first time, a full comparison between the Atlantic ODF and the Amazon ODF, and will enhance our capability in understanding how this biome will respond to future climatic changes.

19 Biodiversity and sustainable use of pollinators, with emphasis on Meliponini bees

PROCESS
2004/15801-0

COORDINATOR
Vera Lúcia Imperatriz Fonseca

INSTITUTION
Center for Technology / Campinas State University (Unicamp)

START: MAY 2006
FINISH: APR 2009

The Convention of Biological Diversity and Millennium Institute consider environmental services provided by pollinators, among then the bees, as a priority research for XXI century. To keep the conservation and sustainable use of pollinators means to ensure food security, sustainable agriculture and wild plant conservation. This project has 4 components: 1. evaluation of the status of the interactions among bees and plants; 2. the dynamic of population of native bees, evaluated with molecular tools;

3. problems that limit the use of bees in agriculture; 4. information technology tools for research and extension in ecosystem services with emphasis on bees as pollinators. Improving the knowledge basis on bees focuses reproductive aspects (individual and colonial), swarming, nest foundations, colony growth, protein diets for colony feeding, sex allocation, monitoring flight activity and bees on flowers. Traps nests will be used to study solitary bee diversity in habitat fragments. Nogueira-Neto meliponaries in São Simão (SP), Luisiania (Goiás) and Xapuri (Acre) will be intensively studied, as well as stingless bees nests found on the university campuses in São Paulo and Ribeirão Preto will be used, as control. A field station will be established in Mossoró (Rio Grande do Norte), where colony absconding is very frequent (30% to 50% of colonies in apiaries). A new program for beekeeping development was established at this location, monitoring absconding and correlated environmental conditions. Artifical diets and foraging behavior will also be studied, including efficiency on some crops, including sunflower and melon. This research will also include a study of Aficanized bee biology and dynamics, using morphometrics to help understand ther migratory behavior. Amongst the social bees, stingless bees (Meliponini) are very representative int ropical areas and could be used as crop pollinators, as well as for wild flower pollination.

Genetics

20 Monitoring and enlargement of the germplasm bank of medicinal plants of the Cerrado

Process
1999/10610-1

Coordinator
Ana Maria Soares Pereira

Institution
Center for Natural and Technological Exact Sciences / University of Ribeirão Preto (Unaerp)

Start: Feb 2001
Finish: Apr 2007

Species from the Bignoneaceae family were selected as target for this proposal due to their economical use as source of bioactive molecules, also because they are under the risk of extinction. The aim of this work is to establish an *in vitro* germoplasm bank of the remaining accesses of *Zeyheria montana*, *Anemopaegma arvense* and *Jacaranda decurrens*, native to five regions in São Paulo state. Studies on viability and preservation of seeds will be performed and concurrently monitoring of genetic material through RAPD and AFLP molecular markers will provide relevant information about genetic variability thus helping in the choice of individuals to characterize the diversity of the germoplasm bank. Besides, analysis of chemical markers (active compounds) of the three target species will be conduct in parallel in order to identify the different chemotypes and to find correlation between geographic location, genetic variability and yield in bioactive substances of each species. The final purpose is the *in vitro* preservation of individuals which represent the existent variability and chemotypes of each site of origino Overall results will permit the conception of a model for further studies on preservation of medicinal species of the Cerrado.

Geosciences

21 Biosphere-atmosphere interaction (phase 2): Cerrado and land use changes

Process
2002/09289-9

Coordinator
Humberto Ribeiro da Rocha

Institution
Institute of Astronomy, Geophysics and Atmospheric Sciences / University of São Paulo (USP)

Start: Sep 2004
Finish: Aug 2008

The Brazillian savanna (Cerrado) is the primitive bioma covering from the Southeast Brasil to Southeast borders of Amazonia, and its area has reduced to 20%, being concerned as one of the most threathened ecosystems worldwide. Whereas the Southeast Brasil was deforested in the 19th century, its current land use as agrosystems has little knowledge in terms of sustainability. As well, in Amazonia, escalating soybean production and logging occurs by several means due to increasing deforestation, thus threathening the savanna wetlands near Ilha do Bananal (the world largest fluvial island), a zone of abundant life and water resources. This project proposes to quantify the long term dynamics of water, energy and CO_2 fluxes over dry Cerrado (in Southeast Brasil) and seasonally flooded Cerrado (ecotones) in Bananal Island, and over the agrosystems Sugarcane and Eucaliptus. The main issues to be adressed are to characterize and compare the ecophysiological functionality, dependency of

climate and water availability; patterns of CO_2 sink and sources of the ecosystems. It will investigate the impact of land use changes on the hydrological and carbon cycle on the catchment (observationally) and regional (numerical models) scales. Ecological investigation will be pursued in paralell, namely those of studying the carbon exchanges and pathways on the water, C & N cycling using isotope studies. Physical-climate investigations will study the large scale climate variability and its influence on the surface fluxes (and v.v.). This proposal encompasses researchers and objectives of three different programs: (i) the Biota-FAPESP Program, (ii) the Large Scale Biosphere-Atmosphere Interaction Experiment in Amazonia (LBA) and (iii) the La Plata River Basin Experiment (PLATEX/GEWEX).

Microbiology

22 Molecular ecology and polyphasic taxonomy of bacteria of environmental and agroindustrial importance

Process
1998/05068-0

Coordinator
Gilson Paulo Manfio

Institution
Chemical, Biological and Agricultural Pluridisciplinary Research Center (CPQBA) / Campinas State University (Unicamp)

Start: Oct 1999
Finish: Mar 2004

A limited number of research groups in the State of São Paulo (and Brazil as a whole) carry out applied microbiology research focused on the taxonomic characterization and technological exploration of the indigenous microbial diversity. Some of these include bioremediation of organochloride-polluted areas, biodigestion of recalcitrant compounds in industrial effluents, biological nitrogen fixation in non-leguminous agricultural crops and systematic studies of phytopathogenic bacteria of agricultural interest and bacterial contaminants of food processing industry. Taxonomic expertise and infra-structure for developing molecular taxonomic work were identified as key factors hampering the adequate development of most of these studies. Limiting factors ranged from phenotypic and chemotaxonomic characterization of organisms, to molecular typing of strains and phylogenetic analysis. Taxonomy is essential for the identification of the main components of the microbiota associated to biological processes and provides relevant information on the phenotypic and genomic diversity of the organisms. Isolated organisms for future study, whenever possible, need to be made available to the scientific community through deposit of strains in culture collections. In addition to focussing on the study of bacterial diversity for potential applications, an important element of this proposal is the establishment of a thematic network in the State of São Paulo for the development of polyphasic taxonomy and microbial molecular systematics. Several methodologies relevant to the development of the studies described below will be implemented in the project, including: 16S rDNA sequence analysis: for the phylogenetic placement and identification of uncultured organisms and novel bacteria; DNA-DNA homology: for assessing the heterogeneity of complex taxonomic groups and adequate description of novel organisms at the species level; chemotaxonomy: for the allocation of organisms at genus and species level by the analysis of cellular components and taxonomic description of novel genera and species; molecular typing methods, including RAPD, RFLP of 16S rDNA and spacer regions, REP, ERIC- and BOX-PCR, DGGE and PAGE: for assessing the diversity of organisms at the genome level and determining genome diversity of cultured and non-cultured organisms; molecular probes: for the detection and functional analysis of microorganisms in the environment, targeting at family, genus and/or species level or at functional genes (e.g., nitrogen-fixing genes, biodegradation pathways of organochlorides, pathogenicity genes).

23 Diversity of endophytic microorganisms and their biotechnical potential

Process
1999/09177-1

Coordinator
Itamar Soares de Melo

Institution
Brazilian Agricultural Research Corporation (Embrapa)

Start: Jan 2001
Finish: May 2005

Endophytic bacteria and fungi are defined as organisms that live in association with plants for most if not all of their life cycles. They live within the intercellular spaces and may confer benefits to the plant, and the benefits may be reciprocal, resulting in

an enhanced symbiotic system for specific plant characteristics. Therefore, the use of endophytic bacteria and fungi opens up new areas of biothechnological exploitations, which drive the necessity to isolate and culture these organisms. The biochemical versatility and diversity of endophytes represent an enornous variety of genes that are still unknown. More and more useful gene functions are being discovered, particularly for environmental remediation and industrial processes. This project pruposses to study the biological diversity of endophytic microorganisms from important plant species growing in São Paulo State, such as: maize, soybeans, citros, coffee, cassava, *Brachiaria* and *Dicksonia* (xaxim); to study the molecular diversity (molecular systematics); to determine the chemical diversity, mainly of secondary metabolites-antibiotics; to assess the potential of endophytes in the biological control of most important pathogens of the host plants. Also, it is objective of this project to study best methods of preserving representative general and specific groups.

24 Biodiversity and functional activities of microorganisms from mangrove of São Paulo State

PROCESS
2004/13910-6

COORDINATOR
Itamar Soares de Melo

INSTITUTION
Brazilian Agricultural Research Corporation (Embrapa)

START: MAY 2006
FINISH: APR 2010

Mangrove communities are recognized as highly productive ecosystems that provide large quantities of organic matter to adjacent coastal waters in the form of detritus. The detritus serves as a nutrient source and is the base of an extensive food web in which organisms of commercial importance take part. The collective term mangrove designates an interdital wetland ecosystem formed by a very special association of plants and animals, fungi, bacteria, microalgae, invertebrates etc, which proliferate luxuriantly in the coastal areas and rivers estuaries. Mangrove ecosystems cover roughly 60 - 75% of the world's tropical and subtropical coastlines. Brazil, Indonesia, and Australia have the greatest abundance of mangrove. These wetland ecosystems are among the most productive and diverse in the world and more than 80% of marine catches are directly or indirectly dependent on mangrove and other coastal ecosystems worldwide. There is evidence to propose a close microbe-nutrient-plant relationship that functions as a mechanism to recycle and conserve nutrients in the mangrove ecosystem. Although mangrove ecosystems are rich in organic matter, in general they are nutrient-deficient, especially of nitrogen and phosphorus. In spite of this, mangroves are highly productive. This paradox may be explained by a very efficient nutrient recycling system in which scarce essential nutrients are retained and new nutrients are regenerated from decomposing mangrove leaves. Microbial activity is responsible for major nutrient transformations within a mangrove ecosystem. In tropical mangroves, bacteria and fungi constitute 91% of the total microbial biomas, whereas algae and protozoa represent only 7% and 2%. Despite numerous studies on biogeography, botany, zoology and economic impact, little is known about the biodiversity and activities of microbes in mangrove waters, sediments and rhizosphere. Microorganisms from mangroves open up new areas of biotechnological exploitations, which drive the necessity to isolate and culture these organisms. The biochemical versatility and diversity of rare microorganisms represent an enormous variety of genes that are still unknown. More and more useful gene functions are being discovered, particularly for environmental remediation and industrial processes. Thus, this project proposes: to study the biological diversity of microorganisms from sediments, rhizosphere and endophytes of red mangrove (considering both number of species and the partition of abundance), especially, cyanobacteria, bacteria, fungi, actinomycetes and archaeobacteria; to study the molecular diversity present within a specie or genus based in comparative sequencing of 165 rDNA; ARDRA and BOX-PCR; to study the general biodiversity including non-culturable bacteria, by PCR-DGGE; to determine the chemical diversity, mainly secondary metabolites; to study the main functional groups of bacteria involved in nitrogen fixation and phosphate solubilization; to assess the potential of rhizobacteria in biological control of plant diseases in hydroponic systems. Also, it is objective of this project to study the best methods of preserving representative genera and specific groups and to organize a culture collection of all identified microorganisms isolated from mangroves. Our objective is to make this collection available for distribution and utilization.

Chemistry

25 Conservation and sustainable use of the plant biodiversity from the Cerrado and the Atlantic Rainforest: chemical diversity and prospecting for potential drugs

Process
1998/05074-0

Coordinator
Vanderlan da Silva Bolzani

Institution
Araraquara Institute of Chemistry /
São Paulo State University (Unesp)

Start: Dec 1998
Finish: Nov 2004

The main goal of this project is to search for bioactive compounds from plants species occurring in the São Paulo State, specially in the remanescent Cerrado and Atlantic Rainforest. The screening of plant extracts by means of bioassays designed to detect potential anticancer, antioxidant, antifungal and antimalarial compounds will establish a model for further investments in this field in order to preserve, to study and to exploit rationally the remaining flora of São Paulo State. For some species selected in the screening, cell and tissue cultures will be developed to allow preservation of its germplasm as a reliable source of renewable materials. Undifferentiated tissues will also be used as an alternative source of compounds and for biosynthesis and regulation studies of major secondary metabolites.

26 Sustainable use of the Brazilian biodiversity: chemical and pharmacological prospection on higher plants

Process
2002/05503-6

Coordinator
Wagner Vilegas

Institution
Araraquara Institute of Chemistry /
São Paulo State University (Unesp)

Start: Aug 2003
Finish: Jul 2008

The apparent incompatibility between chemical and pharmacological investigation of a plant species can be solved with the strong determination of dealing rationally with the problem. The research groups on Natural Products Chemistry from the IQ-Araraquara-Unesp, on Pharmacology, from IB-Unicamp and IB-Botucatu-Unesp and on Biological Sciences, from FCF-Araraquara-Unesp have started a collaboration 2 years ago, and have already produced a significative amount of work, with relevant results on the investigation of plant species with anti-ulcer, anti-oxidant, analgesic, anti-inflammatory and anti-microbial activities. These results arose from an approach that includes ethnobotanical and ethno-pharmacological research, pharmacological, micro-biological and mutagenicity assays with crude extracts or infusions, chemical screening to determine new chemical classes of compounds, isolation and structural determination of compounds and use the compounds or enriched fractions to determine the possible pharmacological mechanisms of the action involved with the detected properties. This project deals with the continuation of the integrated chemical and pharmacological investigation of plant extracts, this time investigating species that composes the bioma Cerrado of the State São Paulo, comparatively to the Bioma Cerrado of the State of Tocantins, which it is also under our investigation. To perform the phytochemical step we intend to use the usual chromatographic techniques, mainly those for the analysis of polar substances (GPC, XAD2, DCCC, HSCC, HPLC, etc) , and to determine the structure of the isolated compounds through spectrometric methods (NMR, IR, UV, and MS). To evaluate the biological activities, the possibility of toxicicity and genotoxicity effects of each species will be determined. Simultaneously, we will evaluate the activity of the extracts and pure substances (or enriched fractions) against different experimental models of peptic ulcer disease which operate by distinct mechanism of ulcerogenesis in man. The analgesic and antiinflammatory activities will be examined by using of chemical and thermal pain models and the classic inflammatory assays in rats or in mice. Through these models, we will quickly evaluate the presence or absence of these activities. The antimicrobial activity will be assayed against Gram positive and Gram negative bacteria, and also on the etiological agent of tuberculosis, *M. tuberculosis*. The determination of the antiulcerogenic mechanisms will be investigated through the effect of the isolated substances (or enriched fractions) on specific receptors, enzymes and substances produced in response to the gastric lesion, such as the expression of the new epidermic growing factor. Simultaneously, the antioxidant activity of extracts/substances will also be evaluated, mainly those related to the possible mechanisms of the antiulcerogenic activity. Furthermore, assays for the detection of mucus, prostaglandins, somatosta-

tin, gastrin and others involved with mechanisms of gastric secretion will also be evaluated. Assays against *Helycobacter pylori*, the most important bacterial pathogen of humans involved in the pathogenesis of peptic ulcer disease will also be performed. Finally, assays to detect the production of NO, H_2O_2 and TNF will be performed with extracts, substances and enriched fractions to evaluate their potential immunostimulating activity.

27 Conservation and sustainable use of the diversity from Cerrado and Atlantic Rainforest: chemical diversity and prospecting for potential drugs – phase II

PROCESS
2003/02176-7

COORDINATOR
Vanderlan da Silva Bolzani

INSTITUTION
Araraquara Institute of Chemistry /
São Paulo State University (Unesp)

START: NOV 2004
FINISH: AUG 2009

The main goal of this project is to search lead molecules from plant species and endophytic fungi occurring in the State of São Paulo, especially in the Cerrado and Atlantic Rainforest. The project was conceived to identify antioxidant, anti-inflammatory, antifungal, anticancer, antimalarial and acetylcholinesterase inhibition lead compounds from plant species of these biomes. With a strong multidisciplinary relationship, this is the second phase of the bioprospecting program, initiated four years ago, when Biota-FAPESP was created as a permanent FAPESP's Program. Besides the main goals on drug discovery, biodiversity conservation, and sustainable economic growth, this project also is supported on advanced natural product chemistry knowledge such as: to evaluate, correlate and develop chemical methodologies to study intra- and inter-specific variability in some selected bioactive species; to develop micropropagation and cell cultures of rare plants producing active compounds; to study biosynthetic pathways and particularly determine the activity of phenyltransferases, terpene cyclases and cytochrome P-450 oxido-reductases, for kinetic studies and further proteomic and functional analysis. This should lead to the cloning of genes that eventually can be used for recombinatorial biosynthesis of heterolgous overexpression in other plants; to conduct studies on structure activity relationships (SAR) of some lead compounds previously identified; to sustain and maintain the virtual database (datamine) already initiated in phase I.

28 Search for potential antitumoral, antioxidant, antiinflammatory, antidiabetic, acetylcholInesterase and mieloperoxidase inhibitory natural compounds from Cerrado and Atlantic Rainforest

PROCESS
2004/07932-7

COORDINATOR
Dulce Helena Siqueira Silva

INSTITUTION
Araraquara Institute of Chemistry /
São Paulo State University (Unesp)

START: MAR 2005
FINISH: FEB 2009

The changing strategies for preservation and sustainable use of biodiversity in Brazil in the past few years evidences the intrinsic value of this enormous biological resource of potentially new bioactive compounds, and represents one of the greatest challenges nowadays facing the accelerated process of devastation of several Brazilian biomes. The systematic bioactivity evaluation of crude extracts and pure compounds from São Paulo State biota associated with additional information on chromatographic profile, spectrometric data and/or biological activity shall result in value-added material, which will be available for further studies. These might converge to hits or lead compounds to pharmaceutical, agroceutical, nutraceutical, cosmetics industry, which is expected to bring great contribution for conservation and sustainable economic development from the biodiversity of São Paulo State.

29 Native and cultivated passifloras in Brazil. Pharmacognostic, phytochemical and pharmacological evaluations concerning popular uses and development of local phytomedicines

PROCESS
2004/07933-3

COORDINATOR
Massayoshi Yoshida

INSTITUTION
Institute of Chemistry /
University of São Paulo (USP)

START: DEC 2004
FINISH: NOV 2008

The rational and scientific use of medicinal plants from the Brazilian rainforest is currently considered an important scientific and therapeutical alternative, mainly by the great pharmaceutical industries. The genus Passiflora, Passifloraceae, commonly used by the folks in tropical and subtropical regions has already been proven to have potential therapeutical activities. The species *Passiflora incarnata* has been used in many countries as anxiolytic, sedative and antispasmodic in Brazil. Many phytotherapics (medicines) with *Passiflora* extracts can be found in the market. However, as no therapeutical activity could yet be suitably proven, there are no scientific data of its efficacy. The present work aims at isolating and biomonitoring the active substances of the extracts of the species. Eventualy the species with proven pharmacological activity will be characterized considering their macroscopic aspects, and the contents of their bioactive substances will also be determined.

30 Bioprospection in fungi: the search of lead compounds for drug design and enzymes for pharmaceutical and industrial applications

PROCESS
2004/07935-6

COORDINATOR
Jairo Kenupp Bastos

INSTITUTION
Ribeirão Preto School of Pharmaceutical Sciences / University of São Paulo (USP)

START: DEC 2004
FINISH: NOV 2008

Fungi have been less explored than plants in bioprospecting programs, especially the endophytes, which remain a promising and practically unexplored source of interesting bioactive natural products. One of the major advantages of working with microorganisms in a natural products discovery program is the possibility to screen a vast number of cultures on a small scale, before identifying the microorganisms, while retaining a high probability of success in reproducing both the activity and the metabolite production on a large-scale fermentation. Another advantage is that manipulations in culture conditions may lead to a wider range of compounds produced by fungi than it would be available from traditional production of extracts from plants. In this project we propose to exploit the chemical and biological potential of endophytic and soil fungi collected in São Paulo State in three approaches: i) obtainment of crude extracts from microbial cultures to be evaluated in antimicrobial assays performed in our labs and other bioassays provided by the network. The most promising extracts will be fractionated, aiming to obtain new leads for drug development; ii) obtainment of products from biotransformation reactions of bioactive natural products previously isolated in our labs (grandisin, budlein A and tagitinin C) and evaluation of their biological activities in bioassays of the network, and iii) production of enzymes, which might be useful in industrial processes (xylanase, glucose oxidase, phytase, amylase, acid and alkaline phosphatases) and as new pharmaceuticals (L-asparaginase). The proposed antimicrobial screening, as the first one, may be an indication of a wider range of bioactivity, which shall be detected by the other assays available in the network.

31 Bioprospection of the Brazilian arthropods fauna searching for leader drugs for rational development of novel pharmaceuticals and pesticides

PROCESS
2006/57122-7

COORDINATOR
Mário Sérgio Palma

INSTITUTION
Rio Claro Institute of Biosciences /
São Paulo State University (Unesp)

START: DEC 2007
FINISH: NOV 2011

Many modern medicines currently prescribed were initially discovered in the nature. Despite the progresses in chemistry and in the development of sophisticated instruments used in the combinatorial synthesis of novel compounds, the scientists are still using the nature as source of inspiration for the development of novel drugs. A substantial fraction of medicines under therapeutical use nowadays was directly or indirectly derived from bioactive natural compounds from plants and microorganisms. Recently, the low molecular masses compounds

from animal origin have been subject of interest of pharmaceutical and agrichemical companies. The Arthropods are considered a source of potentially important of novel molecules, which offer notable properties such as: high efficiency, low probability of development of microbial resistance, limited toxicity and low immunogenicity to humans. Some Arthropods produce toxins which may present unique actions in nervous systems and could become useful tools in neurobiology investigations; the knowledge about mechanisms of action of these toxins certainly will open new perspectives in the therapeutic area and in the development of specific bioinsecticides. In addition to the defensive used of low molecular masses compounds, the spider also use these toxins to paralyze and/or to kill their preys, affecting the synaptic transmissions and blocking directly ion channels and/or their associated receptors. Polycationic peptides constitute important toxins in the toxic secretions of from the social *Hymenoptera*, presenting antibiotic, anti-inflammatory, antihypertensive and even analgesic effects, representing interesting model of compounds for the development of novel drugs for therapeutical uses. In order to bioprospect such types of compounds in the Arthropod fauna from São Paulo State, the main objectives of the present project are: To identify the most abundant low molecular masses compounds from the toxic secretions of spiders and social *Hymenoptera* presenting neuroactive actions; to elucidate their molecular structures, to synthesize and to submit them to pharmacological and physiological bioassay screenings. As auxiliary tool in this type of investigation we intend to implement a platform of metabolome analysis; Also the polycationic peptides will be investigated; their primary sequences will be determined, their secondary structure will be studied and their tridimensional structure will be assigned; for some of these components their target-receptors will identified. The elucidation of chemical structures in general will be performed by using a series of spectroscopic techniques, such as: MS, MS/MS, HRMS, 1H- and 13C-RMN, FT-IR, C, X-Ray, among other techniques. In the case of peptides Degradative Chemistry of Edman also will be used to sequence them. When necessary the elucidated chemical structures will be synthesized and used for functional characterization. The biological characterization of the neuroactive compounds, will include the classical neuropharmacology approach, immunohistochemistry and electrophysiology methods. The investigation of the mechanism of action of the polycationic peptides will focus traditional protocols of pharmacology for pain, analgesy and inflammation; the investigation of the antibiotic action of these peptides will consider strategies for the investigations of their interaction with membrane-mimetic systems, spectrofluorimetry, fluorescence microscopy techniques, mass spectrometry associated to HID exchange, molecular modeling of peptides and molecular dynamics. From the point of view of human resources this project also will deal with the high qualification of young researchers in: structural elucidations of low molecular masses compounds and peptides through the use of spectroscopic approaches, organic synthesis and setting-up of pharmacological physiological bioassay screening protocols. The promising compounds, presenting some specific potential application at level of therapeutic use, which may be used as models for future drug development, will be submitted to a an intensive investigation about structure/activity relationship for a future rational development of novel drugs.

Forest Resources and Forest Engineering

32 Inventory methods of the biodiversity of tree species

Process
1999/08515-0

Coordinator
Hilton Thadeu Zarate do Couto

Institution
Luiz de Queiroz College of Agriculture / University of São Paulo (Esalq/USP)

Start: Jan 2001
Finish: Mar 2006

This proposal has the objective of studying sampling methods for inventorying arboreal species in three biomas in the State of São Paulo, Brazil: Dense Humid Forest, Semi Decidous Forest and Cerrado (Arboreal Savana). Each selected area will be analysed through the imagery of Landsat 7 or CBERS satellite, multispectral videography (blue, red and near infrared bands) and field survey. It will be evaluated the possibility of using the products of the remote sensing for mapping and stratification of the vegetation, in order to support field work. It will be studied in two different seasons: dry and wet. Three sampling methods will be compared for each type and stratum. simple random sampling, systematic sampling and cluster sampling. Also, it will be studied 4 methods of data collection in the field: fixed area plot, point sampling, quarter point, and crown intercept sampling. The efficiency of the methods will be compared. The biodiversity will be evaluated in the different scales of the surveys using indexes

for measuring heterogeneity, richness and eveness. Besides of botanical identification of the trees, the 10 most abundant species will be caracterized through the study of phytochemical products in order to establish connection among the three biomas.

Zoology

33 Fish diversity of the headwaters and streams of the upper Paraná river system in State of São Paulo, Brazil

Process
1998/05072-8

Coordinator
Ricardo Macedo Corrêa e Castro

Institution
Ribeirão Preto School of Philosophy, Arts and Sciences / University of São Paulo (USP)

Start: Dec 1998
Finish: Jun 2003

The so called upper Paraná River system includes the whole Paraná River drainage basin upriver from the former Sete Quedas falls (now drowned by the Itaipú Reservoir) and encompass large sized tributaries like the Rivers Grande, Paranaíba, Tietê and Paranapanema. Geographically, the drainage basin approximately 900.000 km^2 include the north of Paraná State, the south of Mato Grosso do Sul, the majority of São Paulo State (west of the Serra do Mar), the south of Minas Gerais, the south of Goiás and a small area of eastern Paraguay adjacent to Mato Grosso do Sul. In the São Paulo State, according to our estimates, the upper Paraná system contains 22 families and approximately 170 described fish species, including the largest rivers of the State. These large rivers main channels are inhabited by medium to large size fish species. Associated to these large rivers there is a huge number of streams and headwaters, inhabited primarily by small size fish species, with restrict geographical distributions, with a small or inexistent commercial value and greatly dependent of the riparian vegetation for food, shelter and reproduction. Small size fish species like those are approximately 50% of the described freshwater fish species of South America and shown a high degree of geographical endemism. The study of the small freshwater fish species systematics, evolution and general biology is, without doubt, the great challenge and main frontier of the south American ichthyology in the end of this century. Unfortunately, these fish species are also the most threatened by harmful human activities like deforesting and extensive use of fertilizers and pesticides associated of intensive agricultural activities, since as a whole, they are heavily dependent on the allochthonous organic matter imported from the riparian vegetation to survive. Inside the São Paulo section of the upper Paraná system, our estimates indicate that the Pontal do Paranapanema, Alto Paranapanema, Peixe, Aguapeí, Baixo Tietê and São José dos Dourados drainage basins (as defined in the Biota-FAPESP synthesis map – *Mapa Síntese do Estado de São Paulo*) are poorly sampled for fishes. The Médio Paranapanema, Turvo-Grande, Baixo Pardo-Grande, Sapucaí-Grande and Piracicaba-Capivari-Jundiaí drainage basins are moderately sampled and only the Tietê-Sorocaba, Tietê-Jacareí, Tietê-Batalha, Mogi-Guaçú and Pardo drainage basins are reasonably well sampled for fishes. That means that of the 16 drainage basins composing the São Paulo upper Paraná system portion, in terms of ichthyofauna, six are poorly sampled, five are moderately sampled and five are well sampled, meaning that about 70% of the São Paulo upper Paraná drainage basins are not satisfactorily explored for fishes in scientific terms. Thus, the main objective of this Thematic Project is the study of the headwaters and streams ichthyofaunas of the São Paulo portion of the upper Paraná River basin, through the application of an standardized methodology – application of a fish toxicant (rotenone), together with collectors equipped with dip nets and a block net – to 108 geographically separate field collection localities, sampled during 18 field trips distributed along the project first three years, capable to obtain the following information about each one of them: 1) precise geographical location; 2) taxonomic composition of the ichthyofauna and contribution, as number of individuals and biomass, of each species to whole fish community; 3) body size range of the individuals of each collected species; 4) main diet components of the four numerically dominant collected species, found through the analyses of the stomach contents of a fraction of the individuals; 5) photographic documentation of selected specimens of each collected species with their live coloration; 6) a description of each collected environment, with photographic colored illustrations and its main biotic and abiotic parameters (physiography; climate- physical dimensions; vegetation and bottom type and structure- temperature; current velocity- pH; dissolved oxygen; alkalinity and hardness); 7) representative collections (tissue samples for nucleic acid extration) that, together with the field data, allow the comparative analyses among the State different regions, aiming to perform a quick diagnostic of their degree of conservation

and to recommend study and conservation priorities for each one of them- and also to be able to evaluated the success of the recommended conservation measures in the future.

34 Survey and biology São Paulo State of benthic freshwater insects and oligochaetes

PROCESS
1998/05073-4

COORDINATOR
Cláudio Gilberto Froehlich

INSTITUTION
Ribeirão Preto School of Philosophy, Arts and Sciences / University of São Paulo (USP)

START: MAY 1999
FINISH: MAY 2003

The present project aims at carrying on the faunistic survey of two groups of benthic freshwater macroinvertebrates, insects and oligochates, with emphasis on lotic systems. The previous project included also crustaceans and molluscs; for both a survey was made in the main hydrographic basins os the State. The area sampled for insects was smaller due to the much poorer knowledge of their taxonomy. The emphasis was on protected areas in Serra do Mar and Serra da Mantiqueira in order to have a better knowledge of local faunas, ecological aspects included. The survey of oligochaetes also was restricted, as the group was included into the project in the beginning of its third year. For the present project the area to be sampled is enlarged, with three new areas in the State, the State Parks of Vassununga, Furnas do Bom Jesus and Caetetus. Two areas from the first project, The State Parks of Intervales and Campos do Jordão, are maintained because there are still ongoing research projects there. Samplings in the neighbourhood of the principal researchers' institutions (Araraquara, São Carlos and Ribeirão Preto) will also be continued. At the end of the second year of the project, the inclusion of new areas will be considered. The project comprises three subprojects, to be carried on in an integraded manner, optimizing resources and field activities: Freshwater Diptera (Chironomidae, Simuliidae), Ephemeroptera, Plecoptera, Trichoptera (EPT), and Oligochaeta. Other aquatic insects will also be collected. A significant part of the material will be deposited in the Museum of Zoology of the University of São Paulo.

35 Systematics evolution and conservation of eastern Brazilian mammals

PROCESS
1998/05075-7

COORDINATOR
Mario de Vivo

INSTITUTION
Ribeirão Preto School of Philosophy, Arts and Sciences / University of São Paulo (USP)

START: MAR 1999
FINISH: JUN 2004

Eastern Brazil possess one of richest endemic mammal faunas of South America. It is also the most economically developed region of Brazil, with severe consequences to natural ecosystems. Any study of the diversity of the mammal fauna of this region must contemplate systematic and evolutionary studies, as well as those devoted to conservation. The need for systematic and evolutionary studies is explained by the extensive gaps in our knowledge of the mammalian taxa of the region, their geographic distributions, their evolutionary history viz a viz that of the ecosystems they inhabit. We believe that most of the knowledge produced by systematic studies have a decisive impact on decisions made to preserve the mammalian fauna and the ecosystems in which they occur, beginning with a much more precise listing and quantification of the diversity to be preserved, and also the definition of geographic areas where significant fractions of this diversity are located. Besides this, Brazil do not presently have a sustained program of population monitoring for important mammal species. This results in the fact that National Parks and Biological Reserves are created in the country without any means for the responsible Federal and State institutions to know if the reservas are being effective in the conservation of the mammalian fauna in particular and biotas in general. Thus, this project has two main goals: a) recognize, describe, map mammalian taxa in the region encompassed by the project, as well as to propose hypothesis about the evolution of eastern Brazilian mammal faunas; b) elaborate a low cost protocol for the monitoring of selected key species of mammals for very long periods of time, to be applied by institutions responsible for the maintenance of biological reserves in Brazil. The systematic part of this project will be approached through the collection os specimens and their study under anatomical, cytogenetic and molecular studies, with ample consulta-

tion to existing collections of mammals. The population monitoring part of this project will be developed in a single study site, with the study of selected target species, using several methods (capture-marking-recapture, mapping of tracks and feces, determination of reproductive hormonal levels in feces). Besides the publication of articles relative to all particular findings that will occur during the development of the project, we intend to publish a final synthetic work with the same name of the project, which will include complete systematic accounts and the population monitoring protocol.

36 Biodiversity of Isoptera and Hymenoptera

PROCESS
1998/05083-0

COORDINATOR
Carlos Roberto Ferreira Brandão

INSTITUTION
Zoology Museum /
University of São Paulo (USP)

START: FEB 2000
FINISH: DEC 2004

The project aims three basic objectives: to produce comparable inventories of Atlantic Rainforest Hymenoptera and Isoptera, to use the new quantitative data to investigate the biogeographic division of the Atlantic Rainforest, and to determine how hymenopteran and isopteran diversity patterns vary with latitude, considering the urgent need of biodiversity studies in the Atlantic Rainforest, due to anthropic pressure, and that the Atlantic Rainforest, with a south-north extension of 15-20° of latitude, is particularly suited to this type of investigation. Also, we consider that comparable data on hymenopteran and isopteran diversity and biotic similarity along the Atlantic Rainforest latitudinal gradient are interesting and publishable. We intend moreover to improve the representation of the taxa to be studied in Brazilian collections. We took in consideration: 1. The preliminary analysis of the ant litter fauna survey in Boracéia (one of the localities we have chosen for the comparisons), which helped us to design the collecting protocol to be adopted in all localities. 2. the results of the recent workshop on the Conservation of the Atlantic Rain-Forest and Brazilian Southern Fields, organized by Conservation International, the Brazilian Ministry of the Environment and a consortium of related organizations (http://www.conservation.org.br/ma/index.html), which helped us to determine which localities shall be visited; and 3. Following a suggestion of a referee we have incorporated a collaborator familiar with ant sampling to the team, who has a strong background in designing faunistic surveys, in special using ants. We designed a scheme covering three main points: a sufficient number of localities to be compared in each subcenter, to increase the number of replicates within them; a more regular spacing of these localities, to be able to answer the gradient question; and localities along the Atlantic Rainforest biome representing two main classes of altitudes, to answer the altitude versus biogeography/ latitude as determinant of the species distributions. Also we have decided to concentrate all collecting in the evergreen dense forest subtype because we expect a richer fauna there in relation to other Atlantic Rainforest subtypes, and because it is the most well preserved kind of forest.

37 Benthic marine biodiversity in the State of São Paulo

PROCESS
1998/07090-3

COORDINATOR
Antônia Cecília Zacagnini Amaral

INSTITUTION
Institute of Biology /
Campinas State University (Unicamp)

START: AUG 2000
FINISH: APR 2005

In accordance with the objectives of the Special Research Program *Conservation and Sustainable Use of the Biodiversity of the State of São Paulo - Biota-FAPESP Program*, this research proposal aims basically an integrated survey of the biota of one of the less studied regions of the São Paulo State: the northern coast. This is a complex environment that is still well preserved, in great extent due to the presence of two protected areas. Although the marine research in the State of São Paulo is one of the most developed in the country, most of its littoral environments are still poorly known. and there is not a comprehensive survey of its biota. Even considering the need for a qualitative evaluation of the study area, this project is not limited to the systematic and distribution aspects, but also to provide a better understanding of the relationships among the organisms and the environment. Special effort will be directed to collecting standardization and to improvement of reference collections. An aim of the pro-

ject will be the production of field guides and databases with accessible information regarding the biological taxa and its main results.

38 Diversity of mites of agricultural importance and other arthropods associated with them in the State of São Paulo

PROCESS
1998/07099-0

COORDINATOR
Gilberto José de Moraes

INSTITUTION
Luiz de Queiroz College of Agriculture / University of São Paulo (Esalq/USP)

START: APR 1999
FINISH: MAR 2004

Mites are organisms of the phylum Arthropoda, subphylum Chelicerata, calss Arachnida and subclass Acari. Many mite species are important agricultural pests around the world, while others are important natural enemies of pests. Mitres also constitute the dominant group of soil animals. The study of phytophagous mites and their natural enemies may turn possible a better management of pest species, through possible purposeful re-alterations of the biotic components of agrosystems and adjacent ecosystems, to promote the action of native natural enemies. Detailed studies of pest mites and their natural enemies under conditions may lead to the discovery of new promising species that could be made available for practical use. At the present stage, at least as important as conducting diversity studies of mites and their natural enemies in the State of São Paulo is putting together the information already present in the literature and making it promptly available by electronic means to different sectors of society, from the lay people to those directly involved in acarology. Similary, the adequate deposit of preserved mite specimens representing the fauna of the State and their natural enemies in collections already in existence deserve the same attention. This project proposes field studies to obtain new information on diversity in 3 different regions in the State of São Paulo, representing the Cerrado and Atlantic Rainforest ecosystems, the establishment/improvement of data bases (accessible via Internet) of available literature on different aspects of mites from São Paulo, as well as the curation and electronic registration of reference collections of mites and spiders at different institutions. The objective is to improve our knowledge on the diversity of mites of agricultural interest, their natural enemies and associated arthropods in the State of São Paulo, with particular interest in the study of predators of potential or actual pest species. In addition to mites, other groups of arthropods to be considered in this study are Araneae (spiders) and Insecta (insects), the former as their natural enemies, and the second as their natural enemies, their prey or their transporters. The work will be conducted by researchers of the Departments of Zoology and Entomology of Esalq/USP, Department of Zoology of Unesp – *campus* Botucatu and Unesp – *campus* São José do Rio Preto. In addition, part of the work will also be conducted in cooperation with researchers of the Department of Botany of Esalq/USP and Department of Entomology of Oregon State University.

39 Biodiversity of Arachnida and Myriapoda of the State of São Paulo

PROCESS
1999/05446-8

COORDINATOR
Antônio Domingos Brescovit

INSTITUTION
Butantan Institute / Ministry of State of Health (SES-SP)

START: JAN 2001
FINISH: NOV 2006

The aim of this project is to inventory the Arachnida and Myriapoda fauna of the State of São Paulo, within the Biota-FAPESP Program. This study will be based on an extensive collection program, covering various different areas of the State of São Paulo and other states in the country, for a comparison between different fitogeographic areas and their fauna composition. In addition to São Paulo, we have selected areas in surrounding States and in many other States that present interesting comparison areas, such as Central Western (Cerrado) and the Northeast (Mata de Tabuleiro). Four groups, three arachnids (Araneae, Opiliones and Acari) and one Myriapod (Chilopoda), will have priority during the project, since thew are the most abundant in diversity, number of specimens, in samplings and specialists. The collection program will be carried out over two years. Four collection methods will be used and the sampling effort will be standardized, in order to sample the arachnid and myriapod fauna of these biomes as much as possible, to obtain data on the composition and species richness of sampled areas

the and compare them. The sampling methodology will consist basically of manual collection, mainly at night, beating trays, pitfall traps and Winckler extractor. The collections should last for one week to ten days in each area. The material obtained will be deposited in the Arachnida and Myriapoda collections of the Butantan Institute and the Zoology Museum of the University of São Paulo. A poison bank will be created, with the extraction from the specimens collected alive in order to begin the citogenetic study of various species, with initial priority being given to the Theraphosidae spiders. The species richness will be calculated using three methods of analysis: Log Normal Distribution, Species Accumulation Curve and the Jackknife standard (JACK1-SD). These three methods will by analysed by the EstimtcS5 version 5.0.1 program. The richness and abundance of spiders in each area will be compared through Variance Analysis (ANOVA), and the difference between the groups will be detected according to Tuckey Test. The project envisions a series of products for the scientific community, students and general public on the orders of Arachnida and Myriapoda, such as: inventory of the arachnid and myriapod fauna of the state; ample and representative collections of the Arachnida and Myriapoda fauna of the State; computerization the collections of the Butantan Institute; scientific papers published in national and international periodicals; identification keys for the main families of spiders scorpions, harvestmen, mites and centipedes; specific data banks for the species of the State of São Paulo, Brazil and South American countries, to be available via Internet and catalogs; textbooks in Portuguese on Arachnida and Myriapoda, training of new specialists; poison bank of arachnids and centipedes; instructional leaflets, manual and CD-Rom on arachnids and myriapods; courses and lectures.

40 Diversity and conservation of the reptile fauna in the southeastern Atlantic Rainforest

PROCESS
2001/13341-3

COORDINATOR
Célio Fernando Baptista Haddad

INSTITUTION
Rio Claro Institute of Biosciences /
São Paulo State University (Unesp)

START: MAY 2003
FINISH: APR 2008

The central aim of this project is to produce an inventory of the anuran species that occur in São Paulo State, Brazil. As a consequence of the inventory we expect to reach the following aims: (1) To collect specimens of different species from São Paulo State, as a way to improve scientific collections; (2) the resolution of taxonomic problems as a way to evaluate more precisely the real diversity of anuran species in São Paulo State; (3) to tape record the vocalizations of anurans to expand the anuran vocalization collection, as a way to assist species identifications and resolution of taxonomic problems; (4) to study the life cycles of the species; (5) to evaluate the conservation of the ecosystems in São Paulo State based on the conservation of the anuran populations; (6) to identify isolated species/populations threatened by extinction. We intend to publish the results of this project in scientific periodicals, as well as to use our results for the education.

41 Evolution of the southeastern Brazilian reptile fauna from cretaceous: paleontology, phylogeny and biogeography

PROCESS
2002/13602-4

COORDINATOR
Hussam El Dine Zaher

INSTITUTION
Zoology Museum /
University of São Paulo (USP)

START: APR 2004
FINISH: MAR 2008

This project's main objective is the study of phylogenetic and biogeographic patterns of the reptile fauna of southeastern Brazil, From the upper Cretaceous to the present time, allowing the characterization of expansion and retraction pulses that took place in the past 70 million years, and responsible for the present configuration of the reptile biodiversity. The improvement of knowledge about these processes will help in the recognition of parameters leading to the loss of biodiversity (in different temporal scales) in southeastern Brazil and ultimately contribute to the establishment of conservation strategies and sustainable use of natural resources. Thus, and for the first time within the Biota-FAPESP Program, we intend to include paleontological data in the study of biodiversity. The traditional definition of extant reptiles encompasses

the clades Quelonii, Crocodylia and Squamata (including snakes, lizards and amphisbaenians). These groups are represented in the Cretaceous and Tertiary fossil record of Brazil, thus providing an ideal database to the approach adopted in this project. Southeastern Brazil includes the states of São Paulo, Rio de Janeiro, Espírito Santo and Minas Gerais, a privileged study area in the sense that it harbors a significant fraction of the Atlantic Rainforest and Cerrado biomes, besides the Bauru, ltaboraí and Taubaté fossil basins, and the carstic region of the Ribeira river valley. This assemblage of sedimentary basins, biomes and carstic caves offers a unique opportunity for sampling reptiles in a timeframe of 70 million years. ln order to develop the study here proposed, it is necessary improve and organize our knowledge of the reptile diversity through geological time. The confection of such a survey will allow the cross-checking of data of extant and past faunas in a vertical axis (chronostratigraphic axis) hitherto unexplored within the Biota-FAPESP Program. The implementation strategy possesses seven major tines of scientific activities: (1) the survey of the reptile diversity in the State of São Paulo from the upper Cretaceous to recent, thus compiling a database including all recent species described so far as well as the specimens in natural history collections; (2) To collect living and fossil reptiles in the biomes and fossil basins of southeastern Brazil; (3) To develop phylogenetic studies of key extant and extinct taxa; (4) ln the case of extant key taxa, to elaborate molecular and morphological phylogenies in order to contrast their results; (5) To combine data on the distribution of fossil and living taxa with phylogenies and identified timeframes, to study past and present biogeographic and faunistic patterns of the Brazilian southeast; (6) To develop fine morphological studies aiming the understanding of the evolution of complex structures in reptiles; (7) To strength collections and study groups of vertebrate paleontology in the State of São Paulo through the creation of laboratories for preparation and study of fossils in the Museu de Zoologia and the FFCLRP of the University of São Paulo. The Cretaceous and Tertiary will be surveyed in the following basins: Bauru basin (upper Cretaceous); ltaboraí basin (paleocene); Taubaté basin (Eocene - Oligocene). Pleistocene and Holocene material will be collected in the carstic caves of the Vale do Ribeira (Ribeira river valley) in the State of São Paulo, in southern Bahia and northern Minas Gerais. The extant reptile fauna will be sampled in localities within the two major biomes of the southeast: the Atlantic Rainforest and the Cerrado. Other regions of Brazil will be surveyed in order to provide a comparative background for the reptile diversity pattern found in the Brazilian southeast.

42 Geographic limits and causal agents of Diptera endemism in the Atlantic Rainforest

PROCESS
2003/10274-9

COORDINATOR
Dalton de Souza Amorim

INSTITUTION
Ribeirão Preto School of Philosophy, Arts and Sciences / University of São Paulo (USP)

START: DEC 2004
FINISH: NOV 2008

Knowledge on biodiversity does not correspond merely to a list of names. Biological diversity is heterogeneously distributed in space. Even though attention given to biodiversity has grown in the last decades, quite few is actually known about the geographic patterns of distribution of species and the causes of these patterns. In other words, it is still not possible to map the distribution of Brazilian species of most groups -not even in the most well Studied areas. Neither is it possible to determine the sequence of events in the history of the continent that have determined these patterns of distribution. This deficiency in knowledge has implications for the conservation policy and for the understanding of basic evolutionary processes. Conservation decisions greatly depend on the precise knowledge of the geographic distribution of species. The understanding of the evolution rate deeply depends of a correct association between geographic limits of species and the age of the events causing these cladogenetic processes. In the literature, biological and biogeographic theories strongly clash on this respect. This project intends to use biological material collected with standardized methods along the Atlantic Rainforest, with emphasis on the State of São Paulo, to delimit areas of endemism of Diptera groups and to apply phylogenetic and biogeographic methods of analysis to study congruence among these patterns. Biogeographic patterns congruent with the geological history of South America point to groups associated to the geological origin of the continent in the Gondwanaland, in a way that the diversity of these

groups would have slowly originated along the last 80,000,000 years. Patterns that disagree from the general biogeographical pattern and of South America geological history probably originated in the region due to dispersion, specially from the Nearctic Region. The study of a rich assemblage of Diptera specimens along the project allows the construction of a Home Page with photographs, identification keys, catalogs of Neotropical species, and information on biology and distribution maps. This is a efficient mechanism of making technical information available for a public with different levels of interest on Diptera or on conservation.

43 Survey and biology of aquatic Insecta and Oligochaeta in lotic systems in the State of São Paulo

PROCESS
2003/10517-9

COORDINATOR
Cláudio Gilberto Froehlich

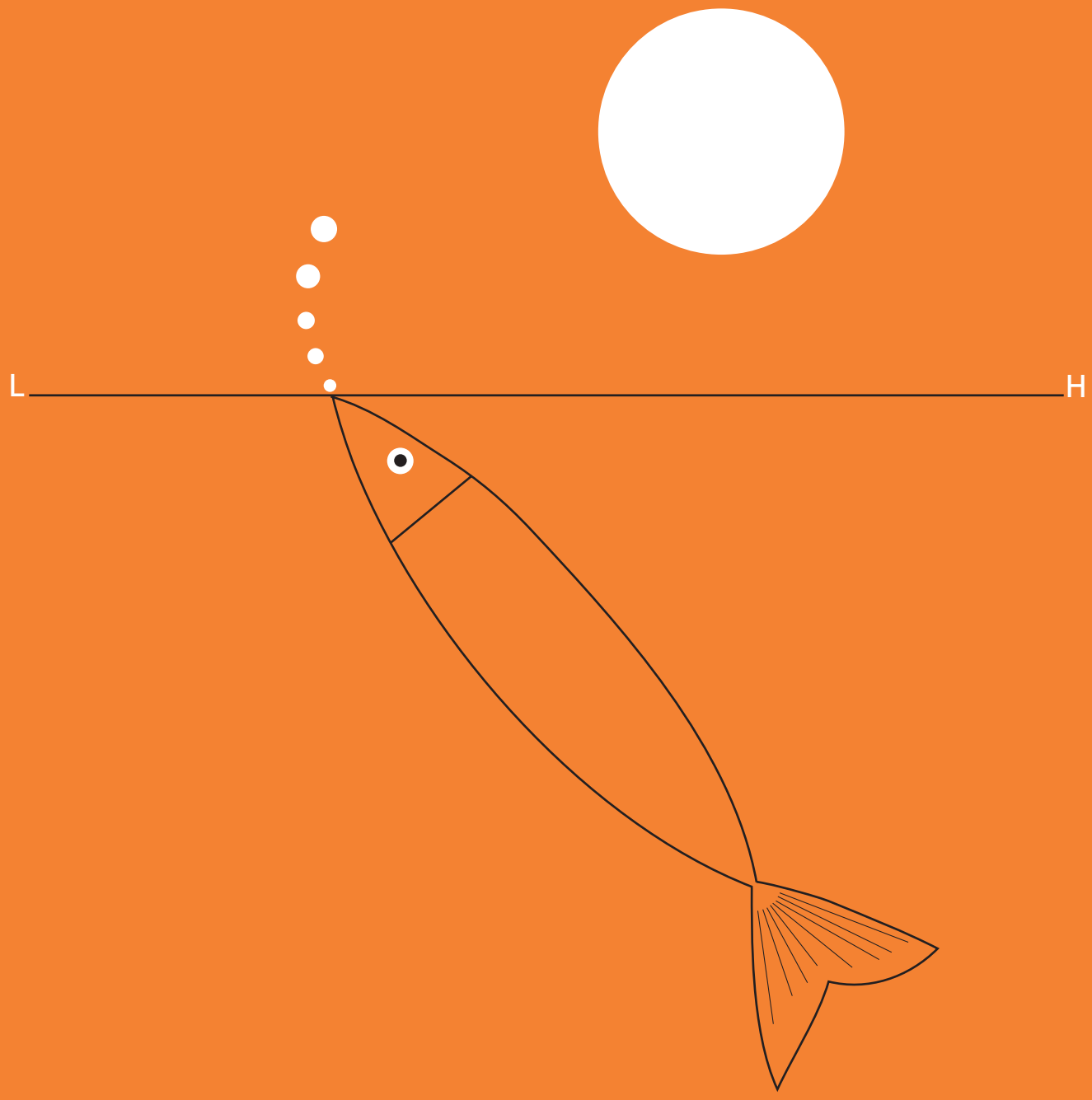
INSTITUTION
Ribeirão Preto School of Philosophy, Arts and Sciences / University of São Paulo (USP)

START: JAN 2005
FINISH: DEC 2008

The present project aims at carrying on the faunistic survey of two groups of benthic freshwater macroinvertebrates, insects and oligochates, with emphasis on lotic systems. The previous project included also crustaceans and molluscs; for both a survey was made in the main hydrographic basins os the State. The area sampled for insects was smaller due to the much poorer knowledge of their taxonomy. The emphasis was on protected areas in Serra do Mar and Serra da Mantiqueira in order to have a better knowledge of local faunas, ecological aspects included. The survey of Oligochaetes also was restricted, as the group was included into the project in the beginning of its third year. For the present project the area to be sampled is enlarged, with three new areas in the State, the State Parks of Vassununga, Furnas do Bom Jesus and Caetetus. Two areas from the first project, The State Parks of Intervales and Campos do Jordão, are maintained because there are still ongoing research projects there. Samplings in the neighbourhood of the principal researchers institutions (Araraquara, São Carlos and Ribeirão Preto) will also be continued. At the end of the second year of the project, the inclusion of new areas will be considered. The project comprises three subprojects, to be carried on in an integraded manner, optimizing resources and field activities: Freshwater Diptera (Chironomidae, Simuliidae), Ephemeroptera, Plecoptera, Trichoptera (EPT), and Oligochaeta. Other aquatic insects will also be collected. A significant part of the material will be deposited in the Museum of Zoology of the University of São Paulo.

Caraguatá
(*Bromelia balanceae*)

Young Researchers in Emerging Centers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Ecology

1 Spatial components of the diversity of aquatic insects in streams of the Atlantic Rainforest in the State of São Paulo

Process
2002/12538-0

Coordinator
Adriano Sanches Melo

Institution
Ribeirão Preto School of Philosophy, Arts and Sciences / University of São Paulo (USP)

Start: Nov 2003
Finish: Mar 2004

The project has the aim of studying patterns and processes which act upon the diversity of insects in streams. Some subprojects will tackle the diversity of insects in general during the aquatic phase (generally immature). In other subprojects, attention will be given to the adults (terrestrial) of an important component of the fauna of insects in rivers, the *Trichoptera*. In the subprojects which tackle patterns of diversity, the collections will be handled in a hierarchical manner, in such a way as to enable interferences on the spatial components of the diversity. In the subprojects that deal with processes that act upon the diversity, studies are intended which will evaluate the effect of natural disturbances as well as disturbances of anthropic origin. Among the products envisaged, are the determinations of associations between larvae and adults of *Trichoptera*, identification keys of the genuses of *Trichoptera* (larva and adult), an estimate of the number of Trichoptera in São Paulo and the proportion of species already described, determination of the recurrent characteristics of communities in preserved and degraded environments and understanding of the effects caused by disturbances of natural and anthropic origin.

2 Effects of the Forest fragmentation in the State of São Paulo and other regions of the south and southeast of the country in the functioning of populations of fig trees and in the fig-wasp mutualism of figs

Process
2004/10299-4

Coordinator
Rodrigo Augusto Santinelo Pereira

Institution
Ribeirão Preto School of Philosophy, Arts and Sciences / University of São Paulo (USP)

Start: May 2006
Finish: Oct 2010

Fig trees are a key resource for the functioning of tropical forests, since they provide food for fig-eating animals in periods of shortage of fruits from other species. In addition, they play an important role in the regeneration and recomposition of vegetal communities, attracting fig-eating animals, dispersers in turn of other vegetal species. In the face of the intense process of fragmentation suffered in the State of São Paulo and in other regions of the country, this Project has the aim of understanding the functioning and evaluating the sensitivity of *Ficus* populations to the fragmentation of the habitat, investigating the following questions: (1) Do the diversity and wealth of species of wasp associated with the *Ficus* species vary according to the level of fragmentation and disturbance of the habitat? (2) If present, is this variation an indication that the populations of *Ficus* are close to critical size? (3) Is there a limitation of pollen in the small or very degraded fragments? (4) Is the level of parasitism by non-pollinating wasps greater in small or very degraded fragments? For this purpose, samples of figs close to the emergence of the wasps will be collected in plants of the species of *Ficus* found in forest fragments of different sizes. The seeds, the pollinating wasps (pollen vectors) and the non-pollinating wasps (parasites of the mutualism) produced by the fig will be quantified to evaluate the relationship of these reproductive components with the size and level of degradation of the forest fragments studied.

Oceanography

3 Blooming of potentially harmful microalgae on the coast of the State of São Paulo

Process
2002/13725-9

Coordinator
Maria Célia Villac

Institution
Pro-Rectory of Research and Post-graduation / University of Taubaté (Unitau)

Start: Feb 2004
Finish: Feb 2008

Microalgae are important constituents of the base of the food chain of aquatic environments. However, in specific situations as in the case of a harmful bloom (= red tide), the microalgae can have a deleterious effect which affects activities such as sailing, fishing, aquaculture, recreation, quality of waters and public health, as well as the aquatic biota itself. The increasing incidence and duration of harmful blooms, on a global scale, leads to the need for studies which will make it possible to understand its causes, predict its occurrences and mitigate its effects. The general objective of this research is to establish a nucleus of studies on the potentially harmful microalgae with easy access to the coasts of the State of São Paulo. This goal will be achieved by securing the following specific objectives (and respective products expected): 1) to create a microscopy laboratory with a library specialized in taxonomy of marine microalgae which will enable prompt responses to emergencies related to possible blooms; 2) to recruit and train personnel in identification of marine microalgae, since the training of human resources in this specialty is a lacuna to be filled by the State of São Paulo; 3) to undertake the survey of the occurrence of potentially harmful species (and associated flora) to draw up a catalogue of species (on CD-Rom) which will provide didactic support for the training of personnel and contribute to the knowledge of the biodiversity of marine microalgae on the coast of the State of São Paulo; 4) to study the space and time tendencies of occurrence of the target-species, identifying their conditioning factors, to support the elaboration of a monitoring program applied to aquaculture; 5) to isolate the target species for the creation of a bank of cultures, an essential condition for future studies of morphology, ecophysiology, molecular biology and ecotoxicology. This involves a joint effort by various teaching and/or research institutions in the State of São Paulo, namely, University of Taubaté (host institution), Fisheries Institute and Cetesb (agency of the Government of the State of São Paulo responsible for the control, inspection, monitoring and licensing of activities that generate pollution, with the aim of preserving and restoring the quality of the waters, the air and the soil). The interest and the contribution which these institutions bring to the project reflect the awareness of the need for this study, given the potential offered by the São Paulo coast for activities of aquaculture and also for leisure. The project is expected to run for 4 years, a period in which it is hoped to generate a wealth of knowledge on the subject, as well as a work team, which together will constitute the foundations for the continuity of the activities of this emerging center in future projects.

Chemistry

4 Chemical, biological and biosynthetic evaluation of species of red macroalgae of the *Bostrychia* (Rhodophyta, Rhodomelaceae) genus

Process
2005/53808-9

Coordinator
Hosana Maria Debonsi

Institution
Ribeirão Preto School of Pharmaceutical Sciences / University of São Paulo (USP)

Start: Nov 2005
Finish: Oct 2009

Red macroalgae of the Rhodomelaceae family were collected on the Costões Rochosos of the Ilha do Cardoso, coast of the State of São Paulo, where a complex of taxons was observed consisting of *Bostrychia radicans f. radicans, B. radicans f. moniliforme and Bostrychia sp.* The *B. radicans* complex was subjected to morphological and experimental studies with the aim of evaluating the vegetative development in different conditions of temperature and salinity. For this purpose, unialgal cultures were established based on the macroalgae collected, which presented excellent tolerance to different conditions of temperature (15 to 30°C) and salinity (5 to 65 UPS). In this way, these species prove excellent matrices for the undertaking of phytochemical studies, since they can be collected independently of climatic conditions, in addition to being able to be kept in *in vitro* conditions. In the literature, few articles referring to the *Bostrychia* genus were found, but there is a diversity of metabolites with expressive biological activity described for the *Laurencia* genus, highlighting halogenated, acetogenin, and sesquiterpene substances with proven bactericidal activity. Thus, the phytochemical and biological study of this complex of taxons is justified, given that substances isolated from the Rhodomelaceae family have presented unheard of structures and often significant biological properties. With the chemical profile established, it will be possible to initiate the preliminary biosynthetic studies using the unialgal *in vitro* cultures of the algae of the *Bostrychia* genus, which makes excellent fresh source material for the evaluation of the enzymatic activity in vegetal extracts.

5 Studies on the biotransformation of pentacyclic triterpenes by filamentous fungi and evaluation of the antitumoral and trypanocide activities of the derivates

PROCESS
2005/59329-5

COORDINATOR
Niege Aracari Jacometti Cardoso Furtado

INSTITUTION
Adjunct Pro-Rectory of Research and Post-graduation / University of Franca (Unifran)

START: NOV 2006
FINISH: OCT 2010

The framing of this proposal in the Biota-FAPESP Program, BIOprospecTA subprogram, could prove to make a substantial contribution to the investigations which are currently underway among groups that make up the Network. In this project it is proposed to make available the extracts of culture media from the fungi and the derivatives isolated to be evaluated in the Network's biotrials, as well as to make available the biotransformation trials for other bioactive substances provided by the other groups. The collaboration with the groups of the Network will provide greater chances of obtaining satisfactory results, given the availability of undertaking different trials such as the extracts and the isolated derivatives.

6 Obtaining structural analogues of pimaradienoic acid through the process of fungal biotransformation and study of the effect of these metabolites on the activity of the TcDHODH enzyme and on the contraction of the vascular smooth muscle of the aorta artery of mice

PROCESS
2007/54762-8

COORDINATOR
Sérgio Ricardo Ambrósio

INSTITUTION
Adjunct Pro-Rectory of Research and Post-graduation / University of Franca (Unifran)

START: FEB 2008
FINISH: JAN 2012

The present work has the general objective of obtaining structural analogues of pimaradienoic acid, a diterpene present in large quantity in the roots of *Viguiera arenaria Baker*, which has proven a significant capacity to inhibit the contractile response of the vascular smooth muscle of mice, due to its capacity to reduce the influx of Ca+2 through the blocking of the channels operated by voltage and receiver. In addition to this well-established activity, preliminary studies showed the arterial pressure of mice normotense *in vivo*, as well as inhibiting the dihydroorotate dehydrogenase enzyme of *Trypanossoma cruzi* (TcDHODH), an excellent pharmacological target for the discovery of new potentially promising substances to combat parasites that cause Chagas disease. The structural modifications proposed in this Project will be achieved through the technique of fungal biotransformation, using four different genuses of fungus, so as to guarantee the variability of the analogues produced. The diterpenes isolated and identified will then be evaluated on the inhibitory capacity of the TcDHODH enzyme and the contraction of the vascular smooth muscle in the aorta of mice, with the aim of selecting new compounds more active than pimaradienoic acid, so that in a stage beyond the development of this Project they can be tested with regard to their antihypertensive and trypanocide potential.

ZOOLOGY

7 Evaluation of the biotic integrity of the rivers of the northwest region of the State of São Paulo, Alto Paraná basin, using communities of fish

PROCESS
2001/13340-7

COORDINATOR
Lilian Casatti

INSTITUTION
São José do Rio Preto Institute of Biosciences, Arts and Exact Sciences / São Paulo State University (Ibilce/Unesp)

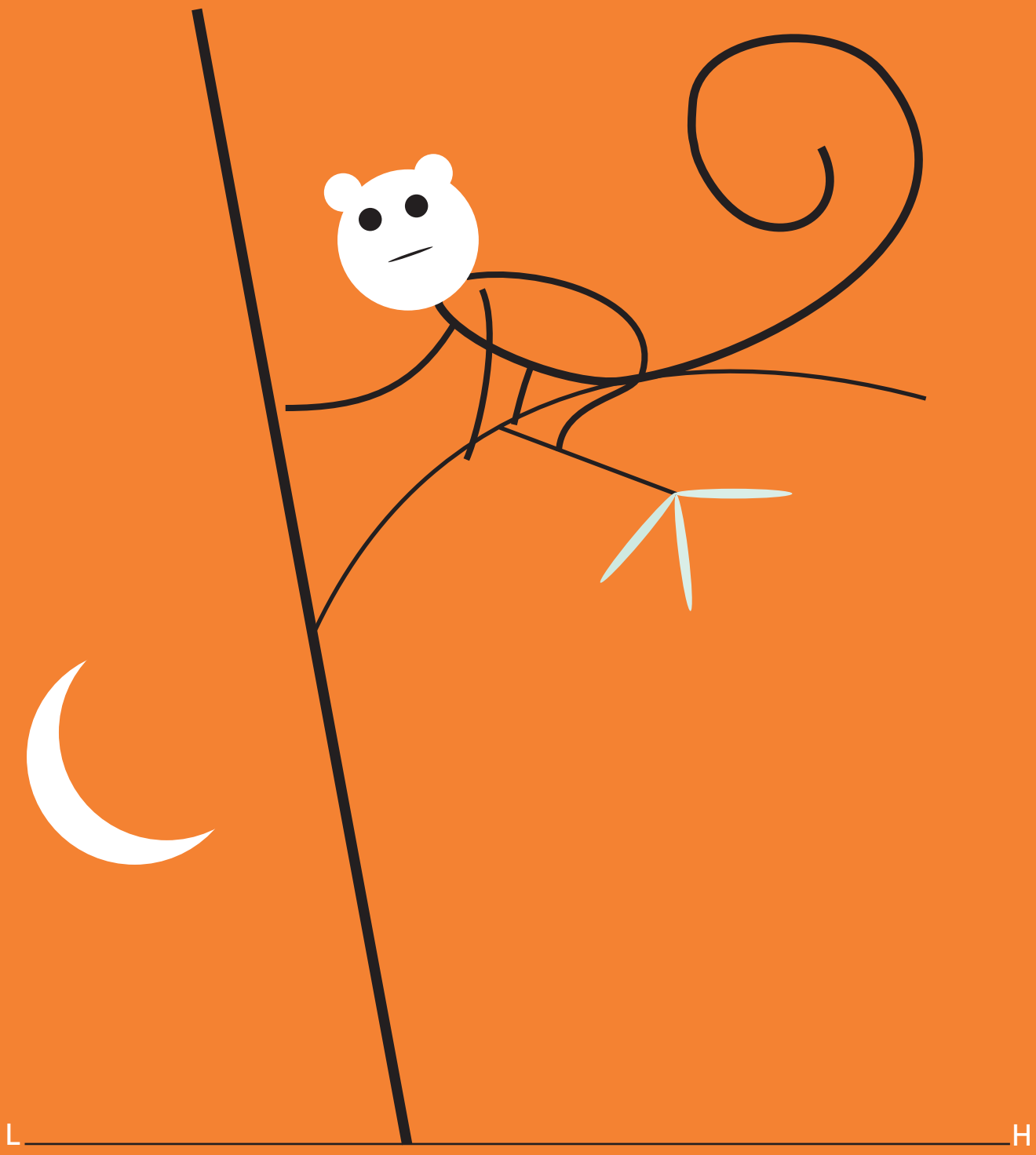
START: JUL 2002
FINISH: DEZ 2007

The present project has the principal objective of evaluating the biotic integrity of the rivers of the Turvo-Grande and São José dos Dourados hydrogenerating units, in the northwest region of the

State of São Paulo, using biological attributes of communities of fish. This study will be conducted through the adaptation and application of the Index of Biotic Integrity (IBI) for each of the units dealt with here. As final product, the rivers studied will be classified in categories of biotic integrity, capable of providing a precise diagnosis of the health of the rivers of the region in question, fundamental in order for measures of conservation and sustainable use of the biodiversity of the region to be taken in the future. In addition to this, the present proposal is complementary in character to two projects of the Biota-FAPESP Program, already in an advanced stage of development, which are aimed at the inventorying and computerization of the taxonomic knowledge of the fauna of the rivers of this region, a fundamental factor in making possible the undertaking of studies of biotic integrity.

A kind of Savanna

Support for Regular Research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Biophysics

1 Use of HTS tests in the identification of leading compounds of natural products and approaches to rational planning of medicines for selected targets of parasitic diseases

Process
2005/51966-6

Coordinator
Otávio Henrique Thiemann

Institution
São Carlos Institute of Physics / University of São Paulo (USP)

Start: Feb 2006
Finish: Jan 2008

In order to discover new pharmacologically active compounds for target diseases, I two strategies can be adopted in parallel: One is the screening in biological or biochemical assays of large numbers of extracts or pure compounds, both from natural sources and compound libraries, while the other strategy involves the computational search of libraries of compounds with the aid of the 30 crystal structure of the target enzyme or using the chemical structure of known bioactive compounds. The probability of finding positive hits of bioactive compounds depends on the number and diversity of the samples screened and the diversity of assays employed. After a compound is identified, the structural characterization may be required. A substantial part of the effort in lead compound identification and improvement is dedicated to the analysis of the interactions of the compound with its target enzyme. These studies require the building of compound data bases and of advanced tools in medicinal chemistry. The present proposal aims to implement biochemical assays known as High Throughput Screening (HTS), using automated systems and small sample volumes, contributing with the overall effort of the BIOprospecTA network. The organization of compound data bases were the chemical and structural information as well as the inhibitory activity of each compound will be organized allowing the application of advanced medicinal and computational methods for the identification and further optimization of hits and lead compounds. At present, we are performing biological screenings in collaboration with the natural product chemistry laboratories of Prof. Dr. Paulo Cezar Vieira (DQ-UFSCar), Prof. Dr. Roberto Gomes de Souza Berlinck (DFQ-IQSC) and Prof. Dr. Monica Tallarico Puppo (FMRP). The major goal of the research developed in the Laboratory is to perform both applied and basic research as well as technological development. This effort focuses in areas of Structure-Based Molecular Design, specifically and directly related to the BIOprospecTA initiative, in the rational design of new structure-based compounds and in protein engineering.

Biology

2 Qualitative and quantitative ethnobotanical studies in traditional communities in the PETAR – Alto Ribeira State and Tourist Park and its environs, Iporanga, SP

Process
2002/07687-7

Coordinator
Lin Chau Ming

Institution
Botucatu School of Agronomic Sciences / São Paulo State University (Unesp)

Start: Sep 2003
Finish: Oct 2006

The region of the basin of the river Ribeira de Iguape in SP represents one of the few and rather well conserved remnants of Atlantic Rainforest, in which one finds long-standing human populations and from different ethnic origins. The region represents a challenge, in the sense of trying to reconcile the conflicting interests which act upon it, principally that of the possibility of conservation of the forests and of the occupation of the forests by populations which develop their culture and way of life there. A study will be undertaken, made up of 3 subprojects, which aim to study and research traditional knowledge for the use and management of local natural resources related to flora, with the contribution of Ethnobiology and Ethnoecology, as well as analyze chemical and ecological aspects of vegetal species of use to the local human populations, using data from previously undertaken surveys. The work will be carried out by a multi and pluridisciplinary team, from Unesp, UEL, Fiocruz and a local NGO, with the support and participation of local communities.

3 Bioluminescent coleopterans (fireflies) of the Atlantic Rainforest: biodiversity and use as environmental indicators

PROCESS
2006/51911-0

COORDINATOR
Vadim Viviani

INSTITUTION
Federal University of São Carlos (UFSCar) / Campus Sorocaba

START: JUN 2007
FINISH: MAY 2009

Brazil is the country with the greatest diversity of species of bioluminescent coleopterans, concentrating around 25 per cent of the species described and probably an even higher number not described. In addition to constituting important species from the biotechnological point of view, as they provide bioluminescent enzymes and substrates with a bioanalytical value, this variety of species has great potential for use as environmental indicators of luminous pollution, in urban centers and for the recovery of degraded areas, as has been done in Japan for some years. We plan to continue our cataloguing of the biodiversity of the Lampyridae, Phengodidae and Elateridae families in the Atlantic Rainforest bioma of the State of São Paulo, to study their evolution from the molecular aspect and to use some key-species (based on my long experience with this taxonomic group in Brazil), as environmental indicators of marshy and brook areas.

BIOCHEMISTRY

4 Screening for specific proteasome inhibitors followed by the determination of proapoptotic and antitumoral properties in cell culture

PROCESS
2004/07636-9

COORDINATOR
Marilene Demasi

INSTITUTION
Butantan Institute / Ministry of State of Health (SES-SP)

START: DEC 2004
FINISH: NOV 2006

Proteasome inhibitors promote cell death in the cells of mammals by a process described, in many cases (depending on the cell lineage and dose), as apoptosis. This activity on the part of the specific inhibitors of protease has been explored as potentially beneficial in the chemotherapy of several tumors including solid and hematological ones. A highlight of recent scientific literature is the synthetic inhibitor known as bortezomib soon to be introduced into clinical medicine. Other evidence of the therapeutic potential of these inhibitors are the studies which have been published in recent years on the search for these compounds within products of natural origin, in addition to the chemical research of innumerable new synthetic compounds. The present study proposal has the objective of identifying among the natural products made available by the Biota-FAPESP Program, compounds that may be specific inhibitors of proteasome. The methodology to be used implies microtrials and envisages the monthly screening of hundreds of extracts and/or isolated derivatives. It will consist of the measurement of the activity of the proteasome in the presence of these products through the intermediary of trials on microplates, given that the proteasome will be isolated from a strain of *S. cerevisiae* where one of the subunits of the catalytic complex 20S is modified with a polyhistidine tag which enables the purification of the 20S complex in a few hours. The second phase of the project envisages the study of the specificity of the potential inhibitors found in the first stage. The specificity of the inhibitors will be evaluated by means of immunoprecipitation trials and enzymatic kinetics. After the identification and selection of the specific inhibitors of proteasome, evaluation will be undertaken of the pro-apoptotic activity of these compounds. The trials in this phase of the project will be undertaken in cultures of tumor cells of diverse strains in which the cell viability will be evaluated and the characterization of the apoptotic process undertaken by means of trials already consolidated in the literature. The stages of the project which involve the tests of the apoptotic effect on the culture of tumor cells and studies of cell viability could, as it is desirable for the program, be undertaken in collaboration with other groups within BIOprospecTA whose experimental objectives are similar.

5 Search for inhibitors of antioxidant proteins of *Xylella fastidiosa*

PROCESS
2004/07709-6

COORDINATOR
Luís Eduardo Soares Netto

INSTITUTION
Institute of Biosciences /
University of São Paulo (USP)

START: OCT 2004
FINISH: JUN 2008

Plants and animals respond to infections by pathogenic agents using among other mechanisms an oxidative burst. In this way, *Xylella fastidiosa* and other pathogenic agents have to overcome the oxidative burst generated by plants to be successful in the infection. Our objective in this project is the search for potential inhibitors of antioxidant enzymes of *Xyllela fastidiosa* in banks of extracts and pure compound of plants, microorganisms, marine organisms and other natural sources. Several antioxidant proteins of *Xyllela fastidiosa* have already been cloned, expressed and purified in my laboratory. In addition, relationships between protein structure and function are being investigated within the Structural Molecular Biology Network (SMOLBnet).

BOTANY

6 Embryology of species of Asteraceae in the Cerrado *lato sensu*

PROCESS
2003/06490-8

COORDINATOR
Simone de Pádua Teixeira

INSTITUTION
Ribeirão Preto School of Pharmaceutical
Sciences / University of São Paulo (USP)

START: JUL 2004
FINISH: JUN 2007

The Asteraceae family is fairly representative of the flora in the Brazilian Cerrado, with around 540 species registered. Its representatives present developed root system, with the formation of rhizomes, xylopodes and adventitious buds occurring frequently, in the secondary roots. The rhizophores, especially, in addition to the reserve function, lend themselves to vegetative propagation, a phenomenon observed in disturbed environments, principally through the action of fire. Vegetative propagation has been considered one of the most viable forms of the multiplication of Asteraceae, which generates doubts as to the role of seeds. Thus, this work seeks to test whether the type of propagation adopted by the species is related to its fertility, by means of a comparative study of the embryology of species of Asteraceae in the Cerrado. To this end, we chose pairs of species belonging to the same genus, in tribes not related phylogenetically, one with predominantly vegetative propagation (presence of rhizophores) and another with predominantly sexual propagation. Buds, flowers and achenes in various stages of development will be collected in areas of the Cerrado in the State of São Paulo and subjected to treatment for studies of (1) viability tests of the tetrads, of the pollen grain, of the embryo and of the achene, (2) development of the grain of pollen, of the embryo, of the endosperm and the seed-coat, and (3) ultra-structure of the pollen grain. The results found will make it possible to evaluate the occurrence of rhizophores in these species associated with the decrease in the fertility, which would suggest a substitution of sexual reproduction by vegetative propagation. In addition, the results will generate information on the reproductive potential of the species, assisting projects in conservation of the flora of the Cerrado.

7 Morphoanatomy of the vegetative organs and chemical profile of species of the *Smilax l.* (Smilacaceae) genus

PROCESS
2005/58964-9

COORDINATOR
Beatriz Appezzato da Glória

INSTITUTION
Luiz de Queiroz College of Agriculture / University
of São Paulo (Esalq/USP)

START: FEB 2006
FINISH: JAN 2008

The taxonomic confusion that occurs between different species of the *Smilax* genus, known popularly as sarsaparilla, could be solved, with a more solid basis for its identification, through the characterization and definition of anatomical and chemical particularities. These plants are used in popular medicine as a tonic, against rheumatism and antisyphilitic. The objective of this work will be to des-

cribe the morphoanatomy of the above-ground and subterranean vegetative organs of six species of *Smilax L*, to undertake seed germination studies to verify the viability of the culture, to analyze the ontogenesis of the subterranean system of *Smilax polyantha* to clarify the establishment of the secondary structure, to carry out cytogenetic studies and analyze the chemical profile of *Smilax polyantha* and the other species proposed (in the event there is an abundance of material and the results with *S. polyantha* are promising). For structural analyses, we will use permanent and semi permanent slides made up from section of the vegetative organs obtained freehand or through rotating microtome after fixing, dehydrating and infiltrating in synthetic resin or vegetal material. The results will be recorded through photomicrographs and in botanical illustrations. To determine the chemical profile, chemical extraction will be undertaken, chromatographic triage, isolation and structural identification of the substances isolated. Seed germination tests and analysis of rooting and sprouting of cuttings will be carried out with the aim of understanding the potential for propagation of these species and, consequently, provide information for their sustainable use.

8 Taxonomic aspects of *Croton L.* (Euphorbiaceae) in the southeast region of Brazil

PROCESS
2007/51439-1

COORDINATOR
Letícia Ribes de Lima

INSTITUTION
Institute of Botany / Ministry of State for the Environmental (SMA-SP)

START: DEC 2007
FINISH: NOV 2009

The *Croton L.* genus is the second largest and most diverse of the Euphorbiaceae with around 1,200 species, grouped in 40 sections, with pantropical distribution, of which the majority occur in the Americas. In South America, Brazil is the country which congregates the greatest number of species, approximately 356. Of these, 172 are found in the southeast region, this being probably, the center of diversity of the genus. *Croton* is a good example of the "genus problem" – which is big and taxonomically complex – and perhaps for this reason it has been neglected in favor of smaller and more clearly defined genuses. Due to the large size and diversity, no complete taxonomic treatment for the genus has been undertaken since *Prodromus* and, in Brazil, the *Flora brasiliensis*. Thus, in many herbariums in Brazil (and in the world), it is common to find a large quantity of non-identified (or badly identified) *Croton* collections at the level of species, which require, urgently, a discerning taxonomic study. Thus, in order to contribute to the better understanding of the taxonomic aspects and the phylogeny of *Croton* on a global scale, it is intended to carry out the floristic and taxonomic survey of *Croton* in the southeast region, in pursuit of a better understanding and circumscription of the species, as well as the survey of information on the morphology, biology, biogeography, among others, trying to gather the greatest number of features, including molecular so that subsequently they may be used in cladistic analyses of the group. All the collected samples will be georeferenced and the data included in the database of the Biota-FAPESP Program.

ECOLOGY

9 Biodiversity of interaction between fruit-eating vertebrates and plants of the Atlantic Rainforest of southeast Brazil

PROCESS
1998/05090-6

COORDINATOR
Wesley Rodrigues Silva

INSTITUTION
Institute of Biology / Campinas State University (Unicamp)

START: DEC 1998
FINISH: JUN 2003

Mutualistic interactions between flowering plants and frugivorous vertebrates came to a climax in the tropical forests, where many species of birds and mammals contribute successfully to the dispersal of seeds of different plant families. Especially in the neotropics, frugivores comprise a significant but fragile component of the total vertebrate biomass, being strongly affected by habitat fragmentation or deterioration, bringing unknown consequences for the plants they disperse. Traditionally, biodiversity studies rely mainly on accounts of animal or plant taxa found in a given area, but little attention is given to the trophic structure linking these taxa, which

ultimately determines the maintenance of spatial heterogeneity and taxonomical diversity in tropical forests. The general purpose of this project is to assess and monitor the biodiversity of interactions between seed plants and frugivorous vertebrates, through their qualitative and quantitative aspects, and look for the major ecological and evolutionary trends and patterns that regulate the mutualistic association within these communities. This approach is integrated to the objectives of the special research program *Conservation and sustainable use of the biodiversity in the State of São Paulo – Biota-FAPESP*. The biome chosen to carry out this study is the Atlantic Rainforest of south-eastern Brazil, at the Intervals State Park (ISP) The main purpose will be achieved by: a) recording the fruit diet of frugivorous vertebrates year round; b) describing morphological, phenological, and chemical traits of the fruits eaten by frugivores; c) describing morphological and behavioral traits of frugivores, as well as the variation in fruit consumption in both time and space; d) elaborating matrixes of interactions between plants and animaIs in the different communities to be studied, and examining the ecological and evolutive patterns that define their structure and organization; e) determining the keystone species of plant and animals in the communities studied, which are expected to participate in a significant number of interactions, and verifying the use of frugivores as indicator-species in studies of biodiversity and conservation; f) distinguishing different levels of biodiversity between communities through the comparison of indexes that express the interactions' richness and complexity, like "connectance" and "dependence"; g) elaboration of theoretical models for connectance between natural communities, making testable predictions over the relations between filogeny, biodiversity, complexity, and stability. This project will be carried out in four years. The study sites will be three areas in the altitudinal gradient occurring at the ISP. Each area will be visited at least on a monthly basis by the different work groups during two consecutive years (two of them simultaneously). Botanical data will include collection and identification of zoochorous plants, their habitat characteristics, descriptions and measurements of fruits and seeds, phenological records, chemical analyses of nutritive and secondary compounds in fruits. Zoological data will include field observation of frugivores feeding behavior, collecting of fecal samples with mist-nets (birds and bats) and along trails (other mammals), descriptions and measurements of morphological traits associated with fruit-eating behavior (taken in field or museum). As birds and bats are the most important seed carriers in tropical systems and their standardized sampling techniques allow multiple comparisons within and between communities, both groups will be used as a key-component in the overall analysis of the frugivores community in the study areas. The matrixes of frugivory interactions will allow correlations of morphometrical (fruit and seed mass, number of seeds per fruit, gape width, body mass, etc) and chemical / physiological (pattern of seed deposition in faeces, nutrient and energetic content of fruits) variables from both fruits and animals. The comparison of the values obtained from the matrixes for interacting pairs of species, feeding guilds or the whole frugivores community, along with the estimation of connectance between communities and its relation to morphological, ecological and filogenetic determinants, will allow to evaluate how diverse and functionally integrated a community is, providing basic information for its management and conservation. All data sets will be integrated to geographical information systems (GIS).

10 Fish and fishing in the Atlantic Rainforest in the south of the State of São Paulo (Brazil)

PROCESS
1999/04529-7

COORDINATOR
Walter Barrella

INSTITUTION
Sorocaba Center for Medical and Biological Sciences / São Paulo Pontifical Catholic University (PUC-SP)

START: NOV 2000
FINISH: FEB 2004

The largest preserved areas of Atlantic Rainforest are located in the southern region of the State of São Paulo (Brazil). The rivers and streams existing in this region are home to a community of fish still hardly known, despite the intense activity of artisanal and sport fishing practiced. The present work aims to carry out ecological studies on the communities of fish, identifying the main fishing localities, in addition to gathering together the ethnobiological knowledge related to the fishing practiced by the local populations of sporting fishermen. There will also be suggestions of proposals for the management of fishing and ecological tourism to be applied in this region of the State of São Paulo.

11 Floristic and structural characterization of six fragments of the seasonal semidecidual forest in the environmental protection area of Souzas and Joaquim Egídio, Campinas, SP

PROCESS
1999/06999-0

COORDINATOR
Luiza Sumiko Kinoshita

INSTITUTION
Institute of Biology / Campinas State University (Unicamp)

START: APR 2001
FINISH: JUN 2003

The proposed project aims at discovering and comparing the floristic composition, phytosociological structure and state of conservation of ten fragments of seasonal semidecidual forest in the municipality of Campinas, SP. Among the fragments chosen for the study is the Ribeirão Cachoeira forest, the second largest fragment in the municipality with 236.2ha. The others are distributed in three classes of size: 10-15ha; 16-25ha and 26-45ha, with three fragments in each class. The sampling will be carried out using the quadrant points method, in which will be included individual trees with a diameter at chest height $\geqslant$ 5 cm. We will analyze qualitative aspects of the state of conservation of the fragments as index of the canopy cover (obtained through hemispheric photos); state of the canopy (evaluated through categorization of the trees sampled in current trees, past trees and future trees); degree of infestation by lianas and occurrence of disturbance factors (fire, cattle and wood extraction). After the collection of this data it is hoped to analyze questions such as: the correspondence between the patterns of variation of the vegetation and the pattern of variations of the abiotic components and the relationship between the classifications found in the literature on the state of conservation of the fragments with qualitative parameters measured in the field.

12 Diagnosis of populations of birds and cynegetic mammals in the conservation units of the São Paulo Atlantic Rainforest

PROCESS
2001/14463-5

COORDINATOR
Mauro Galetti Rodrigues

INSTITUTION
Rio Claro Institute of Biosciences / São Paulo State University (Unesp)

START: OCT 2002
FINISH: JAN 2006

Currently there is a lot of controversy regarding the most efficient manner for the conservation of tropical ecosystems, and in particular, on the role that protected areas perform to attain this objective. Birds and large-sized mammals are among the most vulnerable to over-exploitation by hunting, loss of habitat, trafficking or competition for resources with human beings. In tropical forests the animals that consume fruit (frugivores) make up around 80 per cent of the biomass of all the vertebrates, exercising a fundamental role in the structuration. Among them many are threatened with extinction, such as the large primates (woolly spider monkey, *Brachyteles arachnoides*) and the piping guans (*Pipile jacutinga*). In the Atlantic Rainforest merely 2 per cent of the 8 per cent remaining of the original Forest is given up to conservation units of indirect use. Many of these units, however, are under huge pressure from hunting, directly affecting the populations of cynegetic animals, which certainly affect the whole tropical chain. On the other hand, these units are not the majority nor is their spatial distribution in these areas. This project consists of diagnosing populations of birds and cynegetic mammals in six conservation units on the Atlantic Rainforest in the State of São Paulo. In addition, precise information on the spatial distribution of these animals in the conservation units will be collected for future monitoring and effective protection. Our project is the first study of spatial distribution and density of cynegetic species in the conservation units of the Atlantic Rainforest of São Paulo and its methodology could be employed in other areas.

13 Physiognomic survey of the benthic marine communities of consolidated substrate in the State of São Paulo

PROCESS
2002/07412-8

COORDINATOR
Flávio Augusto de Souza Berchez

INSTITUTION
Institute of Biosciences / University of São Paulo (USP)

START: DEC 2002
FINISH: FEB 2007

The characterization of the biodiversity of benthic communities at the level of community can be summed up, on the Brazilian coast, in little more than a dozen works studying, in total, an area of approximately just 500 m^2. Our objective is to test the viability of a new type of approach, unique for marine communities of consolidated substrate, based on the sampling at physiognomic level using sample elements consisting of images of a selected size, obtained at random points in order to obtain basic information on the temporal space variation of the structure of the community, complemented among others, with dominant species in each physiognomy. The method will permit a large increase in the speed and scope of the samplings, which could be undertaken throughout the proposed regions, instead of merely in isolated stations. On the basis of the images we will determine the percentage depositions for each of the physiognomies within the sample elements. At selected points the results will be compared with others obtained in traditional samplings using the percentage deposition of species (intersection of points method), before evaluating the degree of loss of information and the consistency of physiognomies defined. It is further intended to train a team involving researchers, students and research support technicians which will enable the project to be extended and the dissemination of the results through the carrying out of environmental education activities (sub aquatic guided walk and observation tank).

14 Biodiversity and social processes in São Luiz do Paraitinga, São Paulo

PROCESS
2002/08558-6

COORDINATOR
Paulo Inácio de Knegt Lopez de Prado

INSTITUTION
Institute of Biosciences /
University of São Paulo (USP)

START: AUG 2003
FINISH: OCT 2006

A possible path in the building of interdisciplinary knowledge is the integration of already constituted disciplinary approaches. This project seeks to conjugate approaches of ecology and social sciences using as link the landscape in the study of the relationship between social processes and patterns of biological diversity in the municipality of São Luiz do Paraitinga, SP, basing itself on the hypothesis that the landscape is one of the principal mediators between human action and diversity. Standardized inventories will be drawn up of biological diversity (richness and abundance of species) and survey of the history of occupation and of social organization in four landscapes (mosaic of units): four rural neighborhoods. Biological and social data will be georeferenced, to infer their correlation with the configuration of the landscape. It is intended, in this way, to construct explanatory models of biodiversity as a function of the modification of the landscape by human societies.

15 Environmental information system of the Biota-FAPESP Program: development of indicators for monitoring, updating of the titles of the cartographic base and upgrading of the *Biota Neotropica* magazine

PROCESS
2003/01214-2

COORDINATOR
Carlos Alfredo Joly

INSTITUTION
Institute of Biology / Campinas
State University (Unicamp)

START: OCT 2003
FINISH: DEC 2005

The Biota-FAPESP Program's Environmental Information System constantly needs new developments to meet both the needs of the program and the specific peculiarities of some projects. The principal products of this new stage would be: a) to convert the current vegetation titles of the Biota-FAPESP Program Atlas to the IBGE System of Vegetation Classification; b) development of indicators for the monitoring of the performance of the Program's Environmental Information System; c) upgrading the integration tools of the *Biota Netropica* magazine with internal and external databases to the Program.

EDUCATION

16 Biodiversity of the Cerrado: a proposal for practical work in the field of the teaching of botany and ecology in the three levels of schooling

PROCESS
2005/56704-0

COORDINATOR
Osmar Cavassan

INSTITUTION
Bauru School of Sciences /
São Paulo State University (Unesp)

START: JUL 2006
FINISH: JUN 2008

To enrich the knowledge of the biodiversity of the ecosystems existing in the Legal Reserve of the Bauru *campus* of Unesp and disseminate it, are the principal objectives of this project. It is also proposed, to use this environment, covered predominantly by savanna-type vegetation, to develop practical didactic activities in the teaching of the botanical content of the science and biology program of the primary and secondary levels in the public schools in the region of Bauru. From these activities, we are looking for feedback as to how the field procedures promote a better result in the development of cognitive, ethical and esthetic factors in the pupils involved, principally in the education of citizens who are familiar with, interpret and take responsibility for the destinies of the environments which our native biodiversity possesses.

PHARMACOLOGY

17 Antimicrobial and anticancer activity of extracts and active principles obtained from vegetal species in the State of São Paulo

PROCESS
2004/07943-9

COORDINATOR
João Ernesto de Carvalho

INSTITUTION
Chemical, Biological and Agricultural
Pluridisciplinary Research Center / Campinas
State University (Unicamp)

START: APR 2005
FINISH: OCT 2007

The Centro Pluridisciplinar de Pesquisas Químicas, Biológicas e Agrícolas (CPQBA) is composed of the following Divisions: Agro-technology, Phytochemistry, Organic Chemistry and Pharmaceutics, Pharmacology and Toxicology, Microbiology, Residues, Biotechnology and Microbial Resources. Due to its multidisciplinary aspect, most of the research projects are developed in an integrated way, involving its various Divisions. Since 1996 CPQBA has worked with antimicrobial and anticancer drug screening program following the same methodology developed by the National Cancer Institute (NCI-USA). The present study intends to evaluate both the anticancer and antimicrobiological activities of extracts, fractions and isolated principles from plants of the Cerrado, as well as of different forest reserves and species cultivated in the CPQBA experimental *campus*. After harvesting, the grinded plant material will be submitted to the process of extraction by maceration with dichloromethane and subsequently with ethanol (95%). The evaluation of the anticancer activities of each extract (0,25 to 250 µg/ml) will be carried out in nine human cancer cell lines: K562 (leukemia), MCF7 (breast), NCIADR (breast expressing the multi-drug resistance phenotype), NCI460 (lung), UACC62 (melanoma), PC03 (prostate), HT29 (colon), OVCAR (ovary) and 786-0 (kidney). The antimicrobial tests will be performed with *B. subtilis, E. coli, S. aureus, S. epidermides, S. faecium, M. luteus, Rhodococcus equi, Salmonella choterasuis, Pseudomonas aeruginosa, Enterococcus faecium*, and *Candida albicans*. The biological activity will direct the isolation of active principles. In addition, the structure elucidation of the active principle will be possible through espectroscopical methods available (RMN1H, RMN1C13, IR, UV, Mass).

GENETICS

18 Genetic structure of natural populations of *Cryptocarya spp.* (Lauraceae) through isoenzymatic and DNA markers

PROCESS
1999/05818-2

COORDINATOR
Maria Teresa Vitral de Carvalho Derbyshire

INSTITUTION
Center for Nuclear Energy in Agriculture /
University of São Paulo (Cena/USP)

START: JAN 2000
FINISH: MAR 2002

The present project aims to study the genetic structure of natural populations of *Cryptocarya aschersoniana Mez, C. moschata Nees, C. saligna Mez* and *Cryptocarya spp.* (new species) through isoenzymatic and DNA (RAPD) markers, based on

a sampling to be undertaken in the Carlos Botelho State Park (on an altitudinal gradient of 30 to 1000 m), the Juréia-Itatins Ecological Station, the Experimental Station of Pariqüera-Açu, the Cantareira State Park, Forest of Santa Genebra, Barreiro Rico Farm, Campininha Farm, São José Farm, Santa Elisa (IAC) Farm and Bosque dos Jequitibás, State of São Paulo. Based on this basic study, we will investigate several aspects of the life history of these species, such as genetic flux and effective population size, which will be used to elaborate strategies for sampling, management and conservation of the same. Additionally, we will analyze the materials deposited in Brazilian herbariums, together with the samples collected, so as to establish a methodology for the study of the phylogeny of these species, through PCR of genes of chloroplast and mitochondria and sequencing of specific genes, with the aim of solving several taxonomic questions found in this group of plants, as yet unresolved given merely the base of classical morphological characters.

Geosciences

19 Biosphere-atmosphere interaction in natural ecosystems and agroecosystems: a monitoring of sugarcane and Cerrado (wooded savanna)

Process
2001/09881-2

Coordinator
Sueli Yoshinaga Pereira

Institution
Institute of Geosciences / Campinas State University (Unicamp)

Start: Jul 2003
Finish: Oct 2006

The present research proposal has as general objectives: 1) analysis of the environment of deposition and taphonomy of macro detritus and pollens, of the subaquatic environment and of the anthropic modifications in the river estuary, with application of actuo-palaeontology, hydrogeology and current sedimentology (depositional geomorphology); 2) elaboration of integrated models which will provide assistance in the studies of environmental impact produced by the anthropic activities mentioned above and 3) definition of environmental indicators for estuarine environments. The river Itanhaém estuary is located on the southern coast of the State of São Paulo, in the municipality of Itanhaém and is part of the Baixada Santista. It presents characteristics particular to tropical regions, both in environ-

19 Biosphere-atmosphere interaction in natural ecosystems and agroecosystems: a monitoring of sugarcane and Cerrado (wooded savanna)

Process
1999/11215-9

Coordinator
Humberto Ribeiro da Rocha

Institution
Institute of Astronomy, Geophysics and Atmospheric Sciences / University of São Paulo (USP)

Start: Jan 2000
Finish: Dec 2001

This project cuts across the proposals of Biota-FAPESP, focusing on a multidisciplinary analysis of the ecophysiology of two ecosystems of great relevance to the State of São Paulo, sugarcane and Cerrado (wooded savanna). Through the use of advanced methodologies of measurement of the exchanges of the biosphere with the atmosphere, such as the "eddy correlation" method, it is intended to establish an instrumental platform in two experimental sites (sugarcane and Cerrado), to undertake long term monitoring of the fluxes in surface water, energy and CO_2 in the biosphere-atmosphere interface. It is envisaged in this way to estimate the total balances of water and carbon in the ecosystems, quantifying their potential as sources or sinks in relation to terrestrial systems; to add information on transpiration and photosynthesis and their dependence on climatic coercions (temperature, humidity, radiation and hydric stress): to gather indices of these means as atmospheric carbon sinks, and to establish a reference for the comparison of the ecosystems of sugarcane and Cerrado as representative regional biomas and the impacts associated with conversion of vegetation. The sugarcane experimental site has already been implemented, and forms part of the organized network of surface fluxes Amerflux (vide http:// cdiac.esd.ornl.gov/programs/ameriflux/sugarbr. html). The Cerrado experimental site will be implemented in 2000. The project will enjoy the collaboration of another Biota-FAPESP project in progress , *The conservation feasibility of the cerrado remnants in São Paulo State*, coordinated by Marisa Bittencourt, which will provide the updating of relief, physiognomies of vegetation, state of conservation in the fragments of Cerrado and surroundings.

20 Environmental study of the river Itanhaém estuary, southern coast of the State of São Paulo

Process
2001/09881-2

Coordinator
Sueli Yoshinaga Pereira

Institution
Institute of Geosciences / Campinas State University (Unicamp)

Start: Jul 2003
Finish: Oct 2006

The present research proposal has as general objectives: 1) analysis of the environment of deposition and taphonomy of macro detritus and pollens, of the subaquatic environment and of the anthropic modifications in the river estuary, with application of actuo-palaeontology, hydrogeology and current sedimentology (depositional geomorphology); 2) elaboration of integrated models which will provide assistance in the studies of environmental impact produced by the anthropic activities mentioned above and 3) definition of environmental indicators for estuarine environments. The river Itanhaém estuary is located on the southern coast of the State of São Paulo, in the municipality of Itanhaém and is part of the Baixada Santista. It presents characteristics particular to tropical regions, both in environ-

mental aspects (e.g. mangrove and sandbank vegetation) as well as socioeconomic, being the second largest estuary in the state (outdone only by the Ribeira, further to the south, in close proximity to the border with the Paraná) (Lamparelli, 199). It possesses a mangrove area of 3,75 Km^2 (Lamparelli, 1999) considered one of the best protected in the state, where it is possible to undertake the study of its evolution during the Holocene period. Along the river – upstream from the mangroves – there are numerous points of sand exploitation, many already abandoned, which significantly alter the hydrological profile, forming huge lakes. The course of the river Itanhaém was modified more than fifty years ago due to the opening of a canal linking the rivers Branco and Preto. The entire bank of the aforementioned river as well as its tributaries is covered by a dense sandbank scrub, for the most part in primary conditions of conservation which contributes with vegetal material (leaves, seeds, pollens, etc.) to the river sediments. In localized areas there is more recent vegetation – secondary scrub and plantations, in addition to the mangrove vegetation itself.

Veterinary Medicine

21 The biodiversity of characterized reproductive models to be preserved in the State of São Paulo. Structure and management of reproduction, placenta and placentation

Process
2000/12572-9

Coordinator
Maria Angélica Miglino

Institution
School of Veterinary Medicine and Zootechny / University of São Paulo (USP)

Start: Sep 2001
Finish: Nov 2004

The aim of this project is to bring together scientists and professionals interested in studying the biology of the reproduction of wild animals in the State of São Paulo. Initially it is intended to consider some rodents (paca, agouti, capybara and rock cavy) forest pigs, (collared peccary, peccary, wild boar), the South American crecetidae and the sloth: however in subsequent phases other species could be added to this proposal. This study refers to the processes involved in the reproduction of these species in the sense of preserving them, through rearing in captivity and assisted reproduction. Physiological aspects such as puberty, oestrus, gestation time, etc. in the conditions of the State of São Paulo, as well as external interferences in the process caused by alterations in the ecosystem. Equally, the physiology of the fetal membranes will be studied, as well as the embryonary annexes of accessory maternal elements.

Microbiology

22 Distributed information system for biological collections the integration of Species Analyst and SinBiota

Process
2001/02175-5

Coordinator
Vanderlei Perez Canhos

Institution
Reference Center on Environmental Information (Cria)

Start: Nov 2001
Finish: Oct 2005

Implementation of an information system on the distribution of biological species (fauna, flora, microbiota) in the State of São Paulo associated with a system of mathematical modeling. The project will explore the most recent advances in the area of databases and communications protocols, including the use of Internet 2. It includes the implantation of a distributed information system of biological collections (historical data) via Internet integrated with the environmental information system of the Biota-FAPESP Program (www.biotasp.prg.be/sia/atlas – current data) and with the Species Analyst network (http://www.speciesanalyst.net/). The project enjoys the initial participation of 12 biological collections (3 herbariums, 2 collections of mites, 3 of fish, 1 of algae and 3 of microorganisms) to be integrated into a distributed network. It envisages the repatriation of data from specific sub-collections outside the State of São Paulo (in Brazil and/or abroad). As product we have a host of distributed data, maps of distribution of species produced "in real time" and forecasting of the occurrence and non occurrence of species in the different regions of the State.

23 Recovery of the biodiversity of an area of Atlantic Rainforest contaminated by heavy metals: a proposal for bioremediation

PROCESS
2005/54617-2

COORDINATOR
Elisa Espósito

INSTITUTION
Center for Health Science / University of Mogi das Cruzes (UMC)

START: DEC 2006
FINISH: NOV 2008

The purpose of this project is the development of bioremediation strategies and recomposition of a contaminated (heavy metals) Atlantic Rainforest using methalophytes plants microorganisms associated with rysosphere. The area choose for this study – Nagib Najar Park – is located in hydrographic basin of Tietê river, one of the most complex of in Brazil, due the forest reminiscent that exhibit the major taxes of endemism in Brazilian biota. Therefore, this work to allow, at the end, the development of strategies for biorecuperation, not only for this area, but also another's sites with similar problems. In the first step, the better experimental area that represents the contamination gradient will be choose and different samples from soil Park will be physicochemical analyzed. The fauna, flora and microbiote biodiversity will be evaluated and, the results compared to the no impacted Atlantic Rainforest, or with another's studies realized on this biome. Also, the bioaccumulation in fauna and flora of the heavy metals will be quantified, allowing choose the native plants that could be used in depolution of the contaminated Park area. Finally, this project will allow the organization of a data bank containing all results obtained by the multidisciplinary equip and, also a new strategy for site monitoring. This study offers opportunities to surgiment of the news researches to this region, prioritary in the programs conservation, mainly due to mananciales richest.

URBAN AND REGIONAL PLANNING

24 Environmental Atlas of the municipality of São Paulo: phase 1 – diagnosis and bases for the definition of public policies for green areas in the municipality of São Paulo

PROCESS
1999/10955-9

COORDINATOR
Harmi Takiya

INSTITUTION
Municipal Secretariat for Green and Environmental Affairs

START: SEP 2000
FINISH: JUL 2002

This project, called *Diagnosis and Bases for Definition of Public Polices for Green Areas of São Paulo City*, constitutes the first stage of the Environmental Atlas of São Paulo City, the cartographic product of the Environmental Information System, that will be implemented in a Prefecture of São Paulo in the medium term. What is intended is to obtains the diagnosis for all Municipality; in regional scale, with detailing of major interest areas of vegetation, associated with socioeconomic aspects, with land use and occupation and with environmental characteristics as a support for public policies for the increase and conservation of green areas. It will be used widely know techniques as cartography, remote sensing and geographic information system. As a product, one expects to obtain a set of thematic maps collection and explanatory text coupled with digital data base.

CHEMISTRY

25 Bioprospection on the metabolism of prokaryotes from Brazilian biomas: exploitation of microbial transformations for synthesis of chiral pharmaceuticals and bioactives compounds

PROCESS
2004/07708-0

COORDINATOR
João Valdir Comasseto

INSTITUTION
Institute of Chemistry / University of São Paulo (USP)

START: DEC 2004
FINISH: NOV 2006

Screening of new enzymes for enantioselective reactions using microrganisms isolated in Brazil. The prospecting of microrganisms will be carry out with

samples from two Brazilian biomes: Atlantic Rainforest [studies carried out in the context of the Biota-FAPESP Program (2001-04)]; Amazônia [Parque Nacional Pacaás Novos, Rondônia State (Madeira Watershead)]. Enrichment and isolation of chemolitotrophs and chemoorganotrophs of Archaea and Bacteria Domains. Phylogenetic characterization of the microrganisms by using the 16S rDNA analyses, Denaturing Gradient Gel Electrophoresis – DGGE and fluorescent in situ hybridization -FISH, and sequencing approaches. Screening of microbial species able to degrade aliphatic and aromatic halogenated compounds, to verify the enzymatic potential of the microbes. Screening of microrganisms capable of promoting enantioselective oxi-reduction reactions and nitrile hydrolysis.

26 The bioprospection of the fauna of arthropods in the State of São Paulo in the search for leader-compounds for the rational development of new medicines and pesticides

PROCESS
2004/07942-2

COORDINATOR
Mario Sérgio Palma

INSTITUTION
Rio Claro Institute of Biosciences /
São Paulo State University (Unesp)

START: FEB 2005
FINISH: JAN 2007

Many of the medicines prescribed today were initially discovered in nature. Despite the advances in chemistry and the sophisticated instruments used for the combinatorial synthesis of new drugs, scientists still have recourse to nature as a source of inspiration for the development of new compounds. A substantial fraction of the medicines in use today was directly or indirectly derived from bioactive compounds produced by plants and/or microorganisms. Recently, compounds of low molecular weight of animal origin have also been the object of interest of agrochemical and/or pharmaceutical industries. Arthropods are considered a potentially very important source of new molecules which offer notable properties such as: high efficiency, low probability of microbial resistance, limited toxicity and low immunogenicity for humans. Spiders and wasps constitute a large group of arthropods present in the majority of terrestrial ecosystems. The toxic secretions of spiders and wasps are used to paralyze the insect-prey through the paralysis of the synaptic transmission of the neuromuscular junctions of those insects (Palma *et al.*, 1997). Considerable efforts have been made to isolate and identify neuroactive compounds in the secretions of spiders and wasps, resulting in the discovery of many molecules which block the receptors of glutamate and/or calcium channels. Thus, many of these compounds have become structural models for the rational development of neuroprotective drugs for different neurological disorders. The small organic molecules existing in many of the toxic secretions of spiders and wasps are natural candidates for bioprospection for leader-compounds for the development of drugs for neurotherapeutic use and/or as selective bioinsecticides. The principal proposal of this project is the systematic investigation from the point of view of chemical characterization and of biological trials, of the natural products present in the exocrine secretions of a toxic nature, principally in venoms of Arthropods of the Brazilian fauna, such as spiders and wasps.

27 Bioprospection of microorganisms for application in the synthesis of quiral alcohols of pharmaceutical and industrial interest

PROCESS
2007/51521-0

COORDINATOR
Leandro Helgueira de Andrade

INSTITUTION
Institute of Chemistry /
University of São Paulo (USP)

START: OCT 2007
FINISH: SEP 2009

In this project we will undertake bioprospection for microorganisms in reactions of enantioselective biocatalysis for application in the synthesis of chiral alcohols of pharmaceutical and industrial interest. To achieve this objective, we selected two chemical reactions which we defined as model reactions for our enantioselective enzymatic evaluation of the microorganisms (bioreduction of pro-chiral ketones and enantioselective bio-oxidation of racemic alcohols). The microorganisms will originate from two different sources (microorganisms catalogued in the BIOprospecTA database and microorganisms obtained through the process of induced isolation). In this case, we will use as source of microorganisms samples of soil and sediments collected in the Amazon Forest.

The taxonomic characterization of the microorganisms will only be carried out for those microorganisms that exhibit excellent enzymatic activity in the enantioselective reactions tested. In addition to the stage of induced isolation of microorganisms, we propose to continue with the studies of synthetic applications of enzymes and microorganisms in the preparation of chiral chemical compounds.

Forest Resources

28 Physiognomic-ecological units associated with remnants of natural vegetal cover

Process
1999/12329-8

Coordinator
João Batista Baitello

Institution
Forestry Institute / Ministry of State for the Environmental (SMA-SP)

Start: Feb 2001
Finish: Jun 2003

Georeferenced maps will be drawn containing the potential vegetation according to the physiognomic-ecological units (types of vegetation) developed by the RADAMBRASIL project. This survey will be associated with the *São Paulo Forestry Inventory* (1993) developed on the scale 1:50.000, with the mapping and quantification of the remaining natural vegetation and the states of forest cultivation (reforestation), correctly updated using recent orbital images. The phytophysiognomies considered in that opportunity (forest, scrub, wooded savanna, barren land, enclosed countryside, open countryside, cultivated plains, mangrove and sandbank), will be detailed within the concept of the physiognomical-ecological units of the aforementioned Project. In the case of the cultivated forests, it will be possible to undertake studies on the implantation of these forests in spaces previously occupied by natural ecosystems. The updating of the survey of the natural vegetation, based on the *São Paulo Forestry Inventory* (1993) and the elaboration of the respective georeferenced digital base, are already objectives of the Biota-FAPESP Program, specifically FAPESP Project 98/05251-0 (*Viability of Conservation of Remaining Fragments of Cerrado in São Paulo*) and FAPESP 98/05117-1 (*Development of an Environmental Information System for the Biota-FAPESP Program*).

29 Distribution of the community of palm trees in the altitudinal gradient of the Atlantic Rainforest in the northeast of the State of São Paulo

Process
2001/06023-5

Coordinator
Simey Thury Vieira Fisch

Institution
Pro-Rectory of Research and Post-graduation / University of Taubaté (Unitau)

Start: Apr 2002
Finish: Mar 2005

Although the Atlantic Rainforest is better preserved in mountainous areas, the alterations which the altitudinal gradient provokes in the vegetation has received little attention in studies carried out on this bioma. Elevation has been indicated as the cause of the decline in the diversity of palms and for the abundance of one or few species in intermediary altitudes. Based on these premises, this project has the principal aim of correlating the occurrence of palm trees with the altitude factor in the Atlantic Rainforest of the northeast of the State of São Paulo. The studies will be developed in the Conservation Units of the Serra do Mar State Park (Picinguaba Nucleus, Santa Virgínia Nucleus/Natividade da Serra and Bananal Ecological Station), the Forest formations of which occur at altitudes which vary from 0 to 1900 m. In these localities, samples will be taken at every 200 m of altitude (0 m – sea level, 200, 400, 600, 800, ~940, 1200, 1400 and ~1600 m). Morphometric evaluations will be carried out, existing palm trees collected and the physical medium of each sample unit will be characterized. The project will have a multidisciplinary team from the University of Taubaté (academics and teachers) and the collaboration of researchers from the following research institutions: Forestry Institute, Botanical Institute (SP), Prof. Mello Leitão Museum (ES), Botanical Gardens Institute of Rio de Janeiro (RJ).

Zoology

30 Consolidation of the infrastructure and computerization of the fish collection in the Department of Zoology Ibilce/Unesp, São José do Rio Preto, SP

Process
1999/05193-2

COORDINATOR
Francisco Langeani Neto

INSTITUTION
São José do Rio Preto Institute of Biosciences, Arts and Exact Sciences / São Paulo State University (Ibilce/Unesp)

START: NOV 1999
FINISH: OCT 2001

The project is aimed at the consolidation of the fish collection in the Department of Zoology of Ibilce/Unesp in São José do Rio Preto, by securing resources for the conclusion of its computerization, for the refurbishment of the space it occupies and to buy equipment and consumables necessary for its maintenance. It also proposes to identify batches still not identified up to the level of species and the training of undergraduates in the taxonomy of freshwater fish and the curatorship of zoological collections.

31 Diversity and conservation of the reptile fauna in the southeastern Atlantic Rainforest

PROCESS
1999/08291-5

COORDINATOR
Denise Maria Peccinini Seale

INSTITUTION
Institute of Biosciences / University of São Paulo (USP)

START: MAR 2001
FINISH: MAY 2006

This project proposes to study the reptile diversity in the southeastern Atlantic Rainforest in Brazil. The reptile fauna in this portion of the Atlantic Rainforest is quite distinct from the other Brazilian tropical forests. Extending over a mountainous continental area and in several coastal islands, the Atlantic Rainforest is characterized by an accentuated degree of endemism. In all its extension, the faunistic composition is still poorly documented, especially in relation to the latitudinal and altitude variations. The field work will focus in disjunct areas separated by geographic barrier. Morphological, cytogenetic, enzymatic, molecular and toxicological data will be employed to characterize the populations. Ecological studies will characterize each species natural history. The reptile communities will be characterized by its faunistic composition, relative abundance of species, resource use, and reproductive patterns. The comparative analysis of several parameters will be employed to evolutionary and biogeographical inferences. The results will be used to define priority areas to conservation, as well as to produce non-scholarship publications and public exhibitions.

32 Diversity of fish in streams and headwaters in the basin of the river Ribeira de Iguape in the State of São Paulo

PROCESS
2000/04300-9

COORDINATOR
Osvaldo Takeshi Oyakawa

INSTITUTION
Zoology Museum / University of São Paulo (USP)

START: OCT 2000
FINISH: SEP 2003

The principal objective of this project consists of broadening the knowledge on the ichthyofaunal composition of the basin of the Rio Ribeira de Iguarape, through studies of the taxonomy and geographical distribution based on collections in all the Conservation Units established in the region, and in other areas of the basin barely explored or totally unexplored. The principal most immediate products of the project will be: a) ichthyological survey of one of the least known areas of the State of São Paulo; b) production of publications such as: descriptions of new taxons, revision monographs, etc.; c) production of a manual and identification guides in fields aimed principally at those interested in the preservation of the environment and at the public in general; d) increase in the geographical cover of fish in the Zoology Museum; e) in the medium and long term it is hoped that the results obtained will bolster conservation policies, based on the drawing up of priority areas, sustainable management and rational exploitation of the species of commercial interest.

33 Biodiversity of arachnids (except mites) in the Cantareira State Park, São Paulo, Brazil

PROCESS
2000/05729-9

COORDINATOR
Ricardo Pinto da Rocha

INSTITUTION
Institute of Biosciences /
University of São Paulo (USP)

START: DEC 2000
FINISH: AUG 2003

Arachnids have been studied since the beginning of the last century. However, the publications are of little value in the use of the biodiversity of the group, in the conservation of nature and analysis of the impact of human activities in natural environments. The present project aims to study the diversity of arachnids in three areas with different degrees of human impact within the Cantareira State Park, to compare the information obtained with other areas of the state obtained by the Biota-FAPESP Arachnida project and to establish a minimum collection protocol for the evaluation of the biodiversity of the group of the Serra da Cantareira.

34 Systematics, taxonomic revision and biogeography of the *Heptapterini gill*, 1861 (Ostariophysi, Siluriformes, Heptapteridae) class

PROCESS
2003/03108-5

COORDINATOR
Flávio Alicino Bockmann

INSTITUTION
Ribeirão Preto School of Philosophy, Arts
and Sciences / University of São Paulo (USP)

START: DEC 2003
FINISH: SEP 2007

The Heptapterini class, of the Heptapteridae family, consists of small to medium size catfish which inhabit streams throughout almost the entire Neotropical region. Of the 24 genuses of this class which are recognized as valid (10 of which have yet to be formally described), only *Mastiglanis*, *Nemuroglanis* and *Taunayia* have been revised. Taking as a base cladistic methodology, the objective through this research is: 1) to undertake a rigorous re-analysis of the phylogenetic relationships of the species of the Heptapteridae family (through parsimony programs), with special attention to the Heptapterini class; 2) to implement a classification for the whole family up to the generic level; 3) to undertake a taxonomic revision of the Heptapterini class, with the description of several new taxons; 4) to formulate a hypothesis on the historical biogeography of the Heptapterini class, and to postulate a general hypothesis on the evolutive history of the Neotropical hydrographic basins; and 5) gather ecological and geographical distribution information on the members of the Heptapterini class, to support future conservationist actions.

35 Evaluation of the potential of ants (Hymenoptera: Formicidae) as bioaccumulators of heavy metals

PROCESS
2006/52409-6

COORDINATOR
André Fernando de Oliveira

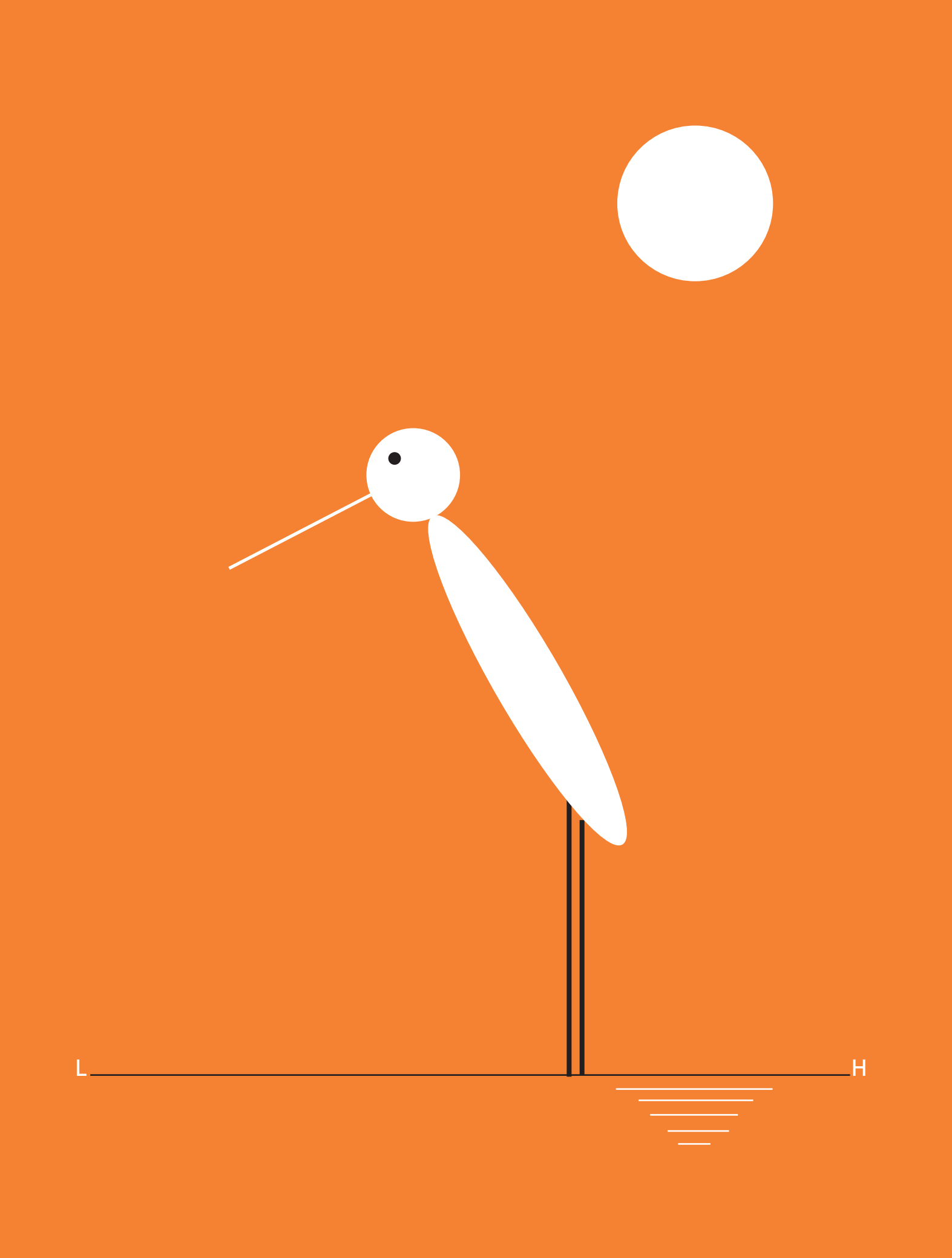
INSTITUTION
Pro-Rectory of Research and Post-graduation
and Extension / University of Mogi das Cruzes
(UMC)

START: AUG 2007
FINISH: JUL 2009

Based on the indices observed in the studies already undertaken by our group, the potential of two species of ant will be evaluated (*Camponotus rufipes* and *Solenopsis saevissima*) as bioaccumulators of metals which originate from anthropic activities. In this project, we will study the alterations in the distribution of the profile of the metals, the size and richness of these species along a cross-section composed of regions of different anthropic impact, but under the influence of the same microclimate. The cross-section extends from the region contaminated by metals (an old scrap metal ironworks), a park visited by the public, the main route for trucks in the city of Mogi das Cruzes, regions of moderate urbanization up to the Atlantic Rainforest. The distribution of metals in the soil, plants and nests will also be evaluated.

Grants

Scientific Initiation, Masters Degree, Doctorate, Fast-track Doctorate, Post-doctorate and Research Abroad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Agronomy

1 Systematics of the species of the genus *Ceroplastes Gray*, 1828 (Hemiptera: Coccoidae: Coccidae) which occur in the State of São Paulo, Brazil and inventariation of their parasitoids

Process: 2000/09870-8
Modality: Doctorate

Grant holder: Ana Lúcia Benfatti Gonzalez Peronti
Supervisor: Carlos Roberto Sousa e Silva
Institution: Center for Biological Sciences and Health / Federal University of São Carlos (UFSCar)

Start: Dec 2000
Finish: 29/2/2004

2 Micropropagation and conservation of *in vitro* germplasm of *Anemopaegma arvense*

Process: 2001/05063-3
Modality: Scientific Initiation

Grant holder: Saulo Franca Amui
Supervisor: Ana Maria Soares Pereira
Institution: Center for Natural and Technological Exact Sciences / University of Ribeirão Preto (Unaerp)

Start: Jul 2001
Finish: Dec 2002

3 Potential use of predatory mites found in the Atlantic Rainforest of the State of São Paulo for the biological control of agricultural pests

Process: 2001/13725-6
Modality: Post-doctorate

Grant holder: Raf Michael Julien de Vis
Supervisor: Gilberto José de Moraes
Institution: Luiz de Queiroz College of Agriculture / University of São Paulo (Esalq/USP)

Start: Jun 2002
Finish: May 2003

4 Morpho-anatomical, chemical and genetic characterization of different kinds of *Jacaranda decurrens Cham. Bignoniaceae*, in the State of São Paulo

Process: 2002/01560-5
Modality: Post-doctorate

Grant holder: Dulce Marcia de Castro
Supervisor: Ana Maria Soares Pereira
Institution: Center for Natural and Technological Exact Sciences / University of Ribeirão Preto (Unaerp)

Start: Sep 2002
Finish: 29/2/2004

5 Ultra-detailed mapping of the soil in the area of Caetetus dedicated to the diversity, dynamic and conservation project in forests of the State of São Paulo: 10 hectares of the permanent plots

Process: 2002/04093-9
Modality: Scientific Initiation

Grant holder: Ana Raquel Soares
Supervisor: Pablo Vidal Torrado
Institution: Luiz de Queiroz College of Agriculture / University of São Paulo (Esalq/USP)

Start: Jul 2002
Finish: Jun 2003

6 Ultra-detailed mapping of the soil in the area of Cardoso Island dedicated to the diversity, dynamic and conservation project in forests of the State of São Paulo: 10 hectares of the permanent plot

Process: 2002/04094-5
Modality: Scientific Initiation

Grant holder: Cristiano Cassiano da Silva
Supervisor: Pablo Vidal Torrado
Institution: Luiz de Queiroz College of Agriculture / University of São Paulo (Esalq/USP)

Start: Jun 2002
Finish: May 2003

7 Ultra-detailed mapping of the soil in the area of Assis dedicated to the diversity, dynamic and conservation project in forests of the State of São Paulo: 10 hectares of the permanent plot

Process: 2002/04095-1
Modality: Scientific Initiation

Grant holder: Marilia Neubern Libardi
Supervisor: Pablo Vidal Torrado
Institution: Luiz de Queiroz College of Agriculture / University of São Paulo (Esalq/USP)

Start: Jul 2002
Finish: Jun 2003

8 Soil-relief relationship in area under sandbank vegetation of the Cardoso Island, SP

Process: 2002/09736-5
Modality: Scientific Initiation

Grant holder: Bruno Gherardi
Supervisor: Pablo Vidal Torrado
Institution: Luiz de Queiroz College of Agriculture / University of São Paulo (Esalq/USP)

Start: Nov 2002
Finish: Oct 2003

9 Ultra-detailed mapping of the soils in the Carlos Botelho State Park dedicated to the diversity, dynamic and conservation project in forests of the State of São Paulo: 10,24 hectares of permanent plots

Process: 2003/00189-4
Modality: Scientific Initiation

Grant holder: Antônio Augusto Soares Júnior
Supervisor: Pablo Vidal Torrado
Institution: Luiz de Queiroz College of Agriculture / University of São Paulo (Esalq/USP)

Start: Mar 2003
Finish: 29/2/2004

10 Endophytic microorganisms as agents of biocontrol of coffee rust (*Hemileia vastatrix*) and as growth promoters

Process: 2003/05759-3
Modality: Post-doctorate

Grant holder: Harllen Sandro Alves Silva
Supervisor: Wagner Bettiol
Institution: Brazilian Agricultural Research Corporation (Embrapa)

Start: Jul 2003
Finish: Mar 2005

11 Selection of endophytic microorganisms as agents of biocontrol of coffee rust

Process: 2004/01741-5
Modality: Scientific Initiation

Grant holder: César Rafael Fanchini Terrasan
Supervisor: Wagner Bettiol
Institution: Brazilian Agricultural Research Corporation (Embrapa)

Start: Apr 2004
Finish: Dec 2004

12 Chemical, physical and mineralogical characterization of the soils of a toposequence located on the Marília formation (Bauru group) in the State of São Paulo

Process: 2004/03759-9
Modality: Scientific Initiation

Grant holder: Antônio Augusto Soares Júnior
Supervisor: Pablo Vidal Torrado
Institution: Luiz de Queiroz College of Agriculture / University of São Paulo (Esalq/USP)

Start: Jun 2004
Finish: May 2005

13 Soil-water-vegetation relationship in a toposequence located in the Ecological Station of Assis, SP

Process: 2004/04799-4
Modality: Masters Degree

Grant holder: Carlos Eduardo Pinto Juhasz
Supervisor: Miguel Cooper
Institution: Luiz de Queiroz College of Agriculture / University of São Paulo (Esalq/USP)

Start: Sep 2004
Finish: Jan 2006

14 2D and 3D characterization of the porous space of the soils of the Caetetus Ecological Station

Process: 2004/08373-1
Modality: Scientific Initiation

Grant holder: Thalita Campos Oliveira
Supervisor: Miguel Cooper

Institution: Luiz de Queiroz College of Agriculture / University of São Paulo (Esalq/USP)
Start: Oct 2004
Finish: Sep 2005

15 Physical-hydric characterization of the soils in the area of the Assis Ecological Station

Process: 2004/08374-8
Modality: Scientific Initiation

Grant holder: Patrícia Ribeiro Cursi
Supervisor: Miguel Cooper
Institution: Luiz de Queiroz College of Agriculture / University of São Paulo (Esalq/USP)

Start: Oct 2004
Finish: Sep 2005

16 Physical-hydric characterization of soils in a transesction of the permanent experimental plot in the State Park of the Cardoso Island

Process: 2004/09329-6
Modality: Scientific Initiation

Grant holder: Raul Shiso Toma
Supervisor: Miguel Cooper
Institution: Luiz de Queiroz College of Agriculture / University of São Paulo (Esalq/USP)
Start: Mar 2005
Finish: Dec 2005

17 Diversity of diazotrophic microorganisms under the narrowleaf Atlantic Rainforest in the State of São Paulo

Process: 2005/53047-8
Modality: Masters Degree

Grant holder: Rafaela de Fátima Neroni
Supervisor: Elke Jurandy Bran Nogueira Cardoso
Institution: Luiz de Queiroz College of Agriculture / University of São Paulo (Esalq/USP)

Start: Sep 2005
Finish: Feb 2007

18 Physical-hydric characterization of the soils of the permanent plot in the dense evergreen rainforest (Carlos Botelho State Park)

Process: 2005/56700-4
Modality: Scientific Initiation

Grant holder: José Eduardo Soria
Supervisor: Miguel Cooper
Institution: Luiz de Queiroz College of Agriculture / University of São Paulo (Esalq/USP)

Start: Dec 2005
Finish: Nov 2006

19 Analysis of the bacterial community associated with mangroves in the State of São Paulo of biotechnological and agricultural interest

Process: 2006/57060-1
Modality: Post-doctorate

Grant holder: Paulo Teixeira Lacava
Supervisor: João Lúcio de Azevedo
Institution: Luiz de Queiroz College of Agriculture / University of São Paulo (Esalq/USP)

Start: Nov 2006
Finish: Oct 2007

Biochemistry

20 Purification and characterization of an endo-beta-mananase of seeds of *Sesbania marginata benth*. (Leguminosae)

Process: 2000/11377-8
Modality: Masters Degree

Grant holder: César Gustavo Serafim Lisboa
Supervisor: Marcos Silveira Buckeridge
Institution: Institute of Botany / Ministry of State for the Environment (SMA-SP)

Start: Dec 2000
Finish: Jan 2002

21 Comparative study between the acidic and alkaline phosphatases produced by the *Aspergillus niveus*, *Aspergillus niger* and *Aspergillus ochraceus fungi*

Process: 2005/56803-8
Modality: Scientific Initiation

Grant holder: Juliana Maria Leão
Supervisor: Maria de Lourdes Teixeira de Moraes Polizeli

Institution: Ribeirão Preto School of Philosophy, Arts and Sciences / University of São Paulo (USP)

Start: Dec 2005
Finish: Nov 2007

22 Antiproliferative and cytoxic evaluation of potential inhibitors of hypusination of the factor of the 5th translation initiation (EIF5A)

Process: 2005/60029-6
Modality: Scientific Initiation

Grant holder: Maicon Segalla Petrônio
Supervisor: Sandro Roberto Valentini
Institution: Araraquara School of Pharmaceutical Sciences / São Paulo State University (Unesp)

Start: May 2006
Finish: Apr 2007

23 Selection of soil fungi and lipase producing endophytics and adaptation of the cultivation conditions

Process: 2006/50955-3
Modality: Scientific Initiation

Grant holder: Marco Antônio Nogueira
Supervisor: Suraia Said
Institution: Ribeirão Preto School of Pharmaceutical Sciences / University of São Paulo (USP)

Start: Oct 2006
Finish: Sep 2007

Botany

24 Effects of oligosaccharides of xyloglucan on the growth of cells of *Rudgea jasminoides* (Rubiaceae) cultivated *in vitro*

Process: 1999/04109-8
Modality: Doctorate

Grant holder: Clóvis José Fernandes de Oliveira Júnior
Supervisor: Marcos Silveira Buckeridge
Institution: Institute of Botany / Ministry of State for the Environment (SMA-SP)

Start: Aug 1999
Finish: Mar 2003

25 Role of beta-galactosity in the mechanism of degradation of cell wall xyloglucan during reserve mobilization in cotyledons of *Copaifera langsdorffii*

Process: 1999/04941-5
Modality: Masters Degree

Grant holder: Clóvis Oliveira Silva
Supervisor: Marcos Silveira Buckeridge
Institution: Institute of Botany / Ministry of State for the Environment (SMA-SP)

Start: Aug 1999
Finish: Jul 2001

26 Induction activity of phytoalexins and production of fungitoxic substances during the germination of *Sesbania marginata* seeds

Process: 1999/07564-8
Modality: Masters Degree

Grant holder: Rodrigo Luís Rahal
Supervisor: Márcia Regina Braga
Institution: Institute of Botany / Ministry of State for the Environment (SMA-SP)

Start: Oct 1999
Finish: Sep 2001

27 Codiolales class (Ulvophyceae) in the State of São Paulo: floral survey

Process: 1999/10215-5
Modality: Scientific Initiation

Grant holder: Fabiana Cordeiro Pereira
Supervisor: Carlos Eduardo de Mattos Bicudo
Institution: Institute of Botany / Ministry of State for the Environment (SMA-SP)

Start: Jan 2000
Finish: Dec 2001

28 *Trentepohliales class* (Trentepohliophyceae) in the State of São Paulo floral survey

Process: 1999/10241-6
Modality: Scientific Initiation

Grant holder: Carla Isis dos Santos
Supervisor: Carlos Eduardo de Mattos Bicudo
Institution: Institute of Botany / Ministry of State for the Environment (SMA-SP)

Start: Jan 2000
Finish: Dec 2001

29 Eunotiaceae family (Bacillariophyceae) in the State of São Paulo : floral survey

Process: 2000/04005-7
Modality: Masters Degree

Grant holder: Luciane Lopes Morandi
Supervisor: Carlos Eduardo de Mattos Bicudo
Institution: Institute of Botany / Ministry of State for the Environment (SMA-SP)

Start: Oct 2000
Finish: Nov 2001

30 Mapping of invertase in plantules of *Hymenea courbaril l.* during the mobilization of reserve xyloglucans

Process: 2000/13895-6
Modality: Scientific Initiation

Grant holder: Fábio Reis Dalle Molle
Supervisor: Marcos Silveira Buckeridge
Institution: Institute of Botany / Ministry of State for the Environment (SMA-SP)

Start: Apr 2001
Finish: Mar 2003

31 Seasonal and daily variation analysis of the content and the composition of the non-structural carbohydrates of *Echinolaena inflexa (poir.) Chase* and *Melinis minutiflora beauv.* (Poaceae)

Process: 2000/14099-9
Modality: Masters Degree

Grant holder: Amanda de Souza
Supervisor: Rita de Cássia Leone Figueiredo Ribeiro
Institution: Institute of Botany / Ministry of State for the Environment (SMA-SP)

Start: Mar 2001
Finish: Feb 2003

32 Optimization and spatial mapping of the activity of the *Saccharose synthase* and *Saccharose phosphate synthase* enzymes during the process of degradation of the reserve xyloglucans in *Hymenaea courbaril* (jatoba)

Process: 2000/14353-2
Modality: Scientific Initiation

Grant holder: Tatiana Cotelesse Monteiro
Supervisor: Marcos Silveira Buckeridge
Institution: Institute of Botany / Ministry of State for the Environment (SMA-SP)

Start: Feb 2001
Finish: Dec 2001

33 Characterization of the remnants of Cerrado (wooded savanna) in the State of São Paulo flora, phytogeography and state of conservation

Process: 2001/01237-7
Modality: Research abroad

Grant holder: Giselda Durigan
Institution: Forestry Institute / Ministry of State for the Environment (SMA-SP)

Start: Sep 2001
Finish: Nov 2001

34 Enzymes of the metabolism of fructans in plants of *Vernonia herbacea (vell.) Rusby* induced to bud

Process: 2001/01762-4
Modality: Masters Degree

Grant holder: Amanda Francine Asega
Supervisor: Maria Ângela Machado de Carvalho
Institution: Institute of Botany / Ministry of State for the Environment (SMA-SP)

Start: May 2001
Finish: Feb 2003

35 *Staurodesmus genus* (Zygnemaphyceae) in the State of São Paulo: floral survey

Process: 2001/03794-0
Modality: Scientific Initiation

Grant holder: Luciana Rufino Godinho
Supervisor: Carlos Eduardo de Mattos Bicudo
Institution: Institute of Botany / Ministry of State for the Environment (SMA-SP)

Start: Jul 2001
Finish: Jun 2002

36 Isolation and characterization of the genes involved in the metabolism of carbohydrates during the growth and establishment of two species of the *Hymenaea* genus and in different environments

Process: 2001/10419-1
Modality: Post-doctorate

Grant holder: Marilia Gaspar Mais
Supervisor: Marcos Silveira Buckeridge
Institution: Institute of Botany / Ministry of State for the Environment (SMA-SP)

Start: Apr 2002
Finish: Jul 2004

37 The *Staurastrum* genus (Desmidiaceae, Zygnemaphyceae) in the State of São Paulo: floral diversity

Process: 2001/10698-8
Modality: Doctorate

Grant holder: Sílvia Maria Mathes Faustino
Supervisor: Carlos Eduardo de Mattos Bicudo
Institution: Institute of Botany / Ministry of State for the Environment (SMA-SP)

Start: May 2002
Finish: May 2004

38 Characterization of the elicitor of the *Mucor ramosissimus* fungus and study of the suppression of its inductive activity in soya through fragments of pectic polysaccharides

Process: 2001/11530-3
Modality: Masters Degree

Grant holder: Kelly Simões
Supervisor: Márcia Regina Braga
Institution: Institute of Botany / Ministry of State for the Environment (SMA-SP)

Start: Apr 2002
Finish: Mar 2004

39 Experimental taxonomy of the *Bostrychia radicans* (*Rhodomelaceae rhodophyta*) complex of the coastline of the State of São Paulo

Process: 2001/13836-2
Modality: Scientific Initiation

Grant holder: Cíntia Guido
Supervisor: Carlos Eduardo de Mattos Bicudo
Institution: Institute of Botany / Ministry of State for the Environment (SMA-SP)

Start: Mar 2002
Finish: Dec 2002

40 Effect of mannose on the metabolism and growth of plantules of *Sesbania virgata benth*

Process: 2002/01122-8
Modality: Post-doctorate

Grant holder: Marco Aurélio Silva Tine
Supervisor: Marcos Silveira Buckeridge
Institution: Institute of Botany / Ministry of State for the Environment (SMA-SP)

Start: Apr 2002
Finish: 19/1/2005

41 *Staurodesmus* genus (Zygnemaphyceae) in the State of São Paulo: floral survey

Process: 2002/10946-4
Modality: Masters Degree

Grant holder: Luciana Rufino Godinho
Supervisor: Carlos Eduardo de Mattos Bicudo
Institution: Institute of Botany / Ministry of State for the Environment (SMA-SP)

Start: Sep 2003
Finish: Aug 2005

42 Structural and evolutive characterization of cell walls of four species of Pteridopsida

Process: 2002/11158-0
Modality: Masters Degree

Grant holder: Giovanna Bezerra da Silva
Supervisor: Marcos Silveira Buckeridge
Institution: Institute of Botany / Ministry of State for the Environment (SMA-SP)

Start: Mar 2003
Finish: Jul 2004

43 Effect of the availability of nitrate in the content of fructans and in the enzymes of their metabolism in *Vernonia herbacea* (*Vell.*) *Rusby*

Process: 2002/11226-5
Modality: Masters Degree

Grant holder: Patrícia Gaya de Carvalho
Supervisor: Maria Ângela Machado de Carvalho
Institution: Institute of Botany / Ministry of State for the Environment (SMA-SP)

Start: Apr 2003
Finish: Mar 2005

44 Biosynthesis and degradation of fructans in different regions of the rhizophores of *Vernonia herbacea* (*Vell.*) *Rusby*

Process: 2002/11227-1
Modality: Masters Degree

Grant holder: Maria Teresa Portes
Supervisor: Maria Ângela Machado de Carvalho
Institution: Institute of Botany / Ministry of State for the Environment (SMA-SP)

Start: Oct 2003
Finish: Jun 2005

45 Floral secretory structures and foliar collectors of *Aspidosperma Mart & Zucc.* and *Blepharodon decne.* (Apocynaceae s.l) in the Cerrado

Process: 2002/11881-3
Modality: Masters Degree

Grant holder: Diego Demarco
Supervisor: Marilia de Moraes Castro
Institution: Institute of Biology / Campinas State University (Unicamp)

Start: Apr 2003
Finish: Feb 2005

46 Anatomy and ultra-structure of the species of *Erythroxylum p. browne* occurring in Cerrados in the State of São Paulo

Process: 2003/00957-1
Modality: Doctorate

Grant holder: Alexandre Antônio Alonso
Supervisor: Sílvia Rodrigues Machado
Institution: Botucatu Institute of Biosciences / São Paulo State University (Unesp)

Start: Sep 2003
Finish: Feb 2007

47 Anatomy and ultra-structure of species of *Miconia Ruiz & Pav.* (Melastomataceae) occurring in Cerrados (*lato sensu*) of the State of São Paulo

Process: 2003/00958-8
Modality: Doctorate

Grant holder: Camilla Rozindo Dias Milanez
Supervisor: Sílvia Rodrigues Machado
Institution: Botucatu Institute of Biosciences / São Paulo State University (Unesp)

Start: Jun 2003
Finish: Feb 2007

48 Purification and genic expression of fructan exohydrolases of rhizophores of *Vernonia herbacea* (*Vell.*) *Rusby* (Asteraceae)

Process: 2003/04011-5
Modality: Doctorate

Grant holder: Amanda Francine Asega
Supervisor: Maria Ângela Machado de Carvalho
Institution: Institute of Botany / Ministry of State for the Environment (SMA-SP)

Start: Sep 2003
Finish: Feb 2007

49 Functional dynamic of the glands of the calix in species of Malpighiaceae in the Cerrado. 1. *Byrsonima intermedia a. Juss*

Process: 2003/04207-7
Modality: Scientific Initiation

Grant holder: Clivia Carolina Fiorilo Possobom
Supervisor: Sílvia Rodrigues Machado
Institution: Botucatu Institute of Biosciences / São Paulo State University (Unesp)

Start: Aug 2003
Finish: Jul 2005

50 Micromorphology and foliar anatomy of species representative of the Cerrado of the State of São Paulo

Process: 2003/04365-1
Modality: Doctorate

Grant holder: Ângela Cristina Bieras
Supervisor: Maria das Graças Sajo
Institution: Rio Claro Institute of Biosciences / São Paulo State University (Unesp)

Start: Sep 2003
Finish: Aug 2006

51 Anatomy and ultra-structural aspects of pulvini of Leguminosae of the Cerrado (*lato sensu*)

Process: 2003/11050-7
Modality: Masters Degree

Grant holder: Tatiane Maria Rodrigues
Supervisor: Sílvia Rodrigues Machado
Institution: Botucatu Institute of Biosciences / São Paulo State University (Unesp)

Start: Mar 2004
Finish: Feb 2006

52 Structure, distribution and histochemistry of collectors of *Alibertia sessilis* (*Vell.*) *K. Schum*. (Rubiaceae)

Process: 2003/11747-8
Modality: Masters Degree

Grant holder: Daniela Pacheco Barreiro
Supervisor: Sílvia Rodrigues Machado
Institution: Botucatu Institute of Biosciences / São Paulo State University (Unesp)

Start: Mar 2004
Finish: Feb 2006

53 Secretory structure in vegetative and reproductive organs of species of Anacardiaceae in the Cerrado of the State of São Paulo: anatomy, histochemistry and ultrastructure

Process: 2003/13556-5
Modality: Fast-track Doctorate

Grant holder: Ana Paula Stechhahn Lacchia
Supervisor: Sandra Maria Carmello Guerreiro
Institution: Institute of Biology / Campinas State University (Unicamp)

Start: Mar 2004
Finish: Aug 2006

54 Flora arborea of the Caetetus Ecological Station, SP, Brazil: production of an illustrated guide for identification of the species

Process: 2004/01514-9
Modality: Scientific Initiation

Grant holder: Viviane Soares Ramos
Supervisor: Giselda Durigan
Institution: Forestry Institute / Ministry of State for the Environment (SMA-SP)

Start: Aug 2004
Finish: Dec 2004

55 Phytotoxic and antimicrobial substances in Leguminosae seeds which accumulate galactomannan and xyloglucan as cell wall reserve carbohydrates

Process: 2004/04477-7
Modality: Doctorate

Grant holder: Kelly Simões
Supervisor: Márcia Regina Braga
Institution: Institute of Botany / Ministry of State for the Environment (SMA-SP)

Start: Sep 2004
Finish: Aug 2007

56 Morpho-anatomical characterization of the vegetative organs of *Stylosanthes humilis H.B.K.* (Fabaceae)

Process: 2004/04674-7
Modality: Scientific Initiation

Grant holder: Paula Roberta de Sibio
Supervisor: Sílvia Rodrigues Machado
Institution: Botucatu Institute of Biosciences / São Paulo State University (Unesp)

Start: Jul 2004
Finish: Jun 2005

57 Anatomy of the caulis and leaf of three species of *Lippia houst* (Verbenaceae) from the Cerrado

Process: 2004/04679-9
Modality: Scientific Initiation

Grant holder: Shelly Favorito
Supervisor: Sílvia Rodrigues Machado
Institution: Botucatu Institute of Biosciences / São Paulo State University (Unesp)

Start: Feb 2005
Finish: Dec 2006

58 Comparative anatomy of the root and caulis wood in *Citharexylum myrianthum cham.* (Verbenaceae)

Process: 2004/05913-5
Modality: Scientific Initiation

Grant holder: Leandro Roberto Longo
Supervisor: Carmen Regina Marcati
Institution: Botucatu School of Agronomic Sciences / São Paulo State University (Unesp)

Start: Aug 2004
Finish: Nov 2006

59 Study ot the short and long term effects of an atmosphere enriched with CO_2 on the growth, development and metabolism of sugarcane (*Saccharum ssp*) carbohydrates

Process: 2004/11421-8
Modality: Masters Degree

Grant holder: Amanda Pereira de Souza
Supervisor: Marcos Silveira Buckeridge
Institution: Institute of Botany / Ministry of State for the Environment (SMA-SP)

Start: Mar 2005
Finish: Feb 2007

60 Mapping of the enzymes of the metabolism of sucrose in plantules of *Hymenaea courbaril l.* during the mobilization of reserve xyloglucan

Process: 2004/12194-5
Modality: Masters Degree

Grant holder: Fábio Reis Dalle Molle
Supervisor: Marco Aurélio Silva Tine
Institution: Institute of Botany / Ministry of State for the Environment (SMA-SP)

Start: Mar 2005
Finish: Feb 2007

61 Analysis of the distribution and effect of seasonality on the production of piperidine alkaloids in *Senna spectabilis*

Process: 2004/13669-7
Modality: Doctorate

Grant holder: Fabiana Pucci Leone
Supervisor: Maria Cláudia Marx Young
Institution: Institute of Botany / Ministry of State for the Environment (SMA-SP)

Start: Apr 2005
Finish: Jun 2005

62 Study of the embryogenesis in *Ocotea catharinensis mez* (Lauraceae): physiological, biochemical and molecular aspects

Process: 2005/50960-4
Modality: Post-doctorate

Grant holder: Claudete Santa Catarina
Supervisor: Eny Iochevet Segal Floh
Institution: Institute of Biosciences / University of São Paulo (USP)

Start: Jan 2006
Finish: Dec 2007

63 Seasonal dynamic of the gaseous exchanges and the hydric potential in tree species *senso strictu* Cerrado in Gleba Pé-de-Gigante State Park, Vassununga, SP

Process: 2005/51190-8
Modality: Masters Degree

Grant holder: Sabrina Latansio Costa Ribeiro
Supervisor: Marcos Pereira Marinho Aidar
Institution: Institute of Botany / Ministry of State for the Environment (SMA-SP)

Start: Aug 2005
Finish: Jan 2007

64 Effect of the CO_2 enriched atmosphere on the growth, on the allocation of biomass and on the metabolism of fructans of *Vernonia herbacea (Vell.) Rusby*

Process: 2005/52290-6
Modality: Masters Degree

Grant holder: Vanessa Fátima de Oliveira
Supervisor: Maria Ângela Machado de Carvalho
Institution: Institute of Botany / Ministry of State for the Environment (SMA-SP)

Start: Aug 2005
Finish: Jun 2007

65 Morphoanatomy of the vegetative organs and chemical profile of species of *Smilax L.* (Smilacaceae) genus

Process: 2005/54984-5
Modality: Doctorate

Grant holder: Aline Redondo Martins
Supervisor: Beatriz Appezzato da Glória
Institution: Luiz de Queiroz College of Agriculture / University of São Paulo (Esalq/USP)

Start: Oct 2005
Finish: Jul 2008

66 Analysis of the chemical composition and biological activity of the volatile oils of species of Myrtaceae and Lauraceae native to the Atlantic Rainforest of the State of São Paulo

Process: 2005/56764-2
Modality: Post-doctorate

Grant holder: Miriam Anders Apel
Supervisor: Paulo Roberto Hrihorowitsch Moreno
Institution: Institute of Chemistry / University of São Paulo (IQ/USP)

Start: Feb 2006
Finish: Jan 2008

67 Physiological, biochemical aspects and comparative proteomic analysis during the maturation, germination and conversion into plants of embryos of *Octea catharinensis mez.* (Lauraceae)

Process: 2005/58208-0
Modality: Doctorate

Grant holder: Leonardo Lucas Carnevalli Dias
Supervisor: Eny Iochevet Segal Floh
Institution: Institute of Biosciences / University of São Paulo (USP)

Start: Apr 2006
Finish: Mar 2009

68 Comparative proteomic analysis and biochemical variations during the zygotic and somatic embryogenesis of *Araucaria angustifolia* (*Bert.*) *O. kuntze*

Process: 2005/58747-8
Modality: Doctorate

Grant holder: Tiago Santana Balbuena
Supervisor: Eny Iochevet Segal Floh
Institution: Institute of Biosciences / University of São Paulo (USP)

Start: Jul 2006
Finish: Jun 2009

69 Secretory spaces in vegetative organs of two leguminosae species in the Cerrado: ontogenesis, structure and secretion

Process: 2005/60086-0
Modality: Doctorate

Grant holder: Tatiane Maria Rodrigues
Supervisor: Sílvia Rodrigues Machado
Institution: Botucatu Institute of Biosciences / São Paulo State University (Unesp)

Start: Apr 2006
Finish: Mar 2009

70 Flora and structure of Araucária forest present in conservation units in the State of São Paulo

Process: 2006/54440-8
Modality: Masters Degree

Grant holder: Rose Pereira Muniz de Souza
Supervisor: Vinícius Castro Souza
Institution: Luiz de Queiroz College of Agriculture / University of São Paulo (Esalq/USP)

Start: Mar 2007
Finish: Aug 2008

71 Maturation of embryogenic cultures of narrowleaf Araucária: biochemical studies and comparative proteomic analysis

Process: 2006/56137-0
Modality: Scientific Initiation

Grant holder: Júlia Bolanho da Rosa Andrade
Supervisor: Eny Iochevet Segal Floh
Institution: Institute of Biosciences / University of São Paulo (USP)

Start: Sep 2006
Finish: Aug 2007

72 Anatomic studies of leguminosae from the Cerrado with different speeds of foliar movement: comparative anatomy of the pulvine, petiole, rachis and main vein

Process: 2007/52759-0
Modality: Scientific Initiation

Grant holder: Yve Canaveze
Supervisor: Sílvia Rodrigues Machado
Institution: Botucatu Institute of Biosciences / São Paulo State University (Unesp)

Start: Aug 2007
Finish: Jul 2008

Ecology

73 Modeling of the variation in the spectral response of the physionomies of Cerrado in relation to seasonal climatic variations

Process: 1999/05041-8
Modality: Doctorate

Grant holder: Humberto Navarro de Mesquita Júnior
Supervisor: Marisa Dantas Bitencourt
Institution: Institute of Biosciences / University of São Paulo (USP)

Start: Apr 2000
Finish: Mar 2003

74 Freshwater Copepoda Cyclopoida in the State of São Paulo: taxonomic and geographical distribution study of the species in relation to the principal hydrographic basins in the State of São Paulo

Process: 1999/05104-0
Modality: Doctorate

Grant holder: William Marcos da Silva
Supervisor: Takako Matsumura Tundisi
Institution: São Carlos Internacional Institute of Ecology Ltd

Start: Jan 2000
Finish: Jul 2003

75 Diversity of interactions in trophic systems of plants and phytophages

Process: 1999/05205-0
Modality: Post-doctorate

Grant holder: Carlos Roberto Sorensen Dutra da Fonseca
Supervisor: Thomas Michael Lewinsohn
Institution: Institute of Biology / Campinas State University (Unicamp)

Start: Jul 1999
Finish: Sep 2000

76 Geographical mosaics, host specializations and the diversity of interactions between plants and insects

Process: 1999/05206-7
Modality: Post-doctorate

Grant holder: Gislene Maria da Silva Ganade
Supervisor: Thomas Michael Lewinsohn
Institution: Institute of Biology / Campinas State University (Unicamp)

Start: Jul 1999
Finish: Sep 2000

77 Diversity and distribution of *Cladocera chydoridae* in continental aquatic systems of the State of São Paulo

Process: 1999/06147-4
Modality: Post-doctorate

Grant holder: Maria José dos Santos Wisniewski
Supervisor: Takako Matsumura Tundisi

Institution: São Carlos International Institute of Ecology Ltd

Start: Aug 1999
Finish: Jul 2003

78 Creation of a database of remnants of Cerrado in the Vale do Rio Paraíba do Sul, in the State of São Paulo

Process: 1999/06973-1
Modality: Scientific Initiation

Grant holder: André Nunes Faure
Supervisor: Marisa Dantas Bitencourt
Institution: Institute of Biosciences / University of São Paulo (USP)

Start: Oct 1999
Finish: Feb 2001

79 Demography of *Lytocaryum hoehnei (Burret) toledo* (Arecaceae) in a fragmented landscape in the metropolitain region of the city of São Paulo

Process: 1999/10794-5
Modality: Doctorate

Grant holder: Daniela Kolhy Ferraz
Supervisor: Flávio Antônio Maes dos Santos
Institution: Institute of Biology / Campinas State University (Unicamp)

Start: Dec 2000
Finish: Dec 2003

80 Characterization of the remnants of vegetation in Ribeirão Preto, SP

Process: 1999/11347-2
Modality: Doctorate

Grant holder: Olga Kotchetkoff Henriques
Supervisor: Carlos Alfredo Joly
Institution: Ribeirão Preto School of Philosophy, Arts and Sciences / University of São Paulo (USP)

Start: Oct 2000
Finish: Aug 2003

81 Survey of the biodiversity of Chironomidae (Diptera) in the sub-basin of the Ribeira River (Intervales State Park, SP)

Process: 1999/11862-4
Modality: Post-doctorate

Grant holder: Mônica de Andrade Morraye
Supervisor: Cláudio Gilberto Froehlich
Institution: Ribeirão Preto School of Philosophy, Arts and Sciences / University of São Paulo (USP)

Start: Apr 2000
Finish: Apr 2003

82 Effects of the matrix in the reproductive biology of *Psychotria nuda* (Rubiaceae) in forest fragments in the Atlantic plateau of São Paulo

Process: 1999/12704-3
Modality: Masters Degree

Grant holder: Luciano Elsinor Lopes
Supervisor: Silvana Buzato
Institution: Institute of Biosciences / University of São Paulo (USP)

Start: May 2000
Finish: Apr 2002

83 Biodiversity and space-time distribution of Macrothricidae and Sididae in continental aquatic systems in the State of São Paulo

Process: 2000/00441-7
Modality: Post-doctorate

Grant holder: Adriana Maria Guntzel
Supervisor: Takako Matsumura Tundisi
Institution: São Carlos International Institute of Ecology Ltd

Start: Mar 2000
Finish: Mar 2003

84 Study and development of tutorial supporting the analysis of georeferecned data for the environment of distance learning

Process: 2000/00787-0
Modality: Scientific Initiation

Grant holder: Gina Sá Barreto Pimentel Trancoso
Supervisor: Jansle Vieira Rocha
Institution: School of Agricultural Engineering / Campinas State University (Unicamp)

Start: Apr 2000
Finish: Mar 2001

85 Effect of the size of the fragment and of the type of matrix in the abundance of six species of forest birds in Caucaia do Alto, SP

Process: 2000/01120-0
Modality: Masters Degree

Grant holder: Alexandre Uezu
Supervisor: Jean Paul Walter Metzger
Institution: Institute of Biosciences / University of São Paulo (USP)

Start: May 2000
Finish: Apr 2002

86 The use of play-back techniques in the development of a method capable of confirming the presence or absence of birds in the interior of forest fragments

Process: 2000/01358-6
Modality: Masters Degree

Grant holder: Danilo Boscolo
Supervisor: Jean Paul Walter Metzger
Institution: Institute of Biosciences / University of São Paulo (USP)

Start: Jul 2000
Finish: Jun 2002

87 Relationships between the pattern of the relief and the diversity of tree species in fragments of Atlantic Rainforest in the region of Caucaia, SP

Process: 2000/01587-5
Modality: Masters Degree

Grant holder: William Goulart da Silva
Supervisor: Jean Paul Walter Metzger
Institution: Institute of Biosciences / University of São Paulo (USP)

Start: Jul 2000
Finish: Jun 2002

88 Effect of connectivity on the abaundance and richness of plantules and young of tree species in fragmented landscapes

Process: 2000/03945-6
Modality: Post-doctorate

Grant holder: Luciana Ferreira Alves
Supervisor: Jean Paul Walter Metzger
Institution: Institute of Biosciences / University of São Paulo (USP)

Start: Nov 2000
Finish: Oct 2003

89 Modeling of the anthropic factors which influence the fragments of the Cerrado in the State of São Paulo

Process: 2000/07106-9
Modality: Doctorate

Grant holder: Jorge Alberto Bustamante Becerra
Supervisor: Marisa Dantas Bitencourt
Institution: Institute of Biosciences / University of São Paulo (USP)

Start: Oct 2000
Finish: Sep 2004

90 Variation of the abundance and richness of species of understory birds in a fragmented landscape

Process: 2000/08046-0
Modality: Scientific Initiation

Grant holder: Alexandre Camargo Martensen
Supervisor: Jean Paul Walter Metzger
Institution: Institute of Biosciences / University of São Paulo (USP)

Start: Feb 2001
Finish: Dec 2001

91 Comparative study of the phycological diversity of three environments with different trophic indices in the biological reserve of the Fontes do Ipiranga State Park, São Paulo, SP

Process: 2000/12459-8
Modality: Masters Degree

Grant holder: Bárbara Medeiros Fonseca
Supervisor: Carlos Eduardo de Mattos Bicudo
Institution: Institute of Botany / Ministry of State for the Environment (SMA-SP)

Start: Jul 2001
Finish: Jun 2002

92 Mapping of the cover and soil use from the hydrographic basins of the Alto Paranapanema Aguapeí, Peixe/Santo Anastácio and São José dos Dourados, based on satellite images

Process: 2000/12939-0
Modality: Post-doctorate

Grant holder: Alexandre Marco da Silva
Supervisor: Luiz Antônio Martinelli
Institution: Center for Nuclear Energy in Agriculture / University of São Paulo (Cena/USP)

Start: Feb 2001
Finish: Jan 2005

93 Tietê River, SP: a study of the relationship between perception of landscape and environmental conservation

Process: 2000/13518-8
Modality: Post-doctorate

Grant holder: Loretti Portofe de Mello
Supervisor: Jean Paul Walter Metzger
Institution: Institute of Biosciences / University of São Paulo (USP)

Start: Nov 2001
Finish: Oct 2002

94 Evaluation of the quantitative coloration method with "protargol" for the identification of planktonic ciliates

Process: 2000/13875-5
Modality: Scientific Initiation

Grant holder: Natalia Sakura Koyama
Supervisor: Mirna Januaria Leal Godinho
Institution: Center for Biological Sciences and Health / Federal University of São Carlos (UFSCar)

Start: Mar 2001
Finish: Nov 2001

95 Relationship between the different uses of the surrounding land and the composition of aquatic insects from five hydrographic basins in the State of São Paulo

Process: 2000/14242-6
Modality: Doctorate

Grant holder: Kathia Cristhina Sonoda
Supervisor: Carlos Alberto Vettorazzi
Institution: Center for Nuclear Energy in Agriculture / University of São Paulo (Cena/USP)

Start: Jul 2001
Finish: Jun 2005

96 Influence of the connectivity of the landscape in the dispersal of seeds in fragments of tropical Atlantic Rainforest – pilot project

Process: 2000/14605-1
Modality: Scientific Initiation

Grant holder: Daniela Petenon Barbosa
Supervisor: Vânia Regina Pivello
Institution: Institute of Biosciences / University of São Paulo (USP)

Start: Feb 2001
Finish: Jan 2002

97 Influence of the connectivity of the landscape in the dispersal of seeds in fragments of tropical Atlantic Rainforest – pilot project

Process: 2000/14606-8
Modality: Scientific Initiation

Grant holder: Regina de Azevedo Soares Alonso
Supervisor: Vânia Regina Pivello
Institution: Institute of Biosciences / University of São Paulo (USP)

Start: Feb 2001
Finish: Jan 2002

98 Effects of forest fragmentation on butterfly guilds in the Atlantic plateau of São Paulo

Process: 2000/14717-4
Modality: Masters Degree

Grant holder: Márcio Uehara Prado
Supervisor: Keith Spalding Brown Júnior
Institution: Institute of Biology / Campinas State University (Unicamp)

Start: Apr 2001
Finish: Mar 2003

99 Effect of the availability of water and nutrients in a system with three trophic levels

Process: 2001/00851-3
Modality: Masters Degree

Grant holder: André Tavares Corrêa Dias
Supervisor: Thomas Michael Lewinsohn
Institution: Institute of Biology / Campinas State University (Unicamp)

Start: May 2001
Finish: Feb 2003

100 Abundance of capitula, flowering time and taxonomic isolation are determinants of local wealth of capitulum endophages?

Process: 2001/00852-0
Modality: Masters Degree

Grant holder: Umberto Kubota
Supervisor: Thomas Michael Lewinsohn
Institution: Institute of Biology / Campinas State University (Unicamp)

Start: May 2001
Finish: Feb 2003

101 Chemical composition of the precipitation and of the inhalable particled material and their correlation with the gradient of anthropic inteferences in the State of São Paulo

Process: 2001/02698-8
Modality: Post-doctorate

Grant holder: Luciene de Barros Lorandi Silveira Lara
Supervisor: Luiz Antônio Martinelli
Institution: Center for Nuclear Energy in Agriculture / University of São Paulo (Cena/USP)

Start: Apr 2001
Finish: Mar 2005

102 Populational structure of *Ophionereis reticulata (Say,1825)* (Echinodermata: Ophiuroidea) in the region of São Sebastião, SP

Process: 2001/02876-3
Modality: Scientific Initiation

Grant holder: Leonardo Querobim Yokoyama
Supervisor: Luiz Francisco Lembo Duarte
Institution: Institute of Biology / Campinas State University (Unicamp)

Start: May 2001
Finish: Dec 2001

103 Census of the colonial ascidians in the intertidal regions of the Praia da Baleia, São Sebastião, SP, with emphasis on the zoning and selection of microhabitats

Process: 2001/02877-0
Modality: Scientific Initiation

Grant holder: Gustavo Muniz Dias
Supervisor: Luiz Francisco Lembo Duarte
Institution: Institute of Biology / Campinas State University (Unicamp)

Start: May 2001
Finish: Dec 2001

104 Investigating the diversity of parasitic Hymenoptera in the tropics: the study of trophic web focused on leafminer insects

Process: 2001/03673-9
Modality: Post-doctorate

Grant holder: Jarbas Marçal de Queiroz
Supervisor: Carlos Roberto Ferreira Brandão
Institution: Museu de Zoologia / University of São Paulo (USP)

Start: Oct 2001
Finish: Jul 2002

105 Investigating the diversity of parasitic Hymenoptera in the tropics: the study of trophic web focused on leafminer insects

Process: 2001/04813-9
Modality: Scientific Initiation

Grant holder: Felipe Cristiano Alves
Supervisor: Plínio Barbosa de Camargo
Institution: Center for Nuclear Energy in Agriculture / University of São Paulo (Cena/USP)

Start: Jun 2001
Finish: Dec 2001

106 Study of the fauna of Chironomidae (Diptera) in the Galharada streams and interior country in the State Park of Campos do Jordão, SP

Process: 2001/05086-3
Modality: Masters Degree

Grant holder: Marcia Thaís Suriano
Supervisor: Alaíde Aparecida Fonseca Gessner
Institution: Center for Biological Sciences and Health / Federal University of São Carlos (UFSCar)

Start: Jul 2001
Finish: Jun 2003

107 Spatial distribution in subpopulations of *Lytocaryum hoehnei (Burret) toledo* (Arecaceae) in the Morro Grande forestry reserve, municipality of Cotia, metropolitain region of São Paulo

Process: 2001/05281-0
Modality: Scientific Initiation

Grant holder: Ana Alice Aguiar Eleutério
Supervisor: Flávio Antônio Maes dos Santos
Institution: Institute of Biology / Campinas State University (Unicamp)

Start: Jun 2001
Finish: Dec 2001

108 Diversity, use and conservation in forests of the State of São Paulo: ethnobotanical potential around the permanent plots

Process: 2001/05596-1
Modality: Post-doctorate

Grant holder: Natália Hanazaki
Supervisor: Ricardo Ribeiro Rodrigues
Institution: Luiz de Queiroz College of Agriculture / University of São Paulo (Esalq/USP)

Start: Aug 2001
Finish: Jul 2002

109 Veneridae (Mollusca, Bivalvia) of the south and south-east coast of Brazil with emphasis on the populational dynamic of *Tivela mactroides* (Born, 1778)

Process: 2001/06955-5
Modality: Post-doctorate

Grant holder: Marcia Regina Denadai
Supervisor: Antônia Cecília Zacagnini Amaral
Institution: Institute of Biology / Campinas State University (Unicamp)

Start: Oct 2001
Finish: Jan 2006

110 Diversity of frogs and litterfall alligators in fragmented landscape in the São Paulo Atlantic plateau

Process: 2001/07916-3
Modality: Doctorate

Grant holder: Marianna Botelho de Oliveira Dixo
Supervisor: Jean Paul Walter Metzger
Institution: Institute of Biosciences / University of São Paulo (USP)

Start: Oct 2001
Finish: Sep 2004

111 Biogeography of interactions between Asteraceae and the endophagous insects on their capitula in Cerrado regions of São Paulo

Process: 2001/08619-2
Modality: Post-doctorate

Grant holder: Adriana Monteiro de Almeida
Supervisor: Thomas Michael Lewinsohn
Institution: Institute of Biology / Campinas State University (Unicamp)

Start: Oct 2001
Finish: Nov 2005

112 Analysis of spatial patterns of trees from 4 forestry formations in the State of São Paulo, through second order analyses (Ripley's K function)

Process: 2001/11825-3
Modality: Masters Degree

Grant holder: Robson Louiz Capretz
Supervisor: João Luís Ferreira Batista
Institution: Luiz de Queiroz Advanced School of Agriculture / University of São Paulo (Esalq/USP)

Start: Mar 2002
Finish: 29/2/2004

113 Taxonomic study of the species of Cladocera from the Moinidae and Sididae families occurring in the State of São Paulo, and description of the life cycle of some of the species

Process: 2001/12469-6
Modality: Scientific Initiation

Grant holder: Gustavo Almeida Borges Rosa
Supervisor: Odete Rocha
Institution: Center for Biological Sciences and Health / Federal University of São Carlos (UFSCar)

Start: Feb 2002
Finish: Jan 2003

114 Effects of the fragmentation of the Atlantic Rainforest – a comparative study between landscapes and groups of species of small vertebrates

Process: 2001/13309-2
Modality: Post-doctorate

Grant holder: Renata Pardini
Supervisor: Jean Paul Walter Metzger
Institution: Institute of Biosciences / University of São Paulo (USP)

Start: Jan 2002
Finish: 15/8/2003

115 Sexual systems of tree species from an area of Cerrado and a sandbank area in the State of São Paulo

Process: 2002/01778-0
Modality: Post-doctorate

Grant holder: Cibele Cardoso de Castro
Supervisor: Ricardo Ribeiro Rodrigues
Institution: Luiz de Queiroz College of Agriculture / University of São Paulo (Esalq/USP)

Start: Feb 2003
Finish: Jan 2006

116 Effects of the fragmentation of the Atlantic Rainforest – investigating the relative importance of the size of the fragment and of the quality of the habitat in the structuring of the community of small mammals

Process: 2002/02125-0
Modality: Scientific Initiation

Grant holder: Ricardo Braga Neto
Supervisor: Renata Pardini
Institution: Institute of Biosciences / University of São Paulo (USP)

Start: Aug 2002
Finish: May 2003

117 Study of the relative importance of the degree of connectivity and the structure of vegetation for the community of small mammals in forest fragments of the Atlantic Rainforest

Process: 2002/02126-7
Modality: Scientific Initiation

Grant holder: Sérgio Marques de Souza
Supervisor: Renata Pardini
Institution: Institute of Biosciences / University of São Paulo (USP)

Start: Aug 2002
Finish: May 2003

118 Annelida, Polychaeta: a systematic study of the Canalipalpata of the south-south-east coast of Brazil and the populational ecology of *Capitella capitata* (Scolecida, Capitellidae)

Process: 2002/03433-0
Modality: Post-doctorate

Grant holder: Érica Verônica Pardo
Supervisor: Antônia Cecília Zacagnini Amaral
Institution: Institute of Biology / Campinas State University (Unicamp)

Start: Sep 2002
Finish: May 2007

119 Study and tendencies in the temporal series of quality of water in some rivers in the State of São Paulo presenting different degrees of anthropic intervention

Process: 2002/04932-0
Modality: Masters Degree

Grant holder: Juliano Daniel Groppo

Supervisor: Luiz Antônio Martinelli
Institution: Center for Nuclear Energy in Agriculture / University of São Paulo (Cena/USP)

Start: Sep 2002
Finish: Aug 2004

120 Use of bivalve molluscs in a comparative study of the presence of triazinic herbicides in hydrographic basins in the State of São Paulo

Process: 2002/07502-7
Modality: Doctorate

Grant holder: Analu Egydio Jacomini
Supervisor: Plínio Barbosa de Camargo
Institution: Ribeirão Preto School of Philosophy, Arts and Sciences / University of São Paulo (USP)

Start: Dec 2002
Finish: Nov 2005

121 Seeds showers in a tropical mountain forest of the São Paulo plateau

Process: 2002/09823-5
Modality: Scientific Initiation

Grant holder: Mariana Brando Balazs da Costa Faria
Supervisor: Luciana Ferreira Alves
Institution: Institute of Biosciences / University of São Paulo (USP)

Start: Feb 2003
Finish: Dec 2003

122 Small mammals in Caucaia do Alto – an analysis of the importance of connectivity in a fragmented landscape

Process: 2002/10845-3
Modality: Masters Degree

Grant holder: Fabiana Umetsu
Supervisor: Renata Pardini
Institution: Institute of Biosciences / University of São Paulo (USP)

Start: Sep 2003
Finish: Aug 2005

123 Nictemeral variation in the structure and dynamic of the phytoplanktonic community in the periods of rain and drought in mesotrophic environment (Lago das Ninféias), State Park of Fontes do Ipiranga, São Paulo

Process: 2002/10938-1
Modality: Masters Degree

Grant holder: Karin Ferraz Biesemeyer
Supervisor: Carlos Eduardo de Mattos Bicudo
Institution: Institute of Botany / Ministry of State for the Environment (SMA-SP)

Start: Sep 2003
Finish: Jul 2005

124 Biodiversity, spatial distribution and seasonal occurrence of tadpoles and adult amphibian anurans in Nova Itapirema, north-west region of the State of São Paulo

Process: 2002/11388-5
Modality: Masters Degree

Grant holder: Tiago da Silveira Vasconcelos
Supervisor: Denise de Cerqueira Rossa Feres
Institution: São José do Rio Preto Institute of Biosciences, Arts and Exact Sciences / São Paulo State University (Ibilce/Unesp)

Start: Apr 2003
Finish: Jan 2005

125 Biodiversity and use of habitat of the anurofauna in Santa Fé do Sul, north-west region of the State of São Paulo

Process: 2002/11389-1
Modality: Masters Degree

Grant holder: Tiago Gomes dos Santos
Supervisor: Denise de Cerqueira Rossa Feres
Institution: São José do Rio Preto Institute of Biosciences, Arts and Exact Sciences / São Paulo State University (Ibilce/Unesp)

Start: Oct 2003
Finish: Jan 2005

126 Organic acidity of the precipitation and land use in the State of São Paulo space and time variability

Process: 2002/12819-0
Modality: Doctorate

Grant holder: Vanessa Prezotto Silveira
Supervisor: Plínio Barbosa de Camargo
Institution: Center for Nuclear Energy in Agriculture / University of São Paulo (Cena/USP)

Start: Mar 2003
Finish: Aug 2006

127 Silvigenesis as a tool for the successional characterization of stretches of forest and the relationship of the silvigenetic mosaic to abiotic factors in low mountain dense evergreen rainforest (Carlos Botelho State Park)

Process: 2003/00233-3
Modality: Doctorate

Grant holder: Andrea Vanini
Supervisor: Ricardo Ribeiro Rodrigues
Institution: Institute of Biology / Campinas State University (Unicamp)

Start: Jun 2003
Finish: May 2006

128 Effect of the degradation of habitat on community patterns and properties of trophic networks between plants and phytophage insects

Process: 2003/02548-1
Modality: Doctorate

Grant holder: Mario Almeida Neto
Supervisor: Thomas Michael Lewinsohn
Institution: Institute of Biology / Campinas State University (Unicamp)

Start: Sep 2003
Finish: Aug 2006

129 Biodiversity of Salticidae (Arachnida, Araneae) of the Atlantic Rainforest: local diversity, similarity between areas and patterns of distribution

Process: 2003/04868-3
Modality: Post-doctorate

Grant holder: Adalberto José dos Santos
Supervisor: Antônio Domingos Brescovit
Institution: Butantan Institute / Ministry of State of Health (SES-SP)

Start: Jun 2004
Finish: Oct 2006

130 Diversity and biogeography of amphibians in islands of the State of São Paulo

Process: 2003/06014-1
Modality: Post-doctorate

Grant holder: Cínthia Aguirre Brasileiro
Supervisor: Ivan Sazima
Institution: Institute of Biology / Campinas State University (Unicamp)

Start: Apr 2004
Finish: May 2007

131 Temporal variation of the density and reproduction of janaira gracilis of the phytal of the Ilha dos Porcos Pequenos, Picinguaba, north coast of the State of São Paulo

Process: 2003/09202-3
Modality: Scientific Initiation

Grant holder: Marcela Cristina Zanoni Ferrari
Supervisor: Fosca Pedini Pereira Leite
Institution: Institute of Biology / Campinas State University (Unicamp)

Start: Dec 2003
Finish: Nov 2004

132 Ecological similarity in communities of tadpoles of anurans: the role of historic (phylogenetic) and contemporary (ecological) components

Process: 2003/11049-9
Modality: Masters Degree

Grant holder: Vitor Hugo Mendonça do Prado
Supervisor: Denise de Cerqueira Rossa Feres
Institution: São José do Rio Preto Institute of Biosciences, Arts and Exact Sciences / São Paulo State University (Ibilce/Unesp)

Start: Mar 2004
Finish: Feb 2006

133 Effects of the anthropic activity and of the forest fragmentation on guilds of lepidopterans

Process: 2003/11697-0
Modality: Masters Degree

Grant holder: Danilo Bandini Ribeiro
Supervisor: Keith Spalding Brown Júnior
Institution: Institute of Biology / Campinas State University (Unicamp)

Start: Mar 2004
Finish: Feb 2006

134 The occurrence of formations of bamboo in the hillside forest of the Atlantic Rainforest and its influence on local diversity

Process: 2003/12485-7
Modality: Doctorate

Grant holder: Luciana Spinelli de Araújo
Supervisor: Gerd Sparovek
Institution: Luiz de Queiroz College of Agriculture / University of São Paulo (Esalq/USP)

Start: Jun 2004
Finish: May 2008

135 Effects of fragmentation on the predation of artificial nests in the region of Atlantic Rainforest, Caucaia do Alto, SP

Process: 2003/12723-5
Modality: Scientific Initiation

Grant holder: Carlos Ernesto Candia Gallardo
Supervisor: Jean Paul Walter Metzger
Institution: Institute of Biosciences / University of São Paulo (USP)

Start: Jan 2004
Finish: Jun 2004

136 Inter- and intra- specific diversity of species cultivated: the management of species and rocks in the context of use of land and of the sea for São Paulo Caiçara populations

Process: 2003/13688-9
Modality: Post-doctorate

Grant holder: Nivaldo Peroni
Supervisor: Alpina Begossi
Institution: Nucleus for Environmental Study and Research / Campinas State University (Nepam/Unicamp)

Start: Jul 2004
Finish: Jun 2006

137 Ethno- ichthyology, diet and alimentary taboos of artisanal fishermen of Ilhabela, northern coast of São Paulo

Process: 2004/02183-6
Modality: Doctorate

Grant holder: Milena Ramires de Souza
Supervisor: Alpina Begossi
Institution: Nucleus for Environmental Study and Research / Campinas State University (Nepam/Unicamp)

Start: Jun 2005
Finish: May 2008

138 Strategies for the use of nitrogen on tree species in the forests of the State of São Paulo

Process: 2004/03647-6
Modality: Doctorate

Grant holder: Érico Fernando Lopes Pereira da Silva
Supervisor: Carlos Alfredo Joly
Institution: Institute of Biology / Campinas State University (Unicamp)

Start: Feb 2005
Finish: Jan 2008

139 Responses of the small mammals from the mature areas of the Atlantic Rainforest to micro-scale variations to the habitat

Process: 2004/04959-1
Modality: Scientific Initiation

Grant holder: Laura Regina Capelari Naxara
Supervisor: Renata Pardini
Institution: Institute of Biosciences / University of São Paulo (USP)

Start: Nov 2004
Finish: May 2005

140 Risk and uncertainty: the use of ecological models in artisanal fishing

Process: 2004/07073-4
Modality: Doctorate

Grant holder: Priscila Fabiana Lopes Mac Cord
Supervisor: Alpina Begossi
Institution: Institute of Biology / Campinas State University (Unicamp)

Start: Sep 2004
Finish: Feb 2007

141 Spatial structuring of falling trees and relationships with the spatial pattern of the richness of species in different vegetal formations in the State of São Paulo

Process: 2004/09554-0
Modality: Post-doctorate

Grant holder: Adriana Maria Zanforlin Martini
Supervisor: Ricardo Ribeiro Rodrigues
Institution: Luiz de Queiroz College of Agriculture / University of São Paulo (Esalq/USP)

Start: Nov 2004
Finish: Nov 2006

142 Socio-ecological dynamics in the management of participative fishing: the case of a marine extractavist reserve

Process: 2004/11273-9
Modality: Post-doctorate

Grant holder: Cristiana Simão Seixas
Supervisor: Alpina Begossi
Institution: Nucleus for Environmental Study and Research / Campinas State University (Nepam/Unicamp)

Start: Feb 2005
Finish: Jan 2007

143 Conservation of understory birds in fragmented landscapes: importance of cover and configuration of the habitat

Process: 2004/11279-7
Modality: Masters Degree

Grant holder: Alexandre Camargo Martensen
Supervisor: Jean Paul Walter Metzger
Institution: Institute of Biosciences / University of São Paulo (USP)

Start: Mar 2005
Finish: Aug 2006

144 Etnoecology and ethnotaxonomy of the fishermen of Perequê Beach, Guarujá, SP

Process: 2004/11977-6
Modality: Masters Degree

Grant holder: Arlaine dos Santos Francisco Gianeli
Supervisor: Alpina Begossi
Institution: Nucleus for Environmental Study and Research / Campinas State University (Nepam/Unicamp)

Start: Mar 2005
Finish: Feb 2007

145 The importance of forest fragments in the richness and diversity of amphibian anurans in Icem, northwest region of the State of São Paulo

Process: 2004/12223-5
Modality: Masters Degree

Grant holder: Fernando Rodrigues da Silva
Supervisor: Denise de Cerqueira Rossa Feres
Institution: São José do Rio Preto Institute of Biosciences, Arts and Exact Sciences / São Paulo State University (Ibilce/Unesp)

Start: Aug 2005
Finish: Aug 2006

146 Environmental heterogeneity: what is its role in the regulation of the richness and diversity of species of open area amphibian anurans?

Process: 2004/12224-1
Modality: Masters Degree

Grant holder: Carolina Panin Candeira
Supervisor: Denise de Cerqueira Rossa Feres

Institution: São José do Rio Preto Institute of Biosciences, Arts and Exact Sciences / São Paulo State University (Ibilce/Unesp)

Start: Aug 2005
Finish: Jul 2006

147 Excavation behavior and functional morphology in three species of neotropical Microhylinae (Anura, Microhylidae)

Process: 2004/13037-0
Modality: Scientific Initiation

Grant holder: Aline Cristina Sant'Anna
Supervisor: Denise de Cerqueira Rossa Feres
Institution: São José do Rio Preto Institute of Biosciences, Arts and Exact Sciences / São Paulo State University (Ibilce/Unesp)

Start: Jan 2005
Finish: Dec 2005

148 Conservation of aquatic insects in the State of São Paulo

Process: 2004/14502-9
Modality: Post-doctorate

Grant holder: Fábio de Oliveira Roque
Supervisor: Cláudio Gilberto Froehlich
Institution: Ribeirão Preto School of Philosophy, Arts and Sciences / University of São Paulo (USP)

Start: May 2005
Finish: Apr 2008

149 Silvigenic characterization of a stretch of dense evergreen rainforest in the Carlos Botelho State Park, Sete Barras, SP

Process: 2005/54097-9
Modality: Masters Degree

Grant holder: Renata Rodrigues Fernandez
Supervisor: Ricardo Ribeiro Rodrigues
Institution: Luiz de Queiroz College of Agriculture / University of São Paulo (Esalq/USP)

Start: Aug 2005
Finish: Jul 2007

150 Use of stable isotopes of carbon and nitrogen in ecophysiological studies in the area of Cerrado (wooded savanna) *stricto sensu* in the State of São Paulo

Process: 2005/57141-9
Modality: Scientific Initiation

Grant holder: Luciana Della Coletta
Supervisor: Jean Pierre Henry Balbaud Ometto
Institution: Center for Nuclear Energy in Agriculture / University of São Paulo (Cena/USP)

Start: Nov 2005
Finish: Oct 2007

151 Losses of nitrogen through the emission of gases and their relationship with the decomposition of the forest litter and biomass of roots in the Atlantic Rainforest

Process: 2005/57549-8
Modality: Masters Degree

Grant holder: Eraclito Rodrigues de Sousa Neto
Supervisor: Luiz Antônio Martinelli
Institution: Center for Nuclear Energy in Agriculture / University of São Paulo (Cena/USP)

Start: Mar 2006
Finish: 29/2/2008

152 Cycling of nutrients of the soil and the forest litter in dense evergreen rainforest in the State Park of Serra do Mar

Process: 2005/57950-4
Modality: Doctorate

Grant holder: Susian Christian Martins
Supervisor: Marisa de Cássia Piccolo
Institution: Center for Nuclear Energy in Agriculture / University of São Paulo (Cena/USP)

Start: Apr 2006
Finish: Mar 2009

153 Patterns and diversity of functional types in dense evergreen rainforest in the nuclei Picinguaba and Santa Virgínia in the State Park of Serra do Mar

Process: 2005/59168-1
Modality: Post-doctorate

Grant holder: Enio Egon Sosinski Júnior
Supervisor: Carlos Alfredo Joly
Institution: Institute of Biology / Campinas State University (Unicamp)

Start: Apr 2006
Finish: Mar 2008

154 Dynamic and populational study of four species of tree species in the nuclei Picinguaba and Santa Virgínia – the State Park of Serra do Mar, SP

Process: 2006/50014-4
Modality: Doctorate

Grant holder: Carolina Bernucci Virillo
Supervisor: Flávio Antônio Maes dos Santos
Institution: Institute of Biology / Campinas State University (Unicamp)

Start: Jul 2006
Finish: Jun 2009

155 Use of forest remnants by the anuranfauna of the northwest region of the State of São Paulo

Process: 2006/51534-1
Modality: Doctorate

Grant holder: Vitor Hugo Mendonça do Prado
Supervisor: Denise de Cerqueira Rossa Feres
Institution: São José do Rio Preto Institute of Biosciences, Arts and Exact Sciences / São Paulo State University (Ibilce/Unesp)

Start: Jul 2006
Finish: Jun 2009

156 Floristics and structure of the arboreal community of the submountainous dense evergreen rainforest in the nucleus Picinguaga/PESM, Ubatuba, SP

Process: 2006/52519-6
Modality: Masters Degree

Grant holder: Mariana Cruz Rodrigues de Campos
Supervisor: Carlos Alfredo Joly
Institution: Institute of Biology / Campinas State University (Unicamp)

Start: Sep 2006
Finish: Aug 2008

157 Inorganic forms of nitrogen in different tropical areas of the Atlantic Rainforest of the State of São Paulo

Process: 2006/53412-0
Modality: Scientific Initiation

Grant holder: Grasiele Fernanda Bueno
Supervisor: Luiz Antônio Martinelli
Institution: Center for Nuclear Energy in Agriculture / University of São Paulo (Cena/USP)

Start: Oct 2006
Finish: Sep 2007

158 Study of the hydric balance and the biogeochemical balance of nitrogen in a microbasin of the first order with cover of pasture on the north coast of the State of São Paulo

Process: 2006/54292-9
Modality: Masters Degree

Grant holder: Luiz Felippe Salemi
Supervisor: Luiz Antônio Martinelli
Institution: Center for Nuclear Energy in Agriculture / University of São Paulo (Cena/USP)

Start: Sep 2006
Finish: Aug 2008

159 Structure and ecomorphology of taxocenosis of tadpoles in the Atlantic Rainforest

Process: 2006/54308-2
Modality: Masters Degree

Grant holder: Natacha Yuri Nagatani Dias
Supervisor: Denise de Cerqueira Rossa Feres
Institution: São José do Rio Preto Institute of Biosciences, Arts and Exact Sciences / São Paulo State University (Ibilce/Unesp)

Start: Sep 2006
Finish: Jan 2008

160 Annual patterns of reproduction of anurans in the Caetetus Ecological Station, SP

Process: 2006/55363-7
Modality: Scientific Initiation

Grant holder: Ricardo Augusto Brassaloti
Supervisor: Jaime Aparecido Bertoluci
Institution: Luiz de Queiroz College of Agriculture /

University of São Paulo (Esalq/USP)

Start: Dec 2006
Finish: Nov 2007

161 Forest fragmentation affects the composition and distribution of mite fauna (Arachnida, Acari) associated with the vegetation?

Process: 2006/55725-6
Modality: Doctorate

Grant holder: Peterson Rodrigo Demite
Supervisor: Reinaldo José Fazzio Feres
Institution: São José do Rio Preto Institute of Biosciences, Arts and Exact Sciences / São Paulo State University (Ibilce/Unesp)

Start: Mar 2007
Finish: Feb 2010

162 Isotopic composition of the flows of CO_2 in the area of Cerrado (State Park of Vassununga)

Process: 2006/56863-3
Modality: Doctorate

Grant holder: Jadson Dezincourt Dias
Supervisor: Plínio Barbosa de Camargo
Institution: Center for Nuclear Energy in Agriculture / University of São Paulo (Cena/USP)

Start: Jan 2007
Finish: Dec 2009

163 Primary liquid productivity in different phytophysionomies in the Serra do Mar State Park, SP

Process: 2006/57010-4
Modality: Doctorate

Grant holder: Cristina Aledi Felsemburgh
Supervisor: Plínio Barbosa de Camargo
Institution: Center for Nuclear Energy in Agriculture / University of São Paulo (Cena/USP)

Start: Dec 2006
Finish: Nov 2009

164 Use of *Xylophilus* macroinvertebrates as bioindicators of biological integrity of streams in the State of São Paulo

Process: 2006/58849-8
Modality: Scientific Initiation

Grant holder: Francisco Valente Neto
Supervisor: Alaíde Aparecida Fonseca Gessner
Institution: Center for Biological Sciences and Health / Federal University of São Carlos (UFSCar)

Start: Nov 2006
Finish: Oct 2007

165 The pattern of dispersion and sex-asymmetry in Euglossini (Hymenoptera: Apidae). A case study of: *Euglossa cordata linnaeus* 1758

Process: 2006/59387-8
Modality: Masters Degree

Grant holder: Natália de Campos Muradas Cerantola
Supervisor: Marco Antônio Del Lama
Institution: Center for Biological Sciences and Health / Federal University of São Carlos (UFSCar)

Start: Mar 2007
Finish: Feb 2009

166 Study of the hydric balance and the biogeochemical balance of nitrogen in a microbasin with forest plantation of eucalyptus on the north coast of the State of São Paulo

Process: 2006/59536-3
Modality: Masters Degree

Grant holder: Rodrigo Trevisan
Supervisor: Jorge Marcos de Moraes
Institution: Center for Nuclear Energy in Agriculture / University of São Paulo (Cena/USP)

Start: Mar 2007
Finish: Feb 2009

167 Biology of the nidification, sociogenetic structure and populational genetic structure in bees of the *Centris* genus (Hymenoptera: Apidae) which make nests in pre-existing cavities

Process: 2006/60863-9
Modality: Scientific Initiation

Grant holder: Camila Helena da Silva
Supervisor: Marco Antônio Del Lama

Institution: Center for Biological Sciences and Health / Federal University of São Carlos (UFSCar)

Start: Jan 2007
Finish: Dec 2007

168 Morpho-physiological foliar variations of two ligneous species along a gradient of altitude in the Atlantic Rainforest

Process: 2007/50540-0
Modality: Scientific Initiation

Grant holder: Lisa Cardillo Paes
Supervisor: Rafael Silva Oliveira
Institution: Center for Nuclear Energy in Agriculture / University of São Paulo (Cena/USP)

Start: Apr 2007
Finish: Mar 2008

169 Chemical characterization of the soil in the dense evergreen rainforest of the Serra do Mar State Park

Process: 2007/50561-8
Modality: Scientific Initiation

Grant holder: Carla Alberoni Rosada
Supervisor: Marisa de Cássia Piccolo
Institution: Center for Nuclear Energy in Agriculture / University of São Paulo (Cena/USP)

Start: Apr 2007
Finish: Dec 2007

170 Foliar detritus as substrate for aquatic macroinvertebrates: a study of colonization of detritus of C3 and C4 plants in low order streams

Process: 2007/50860-5
Modality: Scientific Initiation

Grant holder: Gisele de Castro Vieira
Supervisor: Susana Trivinho Strixino
Institution: Center for Biological Sciences and Health / Federal University of São Carlos (UFSCar)

Start: May 2007
Finish: Apr 2008

171 Evaluation of the ecological sustainability of restored riparian forests

Process: 2007/50885-8
Modality: Doctorate

Grant holder: Letícia Couto Garcia
Supervisor: Ricardo Ribeiro Rodrigues
Institution: Institute of Biology / Campinas State University (Unicamp)

Start: Aug 2007
Finish: Jul 2010

Sanitary Engineering

172 Contribution to the technological exploration of the microbian studies caerried out in the Biota-FAPESP Program: evaluation of the potential of the anaerobic degradation of pentachlorophenol (PCP)

Process: 2000/08323-3
Modality: Doctorate

Grant holder: Flávia Talarico Saia
Supervisor: Rosana Filomena Vazoller
Institution: Escola de Engenharia de São Carlos / University of São Paulo (USP)

Start: Sep 2000
Finish: Aug 2004

Pharmacy

173 Evaluation of the antimicrobial activities of uncultivated extracts of cultures of 10 species of fungus isolated in the São Paulo Atlantic Rainforest

Process: 2005/56411-2
Modality: Scientific Initiation

Grant holder: Iara Elise de Lima Oliveira
Supervisor: Jairo Kenupp Bastos
Institution: Ribeirão Preto School of Pharmaceutical Sciences / University of São Paulo (USP)

Start: Dec 2005
Finish: Nov 2006

174 Optimization of the conditions of cultivating *Humicola grisea var. thermoidea*, aimed at the production and isolation of biologically active secondary metabolites

Process: 2005/57116-4
Modality: Masters Degree

Grant holder: Willian Jonis Andrioli
Supervisor: Jairo Kenupp Bastos
Institution: Ribeirão Preto School of Pharmaceutical Sciences / University of São Paulo (USP)

Start: Mar 2006
Finish: 29/2/2008

Pharmacology

175 Antiulcerogenic activity of native plants of the Cerrado in the State of São Paulo – belonging to the *Indigofera* genus

Process: 2003/03110-0
Modality: Fast-track Doctorate

Grant holder: Maira Cola Miranda
Supervisor: Alba Regina Monteiro Souza Brito
Institution: School of Medical Sciences / Campinas State University (Unicamp)

Start: Sep 2003
Finish: Nov 2006

176 Medicinal vivarium project: ethnopharmacology as a tool for a program of environmental education in the town of Sumaré, SP

Process: 2004/00943-3
Modality: Scientific Initiation

Grant holder: Patrícia de Sousa Oliveira
Supervisor: Alba Regina Monteiro Souza Brito
Institution: Institute of Biology / Campinas State University (Unicamp)

Start: Jun 2004
Finish: May 2005

177 Determination of the antioxidant activity of plants of the *Indigofera* and *Vernonia* genus

Process: 2004/07898-3
Modality: Post-doctorate

Grant holder: Elisângela Farias Silva
Supervisor: Alba Regina Monteiro Souza Brito
Institution: Institute of Biology / Campinas State University (Unicamp)

Start: Nov 2004
Finish: Oct 2007

178 Determination of the antioxidant activity involved in antiulcerogenic mechanisms of *Anacardium humile st. hill.* (Anacardiaceae)

Process: 2004/13660-0
Modality: Scientific Initiation

Grant holder: Ana Cristina Alves de Almeida
Supervisor: Alba Regina Monteiro Souza Brito
Institution: Institute of Biology / Campinas State University (Unicamp)

Start: Mar 2005
Finish: Dec 2006

179 Mechanisms of action involved in antiulcerogenic activity of *Anacardium humile st. Hil.* (Anacardiaceae)

Process: 2007/53362-6
Modality: Masters Degree

Grant holder: Ana Cristina Alves de Almeida
Supervisor: Alba Regina Monteiro Souza Brito
Institution: Institute of Biology / Campinas State University (Unicamp)

Start: Sep 2007
Finish: Mar 2009

Genetics

180 Dynamic and genetic structure of populations of *Bidens pilosa* (Asteraceae)

Process: 1999/05493-6
Modality: Post-doctorate

Grant holder: Maria Tereza Grombone Guaratini
Supervisor: Vera Nisaka Solferini
Institution: Institute of Biology / Campinas State University (Unicamp)

Start: Jan 2000
Finish: Apr 2004

181 Diversity of the bacterial flora of *Tomoplagia minuta* and *Tomoplagia reinoseri* (Diptera, Tephritidae)

Process: 1999/05829-4
Modality: Masters Degree

Grant holder: Ricardo Augusto Tibúrcio
Supervisor: Vera Nisaka Solferini

Institution: Institute of Biology / Campinas State University (Unicamp)

Start: Sep 1999
Finish: Aug 2001

182 Genetic variability in *Tomoplagia minuta* and *T. reimoseri* (Diptera: Tephritidae)

Process: 1999/06176-4
Modality: Scientific Initiation

Grant holder: Aluana Gonçalves de Abreu
Supervisor: Vera Nisaka Solferini
Institution: Institute of Biology / Campinas State University (Unicamp)

Start: Sep 1999
Finish: Dec 2000

183 Molecular characterization of strains of *Acidithiobacillus thiooxidans* isolates of anthropic environments

Process: 2001/02057-2
Modality: Masters Degree

Grant holder: Ricardo Verzegnassi Veríssimo
Supervisor: Laura Maria Mariscal Ottoboni
Institution: Center for Molecular Biology and Genetic Engineering / Campinas State University (Unicamp)

Start: Jul 2001
Finish: 09/6/2002

184 Endophytic microorganisms: cloning and characterization of genes of hydrolases and their proteins

Process: 2001/06443-4
Modality: Post-doctorate

Grant holder: André Oliveira de Souza Lima
Supervisor: João Lucio de Azevedo
Institution: Luiz de Queiroz College of Agriculture / University of São Paulo (Esalq/USP)

Start: Sep 2001
Finish: Aug 2002

185 Analysis of strains of *Acidithiobacillus thiooxidans* isolates of anthropic environments through RFLP and sequencing of RDNA 16s

Process: 2001/09990-6
Modality: Scientific Initiation

Grant holder: Ana Paula Guarnieri Christ
Supervisor: Laura Maria Mariscal Ottoboni
Institution: Center for Molecular Biology and Genetic Engineering / Campinas State University (Unicamp)

Start: Dec 2001
Finish: Nov 2002

186 Evaluation of the mutagenic activity of the plants *Ananas ananassoides* and *Hancornia speciosa* through trials of reverse genetic mutation with *S. typhimurium*

Process: 2004/01786-9
Modality: Scientific Initiation

Grant holder: Flávio Romanini Tubaldini
Supervisor: Eliana Aparecida Varanda
Institution: Araraquara School of Pharmaceutical Sciences / São Paulo State University (Unesp)
Start: Jul 2004
Finish: Jun 2006

187 Trials of reverse genetic mutation with *Salmonella typhimurium* for evaluation of mutagenic activity of the plants *Davilla nitida* e *D. elliptica*

Process: 2004/01787-5
Modality: Scientific Initiation

Grant holder: Fabiana Izilda Biso
Supervisor: Eliana Aparecida Varanda
Institution: Araraquara School of Pharmaceutical Sciences / São Paulo State University (Unesp)

Start: Jul 2004
Finish: Jun 2005

188 Control of the genetic expression of the metabolism of carbohydrates by auxin during the mobilization of reserves and the development of plant embryos of jatobá (*Hymenaea courbaril* var. *stilbocarpa*)

Process: 2004/10159-8
Modality: Doctorate

Grant holder: Aline Dias Brandão
Supervisor: Marcos Silveira Buckeridge

Institution: Center for Molecular Biology and Genetic Engineering / Campinas State University (Unicamp)

Start: Dec 2004
Finish: Nov 2007

189 Cytogenetics of amphibian anurans of the Brazilian fauna, with techniques of differential coloration

Process: 2004/12577-1
Modality: Scientific Initiation

Grant holder: André Luís Bombeiro
Supervisor: Sanae Kasahara
Institution: Rio Claro Institute of Biosciences / São Paulo State University (Unesp)

Start: Jan 2005
Finish: Dec 2005

190 Mechanisms of chromosomic variation in the *Leptodactylus* genus and in species of families related to the Leptodactylidae (*amphibia*, *anura*)

Process: 2006/56193-8
Modality: Doctorate

Grant holder: João Reinaldo da Cruz de Campos
Supervisor: Sanae Kasahara
Institution: Rio Claro Institute of Biosciences / São Paulo State University (Unesp)

Start: Sep 2006
Finish: Aug 2009

191 Cytogenetics of representatives of the Microhylidae family (*amphibia, anura*), with identification of species-specific cytological markers

Process: 2006/56932-5
Modality: Scientific Initiation

Grant holder: Thiago Gazoni
Supervisor: Sanae Kasahara
Institution: Rio Claro Institute of Biosciences / São Paulo State University (Unesp)

Start: Sep 2006
Finish: Aug 2007

192 Tracing of genotoxicity of antimutagenesis of semi-purified fractions extracted from *Pterogyne nitens* using the test of the micronucleus in *Tradescantia pallida*

Process: 2006/60891-2
Modality: Scientific Initiation

Grant holder: Fernanda Gargantini Ferreira
Supervisor: Christiane Pienna Soares
Institution: Araraquara School of Pharmaceutical Sciences / São Paulo State University (Unesp)

Start: Mar 2007
Finish: 29/2/2008

Geosciences

193 The control of flows of surface energy in the formation of nebulosity: an investigation using measurments in flow towers

Process: 2005/55011-0
Modality: Scientific Initiation

Grant holder: Sandra Isay Saad
Supervisor: Humberto Ribeiro da Rocha
Institution: Institute of Astronomy, Geophysics and Atmospheric Sciences / University of São Paulo (USP)

Start: Aug 2005
Finish: Dec 2005

194 Relationship between the extent and the form of deforestation and the impacts on precipitation: a case study for the Cuiabá-Santarém highway

Process: 2005/57829-0
Modality: Masters Degree

Grant holder: Sandra Isay Saad
Supervisor: Humberto Ribeiro da Rocha
Institution: Institute of Astronomy, Geophysics and Atmospheric Sciences / University of São Paulo (USP)

Start: Mar 2006
Finish: 29/2/2008

195 Effect of climate change on productivity and the availability of water: an investigation of the agroecosystems of São Paulo

Process: 2006/50924-0
Modality: Doctorate

Grant holder: Jonatan Dupont Tatsch
Supervisor: Humberto Ribeiro da Rocha
Institution: Institute of Astronomy, Geophysics and Atmospheric Sciences / University of São Paulo (USP)

Start: Jan 2007
Finish: Dec 2009

196 Climatic extremes in the southeast and centerwest of Brazil: the present climate and projections for the XXI century

Process: 2006/53769-6
Modality: Masters Degree

Grant holder: Rodrigo José Bombardi
Supervisor: Leila Maria Vespoli de Carvalho
Institution: Institute of Astronomy, Geophysics and Atmospheric Sciences / University of São Paulo (USP)

Start: Sep 2006
Finish: 29/2/2008

Microbiology

197 Molecular ecology of bacteria associated with sediments under the impact of organochlorinated xenobiotic compounds in rivers of the Baixada Santista, SP

Process: 1999/10739-4
Modality: Doctorate

Grant holder: Fernanda Francischetti Piza
Supervisor: Gilson Paulo Manfio
Institution: Institute of Biology / Campinas State University (Unicamp)

Start: May 2000
Finish: Apr 2004

198 Molecular characterization of *Xanthomonas spp.* phytopathogenic isolates of different hosts and geographical regions of the State of São Paulo

Process: 1999/11417-0
Modality: Post-doctorate

Grant holder: Suzete Aparecida Lanza Destefano
Supervisor: Gilson Paulo Manfio
Institution: Campinas Institute of Biology / Ministry of State for Agriculture and Supplies (SAA-SP)

Start: Mar 2000
Finish: Aug 2003

199 Polyphasic characterization of the biodiversity of degrading isolates of xenobiotic pollutants in the Baixada Santista

Process: 2000/03470-8
Modality: Masters Degree

Grant holder: Débora Frigi Rodrigues
Supervisor: Vivian Helena Pellizari
Institution: Institute of Biomedical Sciences / University of São Paulo (USP)

Start: Aug 2000
Finish: Jul 2002

200 Distribution and biodiversity of biodegrading consortia of xenobotic compounds in the Baixada Santista, SP

Process: 2000/03657-0
Modality: Masters Degree

Grant holder: Anderson Cornationi Lopez
Supervisor: Vivian Helena Pellizari
Institution: Institute of Biomedical Sciences / University of São Paulo (USP)

Start: Aug 2000
Finish: Jul 2002

201 Molecular characterization of nitrogen fixing bacteria associated with grasses of economic importance

Process: 2000/05402-0
Modality: Masters Degree

Grant holder: Patrícia Locosque Ramos
Supervisor: Carlos Alberto Moreira Filho
Institution: Institute of Biomedical Sciences / University of São Paulo (USP)

Start: Aug 2000
Finish: Jul 2002

202 Diversity of catabolic genes of xenobiotic degrading microorganisms in the Baixada Santista, SP

Process: 2000/07811-4
Modality: Doctorate

Grant holder: Giovani Sebben Bellicanta
Supervisor: Vivian Helena Pellizari
Institution: Institute of Biomedical Sciences / University of São Paulo (USP)

Start: Sep 2000
Finish: Aug 2004

203 Thermoresistant acid bacteria involved in the processing of orange juices

Process: 2000/08653-3
Modality: Masters Degree

Grant holder: Maria Inácia Simões Stach Farah
Supervisor: Sílvia Yuko Eguchi
Institution: André Tosello Tropical Research and Technology Foundation

Start: Nov 2000
Finish: May 2001

204 Anaerobic degradation of pentachlorophenol in estuary sediments: metabolic response of methanogenic Archaea and ion sulphate-reducing bacteria

Process: 2000/11900-2
Modality: Doctorate

Grant holder: Cristina Rossi Nakayama
Supervisor: Rosana Filomena Vazoller
Institution: Institute of Biomedical Sciences / University of São Paulo (USP)

Start: Jan 2001
Finish: Dec 2004

205 Diversity of endophytic bacteria of coffee plants (*Coffea arabica* e *Coffea robusta*)

Process: 2001/07122-7
Modality: Masters Degree

Grant holder: Flávia Vieira Nunes
Supervisor: Itamar Soares de Melo
Institution: Brazilian Agricultural Research Corporation (Embrapa)

Start: Mar 2002
Finish: 29/2/2004

206 Study of the antimycobacterial activity of vegetable extracts

Process: 2004/01436-8
Modality: Scientific Initiation

Grant holder: Célio Takashi Higuchi
Supervisor: Clarice Queico Fujimura Leite
Institution: Araraquara School of Pharmaceutical Sciences / São Paulo State University (Unesp)

Start: Jul 2004
Finish: Jan 2005

207 Bioprospection in filamentous fungi: production and characterization of the pectinolytic complex

Process: 2005/51819-3
Modality: Masters Degree

Grant holder: Alexandre Maller
Supervisor: Maria de Lourdes Teixeira de Moraes Polizeli
Institution: Ribeirão Preto School of Philosophy, Arts and Sciences / University of São Paulo (USP)

Start: Mar 2006
Finish: 29/2/2008

208 Bioprospection in filamentous fungi: study of alpha-amylase and glucoamylase in fungi isolated from the soil, decomposing matter and thermal waters

Process: 2005/54133-5
Modality: Doctorate

Grant holder: Tony Márcio da Silva
Supervisor: Maria de Lourdes Teixeira de Moraes Polizeli
Institution: Ribeirão Preto School of Philosophy, Arts and Sciences / University of São Paulo (USP)

Start: Mar 2006
Finish: Oct 2008

209 Study of lipases produced by filamentous fungi

Process: 2005/54565-2
Modality: Scientific Initiation

Grant holder: Alan Pádua Tristão
Supervisor: Maria de Lourdes Teixeira de Moraes Polizeli
Institution: Ribeirão Preto School of Philosophy, Arts and Sciences / University of São Paulo (USP)

Start: Sep 2005
Finish: Aug 2007

210 Study of xilanases produced by filamentous fungi with potential for industrial application: selection of strains, production, biochemical charcaterization and phyolgenetic relationships

Process: 2005/55463-9
Modality: Doctorate

Grant holder: Michele Michelin
Supervisor: Maria de Lourdes Teixeira de Moraes Polizeli
Institution: Ribeirão Preto School of Philosophy, Arts and Sciences / University of São Paulo (USP)

Start: Jan 2006
Finish: Dec 2008

211 Study of the pectolytic system in filamentous fungi

Process: 2005/56999-0
Modality: Masters Degree

Grant holder: André Ricardo de Lima Damásio
Supervisor: Maria de Lourdes Teixeira de Moraes Polizeli
Institution: Ribeirão Preto School of Medicine / University of São Paulo (USP)

Start: Mar 2006
Finish: 29/2/2008

212 Optimization of the cultivation conditions of endophytic fungus va 27 for production of bioactive substances

Process: 2005/58426-7
Modality: Masters Degree

Grant holder: Gláucia Hollaender Braun
Supervisor: Suraia Said
Institution: Ribeirão Preto School of Pharmaceutical Sciences / University of São Paulo (USP)

Start: Mar 2006
Finish: 29/2/2008

213 Optimization of the cultivation conditions of endophytic va 16 for production of secondary metabolites with biological activities

Process: 2005/58427-3
Modality: Masters Degree

Grant holder: Henrique Pereira Ramos
Supervisor: Suraia Said
Institution: Ribeirão Preto School of Pharmaceutical Sciences / University of São Paulo (USP)

Start: Mar 2006
Finish: 29/2/2008

214 Diversity of endophytic bacteria of red mangrove (*Rhizophora mangle*) and evaluation of the biotechnological potential

Process: 2006/52689-9
Modality: Masters Degree

Grant holder: Eduardo Penteado Gottardo
Supervisor: Itamar Soares de Melo
Institution: Brazilian Agricultural Research Corporation (Embrapa)

Start: Mar 2007
Finish: Feb 2009

215 Study of the diversity of polyporoid basidiomycetes in remnant forest fragments in the northwest of São Paulo State

Process: 2006/58786-6
Modality: Masters Degree

Grant holder: Maíra Cortellini Abrahão
Supervisor: Eleni Gomes
Institution: São José do Rio Preto Institute of Biosciences, Arts and Exact Sciences / São Paulo State University (Ibilce/Unesp)

Start: Sep 2007
Finish: Aug 2009

Oceanography

216 Echinodermata: Ophiuroidea in the north of the State of São Paulo

Process: 2002/04298-0
Modality: Doctorate

Grant holder: Michela Borges
Supervisor: Antônia Cecília Zacagnini Amaral
Institution: Institute of Biology / Campinas State University (Unicamp)

Start: Aug 2002
Finish: Jul 2005

Psychology

217 Actuality of the work of Lev S. Vygotsky: verification of the directions of Brazilian scientific research between the years 2000 and 2006

Process: 2006/57955-9
Modality: Scientific Initiation

Grant holder: João Bosco dos Santos Baring
Supervisor: Rogério Lerner
Institution: Institute of Psychology / University of São Paulo (USP)

Start: Dec 2006
Finish: Nov 2007

Chemistry

218 Chemical and biosynthetic study of the quinonamethide triterpenes in *Salacia distinta* (Hippocrateaceae)

Process: 1998/16543-1
Modality: Doctorate

Grant holder: Alex Haroldo Jeller
Supervisor: Maysa Furlan
Institution: Araraquara Institute of Chemistry / São Paulo State University (Unesp)

Start: Apr 1999
Finish: Feb 2003

219 Biosynthetic study of 4-nerolidilcatecol in *Potomorphe umbellata* (Piperaceae)

Process: 1998/16545-4
Modality: Doctorate

Grant holder: Débora Cristina Baldoqui Bergamo
Supervisor: Maysa Furlan
Institution: Araraquara Institute of Chemistry / São Paulo State University (Unesp)

Start: Apr 1999
Finish: Mar 2003

220 Search for anti-cancer and anti-microbial limonoidal constituents of the medicinal plants of Cerrado and Atlantic Rainforest flora

Process: 1999/00927-8
Modality: Post-doctorate

Grant holder: Karumanchi Venkateswara Rao
Supervisor: Vanderlan da Silva Bolzani
Institution: Araraquara Institute of Chemistry / São Paulo State University (Unesp)

Start: Aug 1999
Finish: 29/2/2000

221 Phytochemical study and search for bioactive substances of *Styrax camporum*

Process: 1999/01664-0
Modality: Masters Degree

Grant holder: Helder Lopes Teles
Supervisor: Dulce Helena Siqueira Silva
Institution: Araraquara Institute of Chemistry / São Paulo State University (Unesp)

Start: May 1999
Finish: Apr 2001

222 Determination of quinonamethide triterpenes and friedelan derivatives in differentiated and non-differentiated tissues in morphological varieties of *Maytenus ilicifolia*

Process: 1999/02258-6
Modality: Masters Degree

Grant holder: Waldemar Buffa Filho
Supervisor: Maysa Furlan
Institution: Araraquara Institute of Chemistry / São Paulo State University (Unesp)

Start: May 1999
Finish: Apr 2001

223 Secondary metabolism in culture of *Polymnia sonchifolia* cells

Process: 1999/05798-1
Modality: Masters Degree

Grant holder: Angélica Yucari Tsuruta
Supervisor: Massuo Jorge Kato
Institution: Institute of Chemistry / University of São Paulo (IQ/USP)

Start: Nov 1999
Finish: Oct 2001

224 Search for substances in species of *Tocoyena* in the State of São Paulo

Process: 1999/05927-6
Modality: Doctorate

Grant holder: Lidilhone Hamerski
Supervisor: Vanderlan da Silva Bolzani
Institution: Araraquara Institute of Chemistry / São Paulo State University (Unesp)

Start: Nov 1999
Finish: Oct 2003

225 Search for bioactive compounds in species of Lauraceae and of Myristicaceae in the State of São Paulo

Process: 1999/06151-1
Modality: Masters Degree

Grant holder: Andrea Nastri de Luca
Supervisor: Massayoshi Yoshida
Institution: Araraquara Institute of Chemistry / São Paulo State University (Unesp)

Start: Sep 1999
Finish: Aug 2001

226 Biomonitored phytochemical study of *Cassia leptophylla* (Leguminosae) and of the relationship structure-activity of piperidinic alkaloids active in the DNA

Process: 1999/07317-0
Modality: Doctorate

Grant holder: Cláudio Viegas Júnior
Supervisor: Vanderlan da Silva Bolzani
Institution: Araraquara Institute of Chemistry / São Paulo State University (Unesp)

Start: Nov 1999
Finish: Oct 2003

227 Prenylation *in vivo* and *in vitro* of cromenes present in piper aduncum: evaluation of the antifungal activity

Process: 1999/09808-1
Modality: Masters Degree

Grant holder: Andréia de Araújo Morandim
Supervisor: Maysa Furlan
Institution: Araraquara Institute of Chemistry / São Paulo State University (Unesp)

Start: Dec 1999
Finish: Nov 2001

228 Synthesis and structure-activity relationship of *Trypanocidal lignans*

Process: 1999/11738-1
Modality: Post-doctorate

Grant holder: Kenichi Nihei
Supervisor: Massuo Jorge Kato
Institution: Institute of Chemistry / University of São Paulo (IQ/USP)

Start: Feb 2000
Finish: Apr 2001

229 Phytochemical study and study of the antifungal, anticancerigenic and antioxidant activities of *Arrabidaea samydoides* (Bignoniaceae)

Process: 2000/04352-9
Modality: Doctorate

Grant holder: Patrícia Mendonca Pauletti
Supervisor: Vanderlan da Silva Bolzani
Institution: Araraquara Institute of Chemistry / São Paulo State University (Unesp)

Start: Jun 2000
Finish: May 2004

230 Development of methodology in *clae-deq* for the detection and separation of potential antioxidant micromolecules in species of the Cerrado and the Atlantic Rainforest

Process: 2000/07266-6
Modality: Post-doctorate

Grant holder: Ian Castro Gamboa
Supervisor: Vanderlan da Silva Bolzani
Institution: Araraquara Institute of Chemistry / São Paulo State University (Unesp)

Start: Sep 2000
Finish: Aug 2003

231 Phytochemical and biological study of *Chimarrhis turbinata dc.* (Rubiaceae) and *Machaerium villosum vog.* (Leguminosae-papilonoideae)

Process: 2000/07272-6
Modality: Doctorate

Grant holder: Carmem Lúcia Cardoso
Supervisor: Vanderlan da Silva Bolzani
Institution: Araraquara Institute of Chemistry / São Paulo State University (Unesp)

Start: Aug 2000
Finish: Aug 2003

232 Phytochemical study and search for antioxidant and antitumoral substances in *Aspidosperma olivaceum* (*mull.*) *Arg.* and *Malouetia arborea* (*vell.*) *Miers* (Apocynaceae)

Process: 2000/08217-9
Modality: Doctorate

Grant holder: Fernando José Costa Carneiro
Supervisor: Dulce Helena Siqueira Silva
Institution: Araraquara Institute of Chemistry / São Paulo State University (Unesp)

Start: Oct 2000
Finish: 29/2/2004

233 Prospection for bioactive compounds in species of Piperaceae

Process: 2000/08904-6
Modality: Masters Degree

Grant holder: Diego Campos Cervera Casanova
Supervisor: Massuo Jorge Kato
Institution: Institute of Chemistry / University of São Paulo (IQ/USP)

Start: Dec 2000
Finish: Nov 2002

234 Study of the chemically mediated interactions between species of insects and Piperaceae

Process: 2000/09743-6
Modality: Masters Degree

Grant holder: Clécio Sousa Ramos
Supervisor: Massuo Jorge Kato
Institution: Institute of Chemistry / University of São Paulo (IQ/USP)

Start: Dec 2000
Finish: Nov 2002

235 Studies of biosynthesis of celastrol in callluses and cellular suspension of *Maytenus aquifolium martius* (Celastraceae)

Process: 2000/12054-8
Modality: Post-doctorate

Grant holder: João Oiano Neto
Supervisor: Maysa Furlan
Institution: Araraquara Institute of Chemistry / São Paulo State University (Unesp)

Start: May 2001
Finish: Oct 2001

236 Chemical study and study of the anticancerigenic, antifungal and antioxidant activities of *Prunus myrtifolia* (*l.*) *Urban*. (Rosaceae)

Process: 2001/01648-7
Modality: Doctorate

Grant holder: Luciana de Avila Santos
Supervisor: Dulce Helena Siqueira Silva
Institution: Araraquara Institute of Chemistry / São Paulo State University (Unesp)

Start: May 2001
Finish: Apr 2005

237 Phytochemical study of species of lauraceas

Process: 2001/09598-9
Modality: Doctorate

Grant holder: Andrea Nastri de Luca
Supervisor: Massayoshi Yoshida
Institution: Araraquara Institute of Chemistry / São Paulo State University (Unesp)

Start: Jul 2002
Finish: Jun 2005

238 Biosynthetic and enzymological study in *Piper aduncum* (Piperaceae)

Process: 2001/10540-5
Modality: Fast-track Doctorate

Grant holder: Andréia de Araújo Morandim
Supervisor: Maysa Furlan
Institution: Araraquara Institute of Chemistry / São Paulo State University (Unesp)

Start: Jan 2002
Finish: Dec 2003

239 Search for secondary metabolites with antifungal potential in species of Piperaceae

Process: 2002/03474-9
Modality: Post-doctorate

Grant holder: João Henrique Ghilardi Lago
Supervisor: Massuo Jorge Kato
Institution: Institute of Chemistry / University of São Paulo (IQ/USP)

Start: Jul 2002
Finish: Mar 2003

240 Study and purification of enzymes involved in the biosynthesis of neolignans in species of Piperaceae

Process: 2002/03475-5
Modality: Post-doctorate

Grant holder: Roberto Carlos Campos Martins
Supervisor: Massuo Jorge Kato
Institution: Institute of Chemistry / University of São Paulo (IQ/USP)

Start: Oct 2002
Finish: Jul 2004

241 Study of the metabolome-proteome of *Piper tuberculatum* by mass spectrometry (Maldi-TOF) and bidimensional gel electrophoresis (SDS-page)

Process: 2002/07033-7
Modality: Post-doctorate

Grant holder: Hosana Maria Debonsi
Supervisor: Maysa Furlan
Institution: Araraquara Institute of Chemistry / São Paulo State University (Unesp)

Start: Oct 2002
Finish: Sep 2004

242 Sustainable use of Brazilian biodiversity: pharmacological chemical prospection in higher plants: *Byrsonima* (Malpighiaceae)

Process: 2002/09493-5
Modality: Post-doctorate

Grant holder: Miriam Sannomiya
Supervisor: Wagner Vilegas
Institution: Araraquara Institute of Chemistry / São Paulo State University (Unesp)

Start: Mar 2003
Finish: Feb 2007

243 Phytochemic study and study of the antifungal activity of branches of *Banisteriopsis variabilis* (Malpighiaceae)

Process: 2002/09594-6
Modality: Scientific Initiation

Grant holder: Camila Kise Higa
Supervisor: Vanderlan da Silva Bolzani
Institution: Araraquara Institute of Chemistry / São Paulo State University (Unesp)

Start: Dec 2002
Finish: Nov 2003

244 Re-study of *Uncaria guianensis*: search for terpenic indolo alkaloids with trypanocide activity and other constituents

Process: 2002/10222-6
Modality: Scientific Initiation

Grant holder: Andrea Carneiro de Oliveira
Supervisor: Vanderlan da Silva Bolzani
Institution: Araraquara Institute of Chemistry / São Paulo State University (Unesp)

Start: Dec 2002
Finish: Nov 2003

245 Phytochemical study of *Pterogyne nitens* (Leguminosae), synthesis and pharmacological evaluation of natural guandine alkaloids and of potential antitumoral analogues

Process: 2003/00886-7
Modality: Fast-track Doctorate

Grant holder: Luís Octávio Regasini
Supervisor: Vanderlan da Silva Bolzani
Institution: Araraquara Institute of Chemistry / São Paulo State University (Unesp)

Start: Apr 2003
Finish: Sep 2007

246 Tree species native to the Atlantic Rainforest bioaccumulators of chemical elements

Process: 2003/01075-2
Modality: Fast-track Doctorate

Grant holder: Elvis Joacir de Franca
Supervisor: Elisabete Aparecida de Nadai Fernandes
Institution: Center for Nuclear Energy in Agriculture / University of São Paulo (Cena/USP)

Start: Oct 2003
Finish: Sep 2006

247 Biosynthetic, proteomic and genomic study of the prenyltransferases *Piper gaudichaudianum* and *Piper crassinervium* (Piperaceae)

Process: 2003/01867-6
Modality: Fast-track Doctorate

Grant holder: Adriana Aparecida Lopes
Supervisor: Maysa Furlan
Institution: Araraquara Institute of Chemistry / São Paulo State University (Unesp)

Start: Aug 2003
Finish: Mar 2008

248 Planning, synthesis and pharmacological evaluation of new antiinflammatory and acetylcholinesterase inhibiting piperidinil derivatives

Process: 2003/05512-8
Modality: Post-doctorate

Grant holder: Cláudio Viegas Júnior
Supervisor: Vanderlan da Silva Bolzani
Institution: Araraquara Institute of Chemistry / São Paulo State University (Unesp)

Start: Nov 2003
Finish: Oct 2006

249 Sustainable use of Brazilian biodiversity: chemical-pharmacological prospection in higher plants – chemical study of *Qualea*

Process: 2003/07809-8
Modality: Scientific Initiation

Grant holder: Susel Taís Soares
Supervisor: Wagner Vilegas
Institution: Araraquara Institute of Chemistry / São Paulo State University (Unesp)

Start: Nov 2003
Finish: Mar 2005

250 Chemical-pharmacological prospection in higher plants: activity of *Mouriri ssp.* on the gastrointestinal system

Process: 2003/09748-6
Modality: Doctorate

Grant holder: Márcio Adriano Andreo
Supervisor: Wagner Vilegas
Institution: Araraquara Institute of Chemistry / São Paulo State University (Unesp)

Start: Aug 2004
Finish: Jul 2007

251 Sustainable use of Brazilian biodiversity: Chemical-pharmacological prospection in higher plants – *Davilla elliptica St. Hill*

Process: 2003/10631-6
Modality: Scientific Initiation

Grant holder: Daniel Rinaldo
Supervisor: Wagner Vilegas
Institution: Araraquara Institute of Chemistry / São Paulo State University (Unesp)

Start: Jan 2004
Finish: Dec 2004

252 Search for antioxidant substances in *Lippia salvifolia* (Verbenaceae)

Process: 2003/11236-3
Modality: Scientific Initiation

Grant holder: Daniela Cristina Bonfim
Supervisor: Vanderlan da Silva Bolzani
Institution: Araraquara Institute of Chemistry / São Paulo State University (Unesp)

Start: Dec 2003
Finish: Nov 2004

253 Phytochemical study and study of the antioxidant and/or antiinflammatory activity of the species *Machaerium villosum vog.* (Leguminosae-papilonoideae)

Process: 2003/11428-0
Modality: Masters Degree

Grant holder: Camila Kise Higa
Supervisor: Vanderlan da Silva Bolzani
Institution: Araraquara Institute of Chemistry / São Paulo State University (Unesp)

Start: Apr 2004
Finish: Mar 2006

254 Study of the effect of processing on the composition of the anitoxidant constituents in tomatoes

Process: 2003/12669-0
Modality: Doctorate

Grant holder: Juliana Julian Torres Gama
Supervisor: Célia Maria de Sylos
Institution: Araraquara School of Pharmaceutical Sciences / São Paulo State University (Unesp)

Start: Mar 2004
Finish: Jul 2008

255 Biosynthesis of the seco-lignans in *Peperomia pellucida* (Piperaceae)

Process: 2004/01018-1
Modality: Post-doctorate

Grant holder: Marisi Gomes Soares
Supervisor: Massuo Jorge Kato
Institution: Institute of Chemistry / University of São Paulo (IQ/USP)

Start: Jul 2004
Finish: Jun 2006

256 Sustainable use of Brazilian biodiversity: Chemical-pharmacological prospection in higher plants – *Alchornea* (Euphorbiaceae) and *Indigofera* (Fabaceae)

Process: 2004/03101-3
Modality: Fast-track Doctorate

Grant holder: Tâmara Regina Calvo
Supervisor: Wagner Vilegas
Institution: Araraquara Institute of Chemistry / São Paulo State University (Unesp)

Start: Sep 2004
Finish: Nov 2007

257 Chemical-pharmacological prospection in higher plants: activity of *Mangifera indica linn.* on the gastrointestinal system

Process: 2004/03289-2
Modality: Scientific Initiation

Grant holder: Juliana Aparecida Severi
Supervisor: Wagner Vilegas
Institution: Araraquara Institute of Chemistry / São Paulo State University (Unesp)

Start: Jul 2004
Finish: Dec 2004

258 Isolation, structural elucidation and biological activity of peptides of *Jatropha gossypifolia* (Euphorbiaceae)

Process: 2004/07061-6
Modality: Scientific Initiation

Grant holder: Mônica Sue Saito
Supervisor: Vanderlan da Silva Bolzani
Institution: Araraquara Institute of Chemistry / São Paulo State University (Unesp)

Start: Aug 2004
Finish: Jul 2006

259 Isolation, structural elucidation and biological activity of peptides of *Jatropha curcas* (Euphorbiaceae)

Process: 2004/07062-2
Modality: Scientific Initiation

Grant holder: Wanessa Fernanda Altei
Supervisor: Vanderlan da Silva Bolzani
Institution: Araraquara Institute of Chemistry / São Paulo State University (Unesp)

Start: Aug 2004
Finish: Dec 2006

260 Sustainable use of Brazilian biodiversity: chemical pharmacological prospection in higher plants

Process: 2004/07255-5
Modality: Doctorate

Grant holder: Ana Lúcia Martiniano Nasser
Supervisor: Wagner Vilegas
Institution: Araraquara Institute of Chemistry / São Paulo State University (Unesp)

Start: Sep 2004
Finish: Aug 2007

261 Study of the proteome with genomic insertion of the 4-nerolidilcatecol in *Potomorphe umbellata* (Piperaceae)

Process: 2004/09547-3
Modality: Post-doctorate

Grant holder: Débora Cristina Baldoqui Bérgamo
Supervisor: Maysa Furlan
Institution: Araraquara Institute of Chemistry / São Paulo State University (Unesp)

Start: Feb 2005
Finish: Jan 2008

262 Sustainable use of Brazilian biodiversity: Chemical-pharmacological prospection in higher plants – *Neea spp.* (Nyctaginaceae)

Process: 2004/10736-5
Modality: Masters Degree

Grant holder: Daniel Rinaldo
Supervisor: Wagner Vilegas
Institution: Araraquara Institute of Chemistry / São Paulo State University (Unesp)

Start: Mar 2005
Finish: Jan 2007

263 Bromeliads for biomonitoring of chemical elements in the Atlantic Rainforest

Process: 2004/11027-8
Modality: Scientific Initiation

Grant holder: Camila Elias
Supervisor: Elisabete Aparecida de Nadai Fernandes
Institution: Center for Nuclear Energy in Agriculture / University of São Paulo (Cena/USP)

Start: Dec 2004
Finish: Nov 2005

264 Peptides of *Jatropha spp* and of *Palicourea marcgravii St. Hill.* from the Cerrado and the Atlantic Rainforest: prospection, isolation, structural elucidation and biological activity

Process: 2004/11982-0
Modality: Masters Degree

Grant holder: Douglas Gatte Picchi
Supervisor: Vanderlan da Silva Bolzani
Institution: Araraquara Institute of Chemistry / São Paulo State University (Unesp)

Start: Mar 2005
Finish: Feb 2007

265 Sustainable use of Brazilian biodiversity: chemical-pharmacological evaluation of higher plants – *Guapira noxia*

Process: 2004/12967-4
Modality: Masters Degree

Grant holder: Juliana Aparecida Severi
Supervisor: Wagner Vilegas
Institution: Araraquara Institute of Chemistry / São Paulo State University (Unesp)

Start: Mar 2005
Finish: Feb 2007

266 Synthesis and biosynthesis of pyrrolidinic amides – determination of the activity of the oxydoreductase of the p450 cytochrome type in *Piper arboreum*

Process: 2004/14421-9
Modality: Scientific Initiation

Grant holder: Juliana Pizarro Martins Gomes
Supervisor: Maysa Furlan

Institution: Araraquara Institute of Chemistry / São Paulo State University (Unesp)

Start: Mar 2005
Finish: Dec 2005

267 Chemical study and study of the biological activities of *Eugenia jambolana* (Myrtaceae)

Process: 2005/52930-5
Modality: Masters Degree

Grant holder: Carenina Vidotte Plaza
Supervisor: Dulce Helena Siqueira Silva
Institution: Araraquara Institute of Chemistry / São Paulo State University (Unesp)

Start: Aug 2005
Finish: Jul 2007

268 Systematic evaluation of the phytochemical profile of extracts of *Lychnophora* as a routine method for the preliminary identification of several metabolites of substances by chromate

Process: 2005/53877-0
Modality: Post-doctorate

Grant holder: Solange Leite de Moraes
Supervisor: Norberto Peporine Lopes
Institution: Ribeirão Preto School of Pharmaceutical Sciences / University of São Paulo (USP)

Start: Oct 2005
Finish: Sep 2007

269 Characterization of the prenyltransferase of *Piper aduncum* (Piperaceae)

Process: 2005/54134-1
Modality: Post-doctorate

Grant holder: Ana Cristina Leite
Supervisor: Maysa Furlan
Institution: Araraquara Institute of Chemistry / São Paulo State University (Unesp)

Start: Oct 2005
Finish: Sep 2007

270 Search for endophylic microorganisms and their natural bioactive products in *Smallanthus sonchifolius* Poepp. & Endl. (Asteraceae)

Process: 2005/56259-6
Modality: Post-doctorate

Grant holder: Margareth Borges Coutinho Gallo
Supervisor: Mônica Tallarico Pupo
Institution: Ribeirão Preto School of Pharmaceutical Sciences / University of São Paulo (USP)

Start: Feb 2006
Finish: Jan 2008

271 Synthesis of thioureas analagous to guandine alkaloids obtained from *Pterogyne nitens* (Leguminosae) with potential antitumoral action

Process: 2005/56404-6
Modality: Scientific Initiation

Grant holder: Murilo Massao Assonuma
Supervisor: Vanderlan da Silva Bolzani
Institution: Araraquara Institute of Chemistry / São Paulo State University (Unesp)

Start: Nov 2005
Finish: Sep 2006

272 Biochemical investigation of polar secondary metabolites present in the leaves of *Casearia sylvestris* SW

Process: 2005/56500-5
Modality: Scientific Initiation

Grant holder: Dieimes Uiliam Bedim
Supervisor: Alberto José Cavalheiro
Institution: Araraquara Institute of Chemistry / São Paulo State University (Unesp)

Start: Dec 2005
Finish: Jun 2008

273 Phytochemical study of different organs of *Casearia silvestris*

Process: 2005/58626-6
Modality: Scientific Initiation

Grant holder: Elisângela Simões de Carvalho
Supervisor: Alberto José Cavalheiro
Institution: Araraquara Institute of Chemistry / São Paulo State University (Unesp)

Start: Dec 2005
Finish: Nov 2006

274 Synthesis and biosynthesis of piperidinyl amides – determination of the activity of the oxydoreductase enzyme of the p450 cytochrome type in *Piper tuberculatum*

Process: 2005/58796-9
Modality: Masters Degree

Grant holder: Fernando Cotinguiba da Silva
Supervisor: Maysa Furlan
Institution: Araraquara Institute of Chemistry / São Paulo State University (Unesp)

Start: Mar 2006
Finish: Jun 2007

275 Sustainable use of Brazilian biodiversity: chemical-pharmacological evaluation of higher plants – *Mouriri elliptica* (Melastomataceae)

Process: 2005/60835-2
Modality: Scientific Initiation

Grant holder: Flávia Saran Marini
Supervisor: Wagner Vilegas
Institution: Araraquara Institute of Chemistry / São Paulo State University (Unesp)

Start: Aug 2006
Finish: Jul 2008

276 Characterization of prenyltransferase of *Piper crassinervium* and *gaudichaudianum* (Piperaceae)

Process: 2006/50086-5
Modality: Post-doctorate

Grant holder: Sílvia Noeli Lopez
Supervisor: Maysa Furlan
Institution: Araraquara Institute of Chemistry / São Paulo State University (Unesp)

Start: Jul 2006
Finish: Jun 2008

277 Sustainable use of Brazilian biodiversity: Chemical-pharmacological prospection in higher plants – methodology for the establishment of qualitative and quantative profiles for vegetal extracts

Process: 2006/51453-1
Modality: Doctorate

Grant holder: Daniel Rinaldo
Supervisor: Wagner Vilegas
Institution: Araraquara Institute of Chemistry / São Paulo State University (Unesp)

Start: Mar 2007
Finish: Feb 2010

278 Bioprospection in species of Piperaceae

Process: 2006/52363-6
Modality: Masters Degree

Grant holder: Juliana Beltrame Reigada
Supervisor: Massuo Jorge Kato
Institution: Institute of Chemistry / University of São Paulo (IQ/USP)

Start: Apr 2007
Finish: 29/2/2008

279 Studies of the biosynthetic paths of piperidine alkaloids of *Senna spectabilis*

Process: 2006/54948-1
Modality: Doctorate

Grant holder: Marcos Pivatto
Supervisor: Vanderlan da Silva Bolzani
Institution: Araraquara Institute of Chemistry / São Paulo State University (Unesp)

Start: Oct 2006
Finish: Feb 2009

280 Chemical and antioxidant studies of two species of the *Lippia* genus native to the São Paulo Cerrado: *L. salviaefolia* and *L. velutina* (Berbenaceae)

Process: 2006/55162-1
Modality: Doctorate

Grant holder: Cristiano Soleo de Funari
Supervisor: Dulce Helena Siqueira Silva
Institution: Araraquara Institute of Chemistry / São Paulo State University (Unesp)

Start: Sep 2006
Finish: Aug 2009

281 Sustainable use of Brazilian biodiversity: chemical pharmacological prospection in higher plants – *Serjania* (Sapindaceae) *will*

Process: 2006/56469-3
Modality: Post-doctorate

Grant holder: Cláudia Joseph Nehme
Supervisor: Wagner Vilegas
Institution: Araraquara Institute of Chemistry / São Paulo State University (Unesp)

Start: Feb 2007
Finish: Jan 2008

282 Phytochemical study of the antioxidant and cytotoxic activities of *Myrciaria cauliflora Berg.* (Myrtaceae)

Process: 2006/57101-0
Modality: Scientific Initiation

Grant holder: Caroline Mariana Minucci Pereira
Supervisor: Dulce Helena Siqueira Silva
Institution: Araraquara Institute of Chemistry / São Paulo State University (Unesp)

Start: Feb 2007
Finish: Jan 2008

283 Implantation of trials for triage on a greater scale using a micro-circuit board multidetection reader for analysis of vegetal extracts and substances

Process: 2006/57114-4
Modality: Post-doctorate

Grant holder: Patrícia Mendonça Pauletti
Supervisor: Dulce Helena Siqueira Silva
Institution: Araraquara Institute of Chemistry / São Paulo State University (Unesp)

Start: Jan 2007
Finish: Dec 2007

284 Sustainable use of Brazilian biodiversity: chemical-pharmacological evaluation of higher plants – *Guapira spp.*

Process: 2006/57512-0
Modality: Doctorate

Grant holder: Juliana Aparecida Severi
Supervisor: Wagner Vilegas
Institution: Araraquara Institute of Chemistry / São Paulo State University (Unesp)

Start: Mar 2007
Finish: Feb 2010

285 Chemical and biological study of natural cromenes in species of Piperaceae and their analogues

Process: 2006/59555-8
Modality: Masters Degree

Grant holder: João Marcos Batista Júnior
Supervisor: Maysa Furlan
Institution: Araraquara Institute of Chemistry / São Paulo State University (Unesp)

Start: Mar 2007
Finish: Feb 2009

286 Sustainable use of Brazilian biodiversity: chemical pharmacological evaluation of higher plants: *Indigofera suffruticosa* (Fabaceae)

Process: 2006/60139-9
Modality: Scientific Initiation

Grant holder: Adriana Cândido da Silva Moura
Supervisor: Lourdes Campaner dos Santos
Institution: Araraquara Institute of Chemistry / São Paulo State University (Unesp)

Start: Feb 2007
Finish: Dec 2007

287 Configurational analysis of styrylpyrones of species of *Cryptocarya* (Lauraceae)

Process: 2006/60150-2
Modality: Scientific Initiation

Grant holder: Rosilene Cristina Rossetto Burgos
Supervisor: Alberto José Cavalheiro

Institution: Araraquara Institute of Chemistry / São Paulo State University (Unesp)

Start: Mar 2007
Finish: Dec 2007

288 Chromatographic profile of the metabolites of species of the Flacourtiaceae family: biomonitored phytochemcial study

Process: 2006/60151-9
Modality: Doctorate

Grant holder: Gerardo Magela Vieira Júnior
Supervisor: Alberto José Cavalheiro
Institution: Araraquara Institute of Chemistry / São Paulo State University (Unesp)

Start: Mar 2007
Finish: Feb 2010

289 Optimization and validation of method for the extraction and analysis of casearines of *Casearia sylvestris*, by *clae*

Process: 2006/60152-5
Modality: Scientific Initiation

Grant holder: Giovanni César Coelho Bomfim
Supervisor: Alberto José Cavalheiro
Institution: Araraquara Institute of Chemistry / São Paulo State University (Unesp)

Start: Mar 2007
Finish: 29/2/2008

290 Chemical study of *Brosimum glaziovii* and *Kielmeyera variabilis*, inhibition of the formation *in vitro* of b-hematin and analysis of the complexes formed between secondary heme-metabolites via *clae*

Process: 2006/61187-7
Modality: Doctorate

Grant holder: Aline Coqueiro
Supervisor: Vanderlan da Silva Bolzani
Institution: Araraquara Institute of Chemistry / São Paulo State University (Unesp)

Start: Mar 2007
Finish: Feb 2010

291 Biosynthetic study of secolignans in *Peperomia glabella* var. nervulosa

Process: 2006/61586-9
Modality: Scientific Initiation

Grant holder: Camila Alexandra Rodrigues
Supervisor: Massuo Jorge Kato
Institution: Institute of Chemistry / University of São Paulo (IQ/USP)

Start: Aug 2007
Finish: Jul 2008

292 Sustainable use of Brazilian biodiversity: chemical pharmacological prospection in higher plants – development of chromatographic methodologies for establishment of qualitative and quantitative profiles

Process: 2006/61772-7
Modality: Post-doctorate

Grant holder: Clenilson Martins Rodrigues
Supervisor: Wagner Vilegas
Institution: Araraquara Institute of Chemistry / São Paulo State University (Unesp)

Start: Apr 2007
Finish: Mar 2009

293 Application of mass spectrometry for the identification of inhibitors of HIV-1 proteases in plants of the Cerrado and Atlantic Rainforest: a modern enzymatic tool for the search for new agents

Process: 2006/61795-7
Modality: Post-doctorate

Grant holder: Otávio Aparecido Flausino Júnior
Supervisor: Vanderlan da Silva Bolzani
Institution: Araraquara Institute of Chemistry / São Paulo State University (Unesp)

Start: Apr 2007
Finish: Mar 2009

294 Biomonitored phytochemical study of *Casearia lasiophylla* (Flacourtiaceae)

Process: 2007/50348-2
Modality: Scientific Initiation

Grant holder: Débora Alves de Senna
Supervisor: Alberto José Cavalheiro
Institution: Araraquara Institute of Chemistry / São Paulo State University (Unesp)

Start: Apr 2007
Finish: Mar 2008

295 Sustainable use of Brazilian biodiversity: chemical-pharmacological evaluation of higher plants *Serjania grandiflora Cambess* (Sapindaceae)

Process: 2007/51048-2
Modality: Scientific Initiation

Grant holder: Danielle Cristiane Baldo
Supervisor: Cláudia Joseph Nehme
Institution: Araraquara Institute of Chemistry / São Paulo State University (Unesp)

Start: Aug 2007
Finish: Jul 2008

Forest Resources and Forest Engineering

296 Conservationist behavior and environmental legislation in the maintenance of forest areas in the region of Caucaia do Alto (Cotia, Ibiúna,SP)

Process: 2000/07722-1
Modality: Masters Degree

Grant holder: Anita Toledo Barros Diederichsen
Supervisor: Jean Paul Walter Metzger
Institution: Institute of Biosciences / University of São Paulo (USP)

Start: Sep 2000
Finish: Aug 2002

297 Experimental cultivation of *Macrobrachium potiuna* (Muller, 1880) (Crustaceae, Decapoda, Palaemonidae) effect of the density of stocks in pens and net cages

Process: 2001/13765-8
Modality: Fast-track Doctorate

Grant holder: Fábio Kiyohara
Supervisor: Sérgio Luiz de Siqueira Bueno
Institution: Institute of Biosciences / University of São Paulo (USP)

Start: Jul 2002
Finish: Feb 2006

Zoology

298 Systematics, phylogeography, and evolution of the chiropterans of east Brazil

Process: 1999/02403-6
Modality: Post-doctorate

Grant holder: Albert David Ditchfield
Supervisor: Mario de Vivo
Institution: Zoology Museum / University of São Paulo (USP)

Start: Jul 1999
Finish: May 2002

299 Faunistic study of Plecoptera (Insecta) from the Intervales State Park

Process: 1999/04369-0
Modality: Masters Degree

Grant holder: Valdelânia Ribeiro de Ribeiro
Supervisor: Cláudio Gilberto Froehlich
Institution: Ribeirão Preto School of Philosophy, Arts and Sciences / University of São Paulo (USP)

Start: Jul 1999
Finish: Jun 2001

300 Diversity of edaphic and plant oribatid mites (Acari, Oribatida) in the State of São Paulo

Process: 1999/04478-3
Modality: Doctorate

Grant holder: Anibal Ramadan Oliveira
Supervisor: Gilberto José de Moraes
Institution: Luiz de Queiroz College of Agriculture / University of São Paulo (Esalq/USP)

Start: Jan 2000
Finish: Dec 2003

301 Mites associated with myrtle (Myrtaceae) in areas of the Cerrado in the State of São Paulo

Process: 1999/05189-5
Modality: Doctorate

Grant holder: Antônio Carlos Lofego
Supervisor: Gilberto José de Moraes
Institution: Luiz de Queiroz College of Agriculture / University of São Paulo (Esalq/USP)

Start: Apr 2000
Finish: Mar 2004

302 Wealth of ants (Hymenoptera: Formicidae) in forest areas of South Brazil and structure of leaf litter ant guilds

Process: 1999/06676-7
Modality: Doctorate

Grant holder: Rogério Rosa da Silva
Supervisor: Carlos Roberto Ferreira Brandão
Institution: Institute of Biosciences / University of São Paulo (USP)

Start: Aug 2000
Finish: Jul 2004

303 Diversity of mites (Acari, Arachnida) in native species of Euphorbiaceae in the region of the State of São Paulo

Process: 1999/06898-0
Modality: Scientific Initiation

Grant holder: Maria Andréia Nunes
Supervisor: Reinaldo José Fazzio Feres
Institution: São José do Rio Preto Institute of Biosciences, Arts and Exact Sciences / São Paulo State University (Ibilce/Unesp)

Start: Mar 2000
Finish: Dec 2000

304 Diversity of mites (Acari, Arachnida) in rubber trees (*Hevea brasiliensis* muell. arg., Euphorbiaceae) in the northwest region of the State of São Paulo

Process: 1999/06899-6
Modality: Scientific Initiation

Grant holder: Rodrigo Souza Santos
Supervisor: Reinaldo José Fazzio Feres
Institution: São José do Rio Preto Institute of Biosciences, Arts and Exact Sciences / São Paulo State University (Ibilce/Unesp)

Start: Mar 2000
Finish: Dec 2000

305 Determination of the sex of individuals in the monitoring and study of the dynamic of a population of wild mammals through the dosage of metabolites of hormones in the faeces

Process: 1999/09473-0
Modality: Post-doctorate

Grant holder: Elaine Augusto Alves Ribeiro
Supervisor: Mario de Vivo
Institution: Ribeirão Preto School of Philosophy, Arts and Sciences / University of São Paulo (USP)

Start: Jan 2000
Finish: Dec 2003

306 Biodiversity of spiders associated with mites in native plants of economic importance in the State of São Paulo

Process: 1999/10538-9
Modality: Scientific Initiation

Grant holder: Beatriz do Prado Mendes
Supervisor: Isabela Maria Piovesan Rinaldi
Institution: Botucatu Institute of Biosciences / São Paulo State University (Unesp)

Start: Jul 2000
Finish: Jun 2001

307 Study of the fauna of dragonflies in the Jatai Ecological Station and its outskirts, in the municipality of Luís Antônio, SP

Process: 1999/11611-1
Modality: Doctorate

Grant holder: Patrícia Santos Ferreira Peruquetti
Supervisor: Alaíde Aparecida Fonseca Gessner
Institution: Center for Biological Sciences and Health / Federal University of São Carlos (UFSCar)

Start: Mar 2000
Finish: 29/2/2004

308 Comparative study of the species of the lemniscal mollusc *Anodontites trapesialis* (Lamarck, 1819) and *Diplodon rotundus gratus* (Wagner,1827) exposed to triazine herbicides

Process: 2000/00995-2
Modality: Masters Degree

Grant holder: Analu Egydio Jacomini
Supervisor: Wagner Eustáquio Paiva Avelar
Institution: Ribeirão Preto School of Philosophy, Arts and Sciences / University of São Paulo (USP)

Start: May 2000
Finish: Apr 2002

309 Diversity of soil mites in areas of the State of São Paulo

Process: 2000/01265-8
Modality: Scientific Initiation

Grant holder: Andrea Cristina Pereira
Supervisor: Gilberto José de Moraes
Institution: Luiz de Queiroz College of Agriculture / University of São Paulo (Esalq/USP)

Start: Jun 2000
Finish: Dec 2000

310 Butterflies as environmental indicators: monitoring om Nymphalidae (Eurytelinae and Satyrinae)

Process: 2000/01484-1
Modality: Post-doctorate

Grant holder: André Victor Lucci Freitas
Supervisor: Keith Spalding Brown Júnior
Institution: Institute of Biology / Campinas State University (Unicamp)

Start: May 2000
Finish: Sep 2004

311 Contribution to the knowledge of the *Chironomus meigen* genus, 1803 (Chironomidae-Diptera) in the neotropical region

Process: 2000/01548-0
Modality: Doctorate

Grant holder: Leny Celia da Silva Correia
Supervisor: Susana Trivinho Strixino
Institution: Center for Biological Sciences and Health / Federal University of São Carlos (UFSCar)

Start: Jun 2000
Finish: 29/2/2004

312 Aspects of the biology of a community of river fish from the basin of the River Mogi-Guaçú, SP: diet, reproduction and ecomorphology

Process: 2000/01918-1
Modality: Masters Degree

Grant holder: Katiane Mara Ferreira
Supervisor: Ricardo Macedo Corrêa e Castro
Institution: Ribeirão Preto School of Philosophy, Arts and Sciences / University of São Paulo (USP)

Start: Jul 2000
Finish: Jun 2002

313 Biology and structure of three communities of fish from the Sete de Setembro tributary, Morro do Diabo State Park, Alto Rio Paraná basin, SP

Process: 2000/01919-8
Modality: Post-doctorate

Grant holder: Lilian Casatti
Supervisor: Ricardo Macedo Corrêa e Castro
Institution: Ribeirão Preto School of Philosophy, Arts and Sciences / University of São Paulo (USP)

Start: May 2000
Finish: Jun 2002

314 Phylogenetic analysis of the *Moenkhausia elgenmann*, 1903 (Characiformes: Characidae) with the revision of the taxons of the Alto Rio Paraná

Process: 2000/01920-6
Modality: Doctorate

Grant holder: Ricardo Cardoso Benine
Supervisor: Ricardo Macedo Corrêa e Castro
Institution: Ribeirão Preto School of Philosophy, Arts and Sciences / University of São Paulo (USP)

Start: May 2000
Finish: Apr 2004

315 Diversity of Decapoda crustaceans from the basin of the Ribeira de Iguape and adjacent coastal areas, State of São Paulo

Process: 2000/02119-5
Modality: Masters Degree

Grant holder: Sérgio Schwarz da Rocha
Supervisor: Sérgio Luiz de Siqueira Bueno
Institution: Institute of Biosciences / University of São Paulo (USP)

Start: Jun 2000
Finish: May 2002

316 Comparasion of the Isoptera (Insecta) fauna in two areas of the Atlantic Rainforest in the southeast of Bahia

Process: 2000/03160-9
Modality: Masters Degree

Grant holder: Yana Teixeira dos Reis
Supervisor: Eliana Marques Cancello
Institution: Museu de Zoologia / University of São Paulo (USP)

Start: Sep 2000
Finish: Jul 2002

317 Biodiversity and phylogenetics of the Cryptinae neotropicais (Hymenoptera: Ichneumonidae)

Process: 2000/05704-6
Modality: Post-doctorate

Grant holder: Alexandre Pires Aguiar
Supervisor: Carlos Roberto Ferreira Brandão
Institution: Museu de Zoologia / University of São Paulo (USP)

Start: Feb 2001
Finish: Jan 2004

318 Biology and systematics of *Antillocladius* (Insecta: Diptera: Chironomidae)

Process: 2000/05903-9
Modality: Masters Degree

Grant holder: Humberto Fonseca Mendes
Supervisor: Cláudio Gilberto Froehlich
Institution: Ribeirão Preto School of Philosophy, Arts and Sciences / University of São Paulo (USP)

Start: Feb 2001
Finish: Jan 2003

319 Small terrestrial mammals of the Cerrado bioma: local and regional faunistic patterns

Process: 2000/06642-4
Modality: Doctorate

Grant holder: Ana Paula Carmignotto
Supervisor: Mario de Vivo
Institution: Zoology Museum / University of São Paulo (USP)

Start: Oct 2000
Finish: Sep 2004

320 Study of neotropical Sphecidae and neotropical Crabronidae (Hymenoptera): diversity and characterization of the fauna of the Atlantic Rainforest

Process: 2000/06802-1
Modality: Post-doctorate

Grant holder: Sérvio Túlio Pires Amarante
Supervisor: Carlos Roberto Ferreira Brandão
Institution: Zoology Museum / University of São Paulo (USP)

Start: Sep 2000
Finish: Jun 2004

321 Marsupials (Didelphimorphia) in the State of São Paulo: distribution and morphology

Process: 2000/07808-3
Modality: Scientific Initiation

Grant holder: Talitha Monfort Pires
Supervisor: Mario de Vivo
Institution: Zoology Museum / University of São Paulo (USP)

Start: Oct 2000
Finish: Sep 2001

322 Systematics of mouse opossums of the *Marmosa* and *Marmosops* (Didelphimorphia, Didelphidade)

Process: 2000/08261-8
Modality: Doctorate

Grant holder: Rogério Vieira Rossi
Supervisor: Mario de Vivo
Institution: Zoology Museum / University of São Paulo (USP)

Start: Apr 2001
Finish: Mar 2005

323 Diversity and abundance of planticule mites in Myrtles (Myrtaceae) of the Cerrado in the State of São Paulo

Process: 2000/08799-8
Modality: Scientific Initiation

Grant holder: Luiz Alexandre Simões de Castro
Supervisor: Gilberto José de Moraes
Institution: Luiz de Queiroz College of Agriculture / University of São Paulo (Esalq/USP)

Start: Feb 2001
Finish: Jan 2002

324 Aspects of the biology of *Corbicula fluminea* (Muller, 1774) (Corbiculidae) in the Rio Sapucaí, State of São Paulo

Process: 2000/11622-2
Modality: Scientific Initiation

Grant holder: Marina Peixoto Vianna
Supervisor: Wagner Eustáquio Paiva Avelar
Institution: Ribeirão Preto School of Philosophy, Arts and Sciences / University of São Paulo (USP)

Start: Sep 2001
Finish: Aug 2002

325 Survey and ecological aspects of mites (Acari, Arachnida) of agricultural importance in Euphorbiaceae invaders of rubber trees in the northeast region of the State of São Paulo

Process: 2000/12179-5
Modality: Scientific Initiation

Grant holder: Renato Buosi
Supervisor: Reinaldo José Fazzio Feres
Institution: São José do Rio Preto Institute of Biosciences, Arts and Exact Sciences / São Paulo State University (Ibilce/Unesp)

Start: Apr 2001
Finish: Dec 2002

326 Mollusca bivalvia (Veneroida) of the southeast coast of Brazil

Process: 2000/12240-6
Modality: Doctorate

Grant holder: Eliane Pintor de Arruda Moraes
Supervisor: Antônia Cecília Zacagnini Amaral
Institution: Institute of Biology / Campinas State University (Unicamp)

Start: Mar 2001
Finish: Oct 2004

327 Chironomidae in streams in the forest areas of the State of São Paulo

Process: 2000/12483-6
Modality: Doctorate

Grant holder: Fábio de Oliveira Roque
Supervisor: Susana Trivinho Strixino
Institution: Center for Biological Sciences and Health / Federal University of São Carlos (UFSCar)

Start: Mar 2001
Finish: Feb 2005

328 Diversity and aspects of the biology of two communities of fish of the Ribeirão Bonito, basin of the Alto Rio Paraná, SP

Process: 2000/14030-9
Modality: Scientific Initiation

Grant holder: Renata Stopiglia
Supervisor: Ricardo Macedo Corrêa e Castro
Institution: Ribeirão Preto School of Philosophy, Arts and Sciences / University of São Paulo (USP)

Start: Mar 2001
Finish: Dec 2001

329 Survey of nymphs of Ephemeroptera in streams in the Boracéia Biological Station

Process: 2001/00578-5
Modality: Scientific Initiation

Grant holder: Rodolfo Mariano Lopes da Silva
Supervisor: Cláudio Gilberto Froehlich
Institution: Ribeirão Preto School of Philosophy, Arts and Sciences / University of São Paulo (USP)

Start: Apr 2001
Finish: Dec 2001

330 Phylogeographical analysis of *Astyanax altiparanea* (Britski & Garutti, 2000) (Characiformes, Characidae) in the São Paulo portion of the basin of the Alto Paraná

Process: 2001/00780-9
Modality: Doctorate

Grant holder: Gabriela Zanon Pelicão Dardis
Supervisor: Ricardo Macedo Corrêa e Castro
Institution: Ribeirão Preto School of Philosophy, Arts and Sciences / University of São Paulo (USP)

Start: Jun 2001
Finish: May 2005

331 Semiterrestrial ostracode crustaceans in the Atlantic Rainforest of the State of São Paulo

Process: 2001/00870-8
Modality: Scientific Initiation

Grant holder: Ricardo Lourenço Pinto
Supervisor: Carlos Eduardo Falavigna da Rocha
Institution: Institute of Biosciences / University of São Paulo (USP)

Start: Apr 2001
Finish: Dec 2001

332 Epibiosis em brachyuran crabs (Crustacea, Decapoda) of the non-consolidated sublittoral of the State of São Paulo

Process: 2001/00886-1
Modality: Post-doctorate

Grant holder: Tânia Márcia Costa
Supervisor: Maria Lúcia Negreiros Fransozo
Institution: Botucatu Institute of Biosciences / São Paulo State University (Unesp)

Start: Sep 2001
Finish: 05/2/2003

333 Ecological distribution populational biology of *Xiphopenaeus kroyeri* (Heller 1862) (Crustacea, Decapoda, Penaeidae) on the coast of the State of São Paulo

Process: 2001/01722-2
Modality: Masters Degree

Grant holder: Fulvio Aurélio de Morais Freire
Supervisor: Adílson Fransozo
Institution: Botucatu Institute of Biosciences / São Paulo State University (Unesp)

Start: Apr 2001
Finish: Mar 2003

334 Contribution to the study of the Ophioninae (Hymenoptera, Ichneumonidae) of Brazil

Process: 2001/07013-3
Modality: Scientific Initiation

Grant holder: Helena Carolina Onody
Supervisor: Angélica Maria Penteado Martins Dias
Institution: Center for Biological Sciences and Health / Federal University of São Carlos (UFSCar)

Start: Dec 2001
Finish: Nov 2002

335 Study and identification of the Hymenoptera: Aculeata of the Biota Thematic Project Richness and diversity of Hymenoptera and Isoptera along a latitudiunal gradient in the Atlantic Rainforest

Process: 2001/08060-5
Modality: Scientific Initiation

Grant holder: Eduardo Fernando dos Santos
Supervisor: Carlos Roberto Ferreira Brandão
Institution: Zoology Museum / University of São Paulo (USP)

Start: Jun 2002
Finish: May 2005

336 Faunistic patterns in the Atlantic Rainforest: the small mammals (Didelphimorphia, Rodentia, Chiroptera)

Process: 2001/08602-2
Modality: Doctorate

Grant holder: Michel Miretzki
Supervisor: Mario de Vivo
Institution: Zoology Museum / University of São Paulo (USP)

Start: Oct 2001
Finish: Sep 2004

337 Fauna associated to the phytal of the Ilha dos Porcos Pequenos of the region of Picinguaba, Ubatuba, north coast of the State of São Paulo: temporal comparsion temporal of the composition and abundance of the macro and meio fauna

Process: 2001/08859-3
Modality: Scientific Initiation

Grant holder: Ilana Daniella Araújo Lewinsohn
Supervisor: Fosca Pedini Pereira Leite
Institution: Institute of Biology / Campinas State University (Unicamp)

Start: Sep 2001
Finish: Dec 2002

338 Fauna associated to the phytal of the Ilha dos Porcos Pequenos of the region of Picinguaba, Ubatuba, north coast of the State of São Paulo: identification of the species of peracarida (Crustacea)

Process: 2001/08860-1
Modality: Scientific Initiation

Grant holder: Rebeca Miranda Santos
Supervisor: Fosca Pedini Pereira Leite
Institution: Institute of Biology / Campinas State University (Unicamp)

Start: Sep 2001
Finish: Aug 2003

339 Fauna associated with the phytal of the Ilha dos Porcos Pequenos of the region of Picinguaba, Ubatuba, north coast of the State of São Paulo: temporal comparsion of the composition and abundance of the fauna of peracarids

Process: 2001/08861-8
Modality: Scientific Initiation

Grant holder: Cláudia Bottcher
Supervisor: Fosca Pedini Pereira Leite
Institution: Institute of Biology / Campinas State University (Unicamp)

Start: Sep 2001
Finish: Dec 2002

340 Influence of the hydrological cycle on the phytophyl community associated with *Elchhornia azurea* in two marginal lakes in the floodplain of the river Mogi-Guaçú (Ecological Station Jataí, Luís Antônio, SP)

Process: 2001/11055-3
Modality: Post-doctorate

Grant holder: Marlon Pelaez Rodriguez
Supervisor: Susana Trivinho Strixino
Institution: Center for Biological Sciences and Health / Federal University of São Carlos (UFSCar)

Start: May 2002
Finish: Apr 2003

341 Predatory mites in the State of São Paulo with potential for use in the control of soil pests

Process: 2001/11396-5
Modality: Masters Degree

Grant holder: Renata Angélica Prado Freire
Supervisor: Gilberto José de Moraes
Institution: Luiz de Queiroz College of Agriculture / University of São Paulo (Esalq/USP)

Start: Sep 2002
Finish: 29/2/2004

342 Taxonomy and biology of semiterrestrial ostracodes in the State of São Paulo

Process: 2001/11675-1
Modality: Masters Degree

Grant holder: Ricardo Lourenço Pinto
Supervisor: Carlos Eduardo Falavigna da Rocha
Institution: Institute of Biosciences / University of São Paulo (USP)

Start: Mar 2002
Finish: 29/2/2004

343 Reproductive study and influence of different degrees of eutrophication in the life history of *Scolelepis squamata* and *Laeonereis* acuta (Annelida: Polychaeta)

Process: 2001/13353-1
Modality: Doctorate

Grant holder: Fábio Sá Mac Cord
Supervisor: Antônia Cecília Zacagnini Amaral
Institution: Institute of Biology / Campinas State University (Unicamp)

Start: May 2002
Finish: Jul 2005

344 Life cycle of *Eucheilota maculata* (Cnidaria, Hidrozoa), an epizoic species of *Tivela mactroides* (Mollusca, Bivalvia)

Process: 2001/14359-3
Modality: Scientific Initiation

Grant holder: Alice Cristina Mondin
Supervisor: Álvaro Esteves Migotto
Institution: Center for Marine Biology / University of São Paulo (USP)

Start: Apr 2002
Finish: Dec 2002

345 The influence of domestic sewage on the population of molluscs in a stretch of the river Pardo, municipality of Ribeirão Preto, State of São Paulo

Process: 2001/14580-1
Modality: Scientific Initiation

Grant holder: Erika Junqueira da Fonseca
Supervisor: Wagner Eustáquio Paiva Avelar
Institution: Ribeirão Preto School of Philosophy, Arts and Sciences / University of São Paulo (USP)

Start: May 2002
Finish: Dec 2002

346 Ecological distribution and populational biology of *Xiphopenaeus kroyeri* (Heller, 1862) (Crustacea, Decapoda, Penaeidae) on the coast of the State of São Paulo

Process: 2002/02274-6
Modality: Fast-track Doctorate

Grant holder: Fulvio Aurélio de Morais Freire
Supervisor: Adílson Fransozo
Institution: Botucatu Institute of Biosciences / São Paulo State University (Unesp)

Start: Apr 2003
Finish: May 2005

347 Pantopoda on the north coast of the State of São Paulo

Process: 2002/02433-7
Modality: Scientific Initiation

Grant holder: Elisa Palhares de Souza
Supervisor: Cláudio Gonçalves Tiago
Institution: Center for Marine Biology / University of São Paulo (USP)

Start: Oct 2002
Finish: Sep 2003

348 Community of mites (Acari: Arachnida) in rubber tree plantation (*Hevea brasiliensis,* Euphorbiaceae) planted in isolation and alongside gariroba (*Syagrus oleracea,* Arecaceae)

Process: 2002/03732-8
Modality: Masters Degree

Grant holder: Marcos Roberto Bellini
Supervisor: Gilberto José de Moraes
Institution: São José do Rio Preto Institute of Biosciences, Arts and Exact Sciences / São Paulo State University (Ibilce/Unesp)

Start: Mar 2003
Finish: 29/2/2004

349 Polychaete annelids of the south-southeast region of Brazil: i. study of the systematics of the Phyllodocida. ii. identification manual

Process: 2002/04104-0
Modality: Post-doctorate

Grant holder: Alexandra Elaine Rizzo
Supervisor: Antônia Cecília Zacagnini Amaral
Institution: Institute of Biology / Campinas State University (Unicamp)

Start: Oct 2002
Finish: Sep 2006

350 Molecular systematics of the Paguroidea (Crustacea, Decapoda, Anomura) of the São Paulo coast, based on mitochondrial DNA

Process: 2002/04708-3
Modality: Post-doctorate

Grant holder: Paulo Ricardo Nucci
Supervisor: Gustavo Augusto Schmidt de Melo
Institution: Zoology Museum /
University of São Paulo (USP)

Start: Sep 2002
Finish: Aug 2006

351 Taxonomy and distribution of benthic cyclopoid copepods on the north coast of the State of São Paulo

Process: 2002/07024-8
Modality: Scientific Initiation

Grant holder: Rogério Marcondes de Souza Júnior
Supervisor: Carlos Eduardo Falavigna da Rocha
Institution: Institute of Biosciences /
University of São Paulo (USP)

Start: Aug 2002
Finish: Jul 2003

352 Taxonomic survey of polychaeta sabellids (Poliquetas: Sabellidae) collected for the Biota-FAPESP thematic projects bentos marinho and revizee/score sul

Process: 2002/08950-3
Modality: Scientific Initiation

Grant holder: Maira Cappellani Silva Rossi
Supervisor: João Miguel de Matos Nogueira
Institution: Institute of Biosciences /
University of São Paulo (USP)

Start: Aug 2003
Finish: Dec 2004

353 Taxonomic survey of polychaeta sabellids (Poliquetas: Sabellidae) collected for the Biota-FAPESP thematic projects bentos marinho and revizee/score sul

Process: 2002/08951-0
Modality: Scientific Initiation

Grant holder: Adriano Abbud
Supervisor: João Miguel de Matos Nogueira
Institution: Institute of Biosciences /
University of São Paulo (USP)

Start: Aug 2003
Finish: Jul 2004

354 Taxonomic revision of the Brazilian species of the genus *Lycosa latreille*, 1804 (Araneae, Lycosidae)

Process: 2002/11275-6
Modality: Masters Degree

Grant holder: Eder Sandro Soares Alvares
Supervisor: Antônio Domingos Brescovit
Institution: Butantan Institute / Ministry
of State of Health (SES-SP)

Start: Apr 2003
Finish: Oct 2004

355 Cladistic analysis of the genuses of Sparassidae Bertkau (Arachnida, Araneae) with emphasis on neotropical genuses

Process: 2002/11277-9
Modality: Doctorate

Grant holder: Cristina Anne Rheims
Supervisor: Antônio Domingos Brescovit
Institution: Butantan Institute / Ministry
of State of Health (SES-SP)

Start: Sep 2003
Finish: Dec 2006

356 Survey and ecological aspects of mites (Acari, Arachnida) of agricultural importance in Euphorbiaceae native to the semideciduous Forest, in the north region of the State of São Paulo

Process: 2002/12086-2
Modality: Masters Degree

Grant holder: Renato Buosi
Supervisor: Reinaldo José Fazzio Feres
Institution: São José do Rio Preto Institute
of Biosciences, Arts and Exact Sciences /
São Paulo State University (Ibilce/Unesp)

Start: Apr 2003
Finish: Dec 2004

357 Study of the genus *Cylindrotermes Holmgren* (Isoptera, Termitidae, Termitinae)

Process: 2002/13009-1
Modality: Scientific Initiation

Grant holder: Maurício Martins da Rocha

Supervisor: Eliana Marques Cancello
Institution: Zoology Museum /
University of São Paulo (USP)

Start: Feb 2003
Finish: Dec 2003

358 Fauna of Siphonostomatoida associates with invertebrates of the São Paulo coast: a taxonomic and ontogenetic study

Process: 2003/00390-1
Modality: Post-doctorate

Grant holder: Rodrigo Johnsson Tavares da Silva
Supervisor: Carlos Eduardo Falavigna da Rocha
Institution: Institute of Biosciences /
University of São Paulo (USP)

Start: May 2003
Finish: 23/3/2004

359 Revision of the Gasteruptiidae family (Hymenoptera: Evanioidea) in the neotropical region

Process: 2003/00738-8
Modality: Doctorate

Grant holder: Antônio Carlos Cruz Macedo
Supervisor: Carlos Roberto Ferreira Brandão
Institution: Zoology Museum /
University of São Paulo (USP)

Start: Jun 2003
Finish: May 2007

360 Benthic harpacticoid copepods of the non-consolidated sublittoral of the north coast of the State of São Paulo

Process: 2003/03822-0
Modality: Post-doctorate

Grant holder: Terue Cristina Kihara
Supervisor: Carlos Eduardo Falavigna da Rocha
Institution: Institute of Biosciences /
University of São Paulo (USP)

Start: Jan 2004
Finish: Dec 2005

361 Marine crustacean decapods (formas benthic and planktonic) of the areas of *Charleston bump* e *Blake plateau*

Process: 2003/09159-0
Modality: Research abroad

Grant holder: Maria Lúcia Negreiros Fransozo
Institution: Botucatu Institute of Biosciences /
São Paulo State University (Unesp)

Start: 06/4/2004
Finish: 05/9/2004

362 Interactions between spiders (Araneae) and pest athropods (Acari and Heteroptera) in commercial cultivations of rubber tree (*Hevea brasiliensis*) in the northeast of the State of São Paulo

Process: 2003/09602-1
Modality: Masters Degree

Grant holder: Paulo Eduardo Bedin Ferrari Filho
Supervisor: Isabela Maria Piovesan Rinaldi
Institution: São José do Rio Preto Institute
of Biosciences, Arts and Exact Sciences /
São Paulo State University (Ibilce/Unesp)

Start: Mar 2004
Finish: Feb 2006

363 Communities of fish and biotic integrity of the strewam of clean water, basin of the rio São José dos Dourados, SP, in the pre-recuperation phase of the riparian forest

Process: 2003/09612-7
Modality: Masters Degree

Grant holder: Cristiane de Paula Ferreira
Supervisor: Lilian Casatti
Institution: São José do Rio Preto Institute
of Biosciences, Arts and Exact Sciences /
São Paulo State University (Ibilce/Unesp)

Start: Mar 2004
Finish: Feb 2006

364 Revision of *Orthognathotermes Holmgren* (Isoptera, Termitidae, Termitinae)

Process: 2003/09697-2
Modality: Masters Degree

Grant holder: Maurício Martins da Rocha
Supervisor: Eliana Marques Cancello
Institution: Zoology Museum /
University of São Paulo (USP)

Start: Mar 2004
Finish: Feb 2006

365 Systematic taxonomy and evolution of *Brachycephalus* (Amphibia: Anura: Brachycephalidae)

Process: 2003/12396-4
Modality: Post-doctorate

Grant holder: Ana Cláudia Reis Alves
Supervisor: Célio Fernando Baptista Haddad
Institution: Rio Claro Institute of Biosciences / São Paulo State University (Unesp)

Start: May 2004
Finish: Apr 2006

366 Food of *Knodus moenkhausii* (Pisces, Ostariophysi, Characidae), an allochtonous species in streams of the northwest of the State of São Paulo

Process: 2003/12893-8
Modality: Scientific Initiation

Grant holder: Mônica Ceneviva Bastos
Supervisor: Lilian Casatti
Institution: São José do Rio Preto Institute of Biosciences, Arts and Exact Sciences / São Paulo State University (Ibilce/Unesp)

Start: Mar 2004
Finish: Dec 2004

367 Predatory mites in the State of São Paulo with potential for use in the control of soil pests

Process: 2003/13335-9
Modality: Fast-track Doctorate

Grant holder: Renata Angélica Prado Freire
Supervisor: Gilberto José de Moraes
Institution: Luiz de Queiroz College of Agriculture / University of São Paulo (Esalq/USP)

Start: Mar 2004
Finish: Feb 2007

368 Taxonomy and biology of semiterrestrial ostracodes in the State of São Paulo

Process: 2003/13510-5
Modality: Fast-track Doctorate

Grant holder: Ricardo Lourenço Pinto
Supervisor: Carlos Eduardo Falavigna da Rocha
Institution: Institute of Biosciences / University of São Paulo (USP)

Start: Mar 2004
Finish: Nov 2006

369 Evolution of the behavior in the spitting spider (*Scytodes spp.*, Araneae, Scytodidae)

Process: 2004/00296-8
Modality: Scientific Initiation

Grant holder: Fábio de Andrade Machado
Supervisor: Hilton Ferreira Japyassu
Institution: Butantan Institute / Ministry of State of Health (SES-SP)

Start: Jun 2004
Finish: May 2005

370 Genetic and phenotypic variability of two species of open area netropical anurans

Process: 2004/00709-0
Modality: Post-doctorate

Grant holder: Cynthia Peralta de Almeida Prado
Supervisor: Célio Fernando Baptista Haddad
Institution: Rio Claro Institute of Biosciences / São Paulo State University (Unesp)

Start: May 2004
Finish: Sep 2007

371 Survey of the herpetofauna in a locality of Atlantic Rainforest: the State Park of Jacupiranga (SP)

Process: 2004/10714-1
Modality: Masters Degree

Grant holder: Eleonora Aguiar
Supervisor: Hussam El Dine Zaher
Institution: Zoology Museum / University of São Paulo (USP)

Start: Mar 2005
Finish: 13/6/2006

372 Taxonomic description, natural history and populational ecology of a new species of hypsiboas in the Serra of Paranapiacaba, south of the State of São Paulo (Amphibia, Anura, Hylidae)

Process: 2004/10974-3
Modality: Masters Degree

Grant holder: André Pinassi Antunes
Supervisor: Célio Fernando Baptista Haddad
Institution: Rio Claro Institute of Biosciences / São Paulo State University (Unesp)

Start: Mar 2005
Finish: Feb 2007

373 The osteology of the waist and pectoral members of *Saturnalia tupiniquim* (Dinosauria, Saurischia) and its phylogenetic and paleobiological importance

Process: 2004/11205-3
Modality: Masters Degree

Grant holder: Marco Aurélio Gallo de França
Supervisor: Max Cardoso Langer
Institution: Ribeirão Preto School of Philosophy, Arts and Sciences / University of São Paulo (USP)

Start: Apr 2005
Finish: Mar 2007

374 Biology of *Knodus moenkhausii* (Teleostei, Characidae) in streams in the Alto Paraná: food, occurrence and reproduction

Process: 2004/12214-6
Modality: Masters Degree

Grant holder: Mônica Ceneviva Bastos
Supervisor: Lilian Casatti
Institution: São José do Rio Preto Institute of Biosciences, Arts and Exact Sciences / São Paulo State University (Ibilce/Unesp)

Start: Mar 2005
Finish: Feb 2007

375 Anatomical description of the *Mariliasuchus amarali* (Crocodyliformes, Mesoeucrocodylia)

Process: 2005/50161-4
Modality: Scientific Initiation

Grant holder: Felipe Chinaglia Montefeltro
Supervisor: Max Cardoso Langer
Institution: Ribeirão Preto School of Philosophy, Arts and Sciences / University of São Paulo (USP)

Start: May 2005
Finish: Dec 2005

376 Larval development of a Dorvilleidae (Annelida: Polychaeta) abundant in the southeast region of the State of São Paulo

Process: 2005/50626-7
Modality: Scientific Initiation

Grant holder: Paula Guilherme Ribeiro
Supervisor: Antônia Cecília Zacagnini Amaral
Institution: Institute of Biology / Campinas State University (Unicamp)

Start: Jul 2005
Finish: Dec 2006

377 Spatial Distribution of *Leptohyphidae* nymphs (Ephemeroptera) in small and medium sized streams in the Campos do Jordão State Park, São Paulo

Process: 2005/51559-1
Modality: Scientific Initiation

Grant holder: Amanda Lucas Gimeno
Supervisor: Cláudio Gilberto Froehlich
Institution: Ribeirão Preto School of Philosophy, Arts and Sciences / University of São Paulo (USP)

Start: Jul 2005
Finish: Feb 2006

378 Morphological description and taxonomic positioning of a crocodyliform of the upper cretaceous of the Bauru basin, region of General Salgado, SP

Process: 2005/52411-8
Modality: Masters Degree

Grant holder: Paulo Miranda Nascimento
Supervisor: Hussam El Dine Zaher
Institution: Zoology Museum / University of São Paulo (USP)

Start: Aug 2005
Finish: Jul 2007

379 Taxonomic revision of *Diplosmittia Saether*, 1981 (Diptera: Chironomidae: Orthocladiinae)

Process: 2005/53026-0
Modality: Masters Degree

Grant holder: Luiz Carlos de Pinho
Supervisor: Cláudio Gilberto Froehlich
Institution: Ribeirão Preto School of Philosophy, Arts and Sciences / University of São Paulo (USP)

Start: Mar 2006
Finish: 29/2/2008

380 Taxonomic study of *Farrodes Peters*, 1971 (Ephemeroptera: Leptophlebiidae: Atalophlebiinae) in the State of São Paulo

Process: 2005/53874-1
Modality: Doctorate

Grant holder: Rodolfo Mariano Lopes da Silva
Supervisor: Cláudio Gilberto Froehlich
Institution: Ribeirão Preto School of Philosophy, Arts and Sciences / University of São Paulo (USP)

Start: Apr 2006
Finish: Sep 2008

381 Identification and distribution of Mycetophilidae (Diptera, Bibionomorpha) in the Atlantic Rainforest, collected in malaise traps

Process: 2005/56180-0
Modality: Scientific Initiation

Grant holder: Sarah Siqueira de Oliveira
Supervisor: Dalton de Souza Amorim
Institution: Ribeirão Preto School of Philosophy, Arts and Sciences / University of São Paulo (USP)

Start: Nov 2005
Finish: Oct 2006

382 Identification and distribution of Limoniidae (Diptera, Tipulomorpha) in the Atlantic Rainforest, collected in malaise traps

Process: 2005/56181-7
Modality: Scientific Initiation

Grant holder: Pamela Costa Adorno da Silva
Supervisor: Dalton de Souza Amorim
Institution: Ribeirão Preto School of Philosophy, Arts and Sciences / University of São Paulo (USP)

Start: Nov 2005
Finish: Oct 2006

383 Revision and analysis filogenética of *Melosymmerus* (Diptera, Bibionomorpha, Ditomyiidae)

Process: 2005/56185-2
Modality: Masters Degree

Grant holder: Rafaela Lopes Falaschi
Supervisor: Dalton de Souza Amorim
Institution: Ribeirão Preto School of Philosophy, Arts and Sciences / University of São Paulo (USP)

Start: Mar 2006
Finish: 29/2/2008

384 Spatial Distribution of communities *Ephemeroptera Haeckel*, 1896 (Insecta) in streams of the Serra da Mantiqueira and of the Serra do Mar, State of São Paulo

Process: 2005/59778-4
Modality: Doctorate

Grant holder: Ana Emília Siegloch
Supervisor: Cláudio Gilberto Froehlich
Institution: Ribeirão Preto School of Philosophy, Arts and Sciences / University of São Paulo (USP)

Start: Jul 2006
Finish: Feb 2009

385 Patterns of distribution of the species of Drosophilidae (Diptera, Schizophora) throughout the Atlantic Rainforest

Process: 2005/60434-8
Modality: Scientific Initiation

Grant holder: Raphael Felipe Lala de Souza
Supervisor: Vera Cristina Silva
Institution: Assis School of Arts and Sciences / São Paulo State University (Unesp)

Start: May 2006
Finish: Dec 2006

386 Patterns of distribution of the species of Lauxaniidae (Diptera, Schizophora) throughout Atlantic Rainforest

Process: 2005/60435-4
Modality: Scientific Initiation

Grant holder: Juliana Inoue
Supervisor: Vera Cristina Silva
Institution: Assis School of Arts and Sciences / São Paulo State University (Unesp)

Start: May 2006
Finish: Dec 2006

387 Revision and cladistic analysis of the genus *Goeldia Keyserling*, 1891 (Araneae: Titanoecidae)

Process: 2006/05453-0
Modality: Masters Degree

Grant holder: Lina Maria Almeida Silva
Supervisor: Antônio Domingos Brescovit
Institution: Butantan Institute / Ministry of State of Health (SES-SP)

Start: Apr 2007
Finish: Oct 2008

388 Relational database in the palaeontolgical context

Process: 2006/51655-3
Modality: Scientific Initiation

Grant holder: Mariana Galera Soler
Supervisor: Max Cardoso Langer
Institution: Ribeirão Preto School of Philosophy, Arts and Sciences / University of São Paulo (USP)

Start: Aug 2006
Finish: Dec 2007

389 Cladistic analysis of the genus of *Lycosinae* (Arachmida, Aranae, Lycosidae)

Process: 2006/52806-5
Modality: Doctorate

Grant holder: Eder Sandro Soares Alvares
Supervisor: Antônio Domingos Brescovit
Institution: Butantan Institute / Ministry of State of Health (SES-SP)

Start: Sep 2006
Finish: Mar 2009

390 Revision taxonomic and cladistic analysis of the genus *Homoeomma Ausserer*, 1871 (Araneae, Theraphosidae)

Process: 2006/53070-2
Modality: Masters Degree

Grant holder: Flávio Uemori Yamamoto
Supervisor: Antônio Domingos Brescovit
Institution: Butantan Institute / Ministry of State of Health (SES-SP)

Start: Sep 2006
Finish: Jun 2008

391 Cladistic analysis of Dendryphantinae (Araneae: Salticidae)

Process: 2006/55226-0
Modality: Doctorate

Grant holder: Gustavo Rodrigo Sanches Ruiz
Supervisor: Antônio Domingos Brescovit
Institution: Butantan Institute / Ministry of State of Health (SES-SP)

Start: Sep 2006
Finish: Mar 2009

392 Cladistic analysis of the spiders of the Cteninae subfamily and revision of the genus *Celaetycheus Simon* (Areneae: Ctenidae)

Process: 2006/55230-7
Modality: Doctorate

Grant holder: Daniele Polotow Geraldo
Supervisor: Antônio Domingos Brescovit
Institution: Institute of Biosciences / University of São Paulo (USP)

Start: Oct 2006
Finish: Sep 2009

393 Comparative study of the taxocenosis of anurans in three municipalities of the São Paulo Lagamar (lagoon stretches)

Process: 2006/55482-6
Modality: Doctorate

Grant holder: Juliana Zina Pereira Ramos
Supervisor: Célio Fernando Baptista Haddad
Institution: Rio Claro Institute of Biosciences / São Paulo State University (Unesp)

Start: Sep 2006
Finish: Aug 2009

394 Revision and phylogenetic analysis of *Dziedzickia johannsen* (Diptera, Bibionomorpha, Mycetophilidae)

Process: 2006/58085-8
Modality: Masters Degree

Grant holder: Sarah Siqueira de Oliveira
Supervisor: Dalton de Souza Amorim
Institution: Ribeirão Preto School of Philosophy, Arts and Sciences / University of São Paulo (USP)

Start: Mar 2007
Finish: Feb 2009

395 Revision and phylogenetic analysis of the genus *Lyroneurus Loew*, 1857 (Diptera: Dolichopodidae: Diaphorinae)

Process: 2006/58086-4
Modality: Masters Degree

Grant holder: Renato Soares Capellari
Supervisor: Dalton de Souza Amorim
Institution: Ribeirão Preto School of Philosophy, Arts and Sciences / University of São Paulo (USP)

Start: Mar 2007
Finish: Feb 2009

396 Micro remains of vertebrates of the region of Ibirá, northwest of the State of São Paulo (Bauru group, upper cretaceous)

Process: 2006/61130-5
Modality: Scientific Initiation

Grant holder: Carolina Rettondini Laurini
Supervisor: Max Cardoso Langer
Institution: Ribeirão Preto School of Philosophy, Arts and Sciences / University of São Paulo (USP)

Start: Apr 2007
Finish: Dec 2007

397 Phylogenetics of Tipulomorpha and establishment of a reference collction for neotropical fauna, with emphasis on the Atlantic Rainforest

Process: 2007/50696-0
Modality: Post-doctorate

Grant holder: Guilherme Cunha Ribeiro
Supervisor: Dalton de Souza Amorim
Institution: Ribeirão Preto School of Philosophy, Arts and Sciences / University of São Paulo (USP)

Start: May 2007
Finish: Apr 2009

398 Artificial production of queens in tetragonisca *Angustula latreille*

Process: 2007/51055-9
Modality: Scientific Initiation

Grant holder: Mauro Prato
Supervisor: Ademilson Espencer Egea Soares
Institution: Ribeirão Preto School of Medicine / University of São Paulo (USP)

Start: Apr 2007
Finish: Dec 2007

399 Analysis of the longitudinal variation of the axial skeleton in serpents (Squamata) using tools of geometric mophometry geométrica

Process: 2007/52144-5
Modality: Masters Degree

Grant holder: Fábio de Andrade Machado
Supervisor: Hussam El Dine Zaher
Institution: Institute of Biosciences / University of São Paulo (USP)

Start: Sep 2007
Finish: Aug 2009

400 Morphological analysis of the mandibular symphysis in the clado Squamata

Process: 2007/52222-6
Modality: Masters Degree

Grant holder: Marcelo Garrone Esteves
Supervisor: Hussam El Dine Zaher
Institution: Institute of Biosciences / University of São Paulo (USP)

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