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KERALA AGRICULTURAL UNIVERSITY
DIRECTORATE OF RESEARCH

Main Campus, Vellanikkara
KAU P.O. 680656
Thrissur, Kerala

No. R8/60985/14

Dated:09-03-2018

From

The Director of Research

To

The Registrar of Geographical Indication
Office of the Geographical Indication Registry
Intellectual Property Office Building
GST Road, Guindy, Chennai 600 032
Tamil Nadu.

Sir,

Sub: GI Registration of Marayoor Jaggery

IPR Cell, Kerala Agricultural University is supporting farmers and producers for registering unique products as Geographical Indications. I am hereby enclosing the application for GI Registration of Marayoor Jaggery along with supporting/ legal documents and Cheque for application fee for GI registration of Marayoor Jaggery.

Yours faithfully,

Director of Research

Copy of documents enclosed

1. Form GI – 1 A in triplicate
2. Statement of case in triplicate
3. Cheque No. 714044 dated 09-03-2018 in favor of Registrar of Geographical Indications for Rs.5000/-
4. Affidavit in Rs.100/- stamp paper
5. Geographical Map of the Area in triplicate
6. Logo of the Product
7. Copies of documents to support proof of origin
8. Additional representation of GI (5 copies).
9. List of members of the society as on 03/03/2018
10. Registration certificate –copy
11. Bye-law of the society

GOVT. OF INDIA
Geographical Indications Registry
16 MAR 2018
DY No.....1168.....
CHENNAI.

650003782

Form G1 – 1 (A)

Received Rs. 5000 in cash/ Cheque/DD/MO on 16.3.2018 vide entry no. 3455 in the register of valuables
Cashier

Application for the Registration of a Geographical Indication in Part A of the Register, Section 11 (1), Rule 23(2)

Name of the applicant	:	***Anchunadu Karimbu Ulpadhana Vipanana Sangham, Marayoor***
Address	:	Anchunadu Karimbu Ulpadhana Vipanana Sangham, Building No. III/367 C, Marayoor town, Marayoor (P.O), Idukki dist., Kerala, India Pin: 685620.
Facilitator	:	IPR Cell, Kerala Agricultural University, Email: iprcell@kau.in; Mob: 9447878968
Address	:	IPR Cell-KAU, Agricultural Research Station, Kerala Agricultural University, Mannuthy Thrissur-680 651, Kerala, India

List of association of persons / Producers / organization / Authority: All sugar cane farmers and jaggery producers of Marayoor and Kanthalloor Panchayaths in Idukki Dst. Kerala. List of producers attached separately.

Type of goods : Marayoor jaggery (*Marayoor sharkara*), falling in Class 30.

Specification:

Marayoor and Kanthalloor panchayaths are located in Devikulam block in Eastern part of Idukki Dst. Kerala, near to the border of Tamil Nadu. These are rain-shadow villages on the Eastern slopes of the Western Ghats, lying nearly 40 km away from Munnar town. The enchanting beauty of the area offers diversity in every aspect of the land and its culture. Hamlets, rocky hills, rivers, brooks, *muniyaras*(dolmenoids*)*, sugar cane fields, waterfalls, sandal wood, bamboo forests and a variety of cool season vegetables and fruits add to the beauty of these hill stations. The area is famous for the rare plant, Neelakurinji

(*Strobilanthus kunthianum*) which flower once in 12 years. It is different from other places of Kerala based on geography, climate, weather, crops cultivated, culture etc. Many tribal settlements are located in the area. The jungles and hillsides of Marayoor are dotted with remnants of dolmenoid cists called *muniyaras*, which are 1000 years old.

Chinnar - the wildlife sanctuary in Marayoor is famous for unique flora and fauna. Natural vegetation includes tropical evergreen forests and grasslands. Marayoor has more than 1000 species of flowering plants and medicinal plants and also sandalwood forests, and is the only place in Kerala where natural sandalwood forest is present. Sugar cane, cool season vegetables (like cabbage, cauliflower, carrot, beet root, beans etc.), cereals and millets, spices like cardamom, garlic, onion, fruit crops etc. are the major crops of the area. Marayoor has more than 1000 species of flowering plants and medicinal plants.

Marayoor and Kanthalloor Panchayaths are famous for the unique product Marayoor jaggery or *Marayoor sharkara. Marayoor sharkara* is one of the sweetest jaggery produced in the area using traditional technologies. The area of production of this jaggery fall in the rain shadow region and the quality of Marayoor jaggery is attributed to the low temperature prevailing in the area, soil characteristics, quality of water used for irrigation and jaggery production, the traditional methods of production, and sugarcane varieties used in cultivation. Another specialty of this jaggery is that it is not made in factories using modern equipment's, but in the jaggery production sheds located in the farm itself, in a traditional manner. In farm sheds the sugar cane juice is boiled in a special type of huge vessel and then made to condense to make jaggery balls in a traditional way. Sugarcane trash, after extracting the juice is used to burn the kilns, and the waste is recycled in the farm itself.

In general Marayoor jaggery is prepared in ball form (*unda sharkara*) but, minor quantities, are also produced in powder and liquid forms. No natural or synthetic colouring agents and artificial sweetening agents are added in this jaggery. Balls are prepared by hand and the finger marks will be clearly seen on the balls. The colour is brown to dark brown. The jaggery balls have medium hardness. Marayoor jaggery is available in well dried form with firm consistency and non-sticky nature. It has characteristic taste and flavour. Non salty sweetness is the unique characteristic feature of this jaggery. It is having less dirt and water insoluble matter. Marayoor jaggery has unique brown or dark brown colour whereas market samples from nearby locality. Tamil Nadu showed yellow or orange yellow colour. Ball

jaggery from Tamil Nadu market have a smooth outer surface with more hardness whereas Marayoor jaggery balls have rough surface and is having medium hardness.

Generally Marayoor sharkara has a total sugar percentage of 77.87 to 96.52%, sucrose content of 63.0—80.0% and reducing sugar of 7.39-10.35%. The water insoluble impurities was low (0.08-0.16%) and also acid insoluble ash (0.021 to 0.14%) is low in Marayoor jaggery compared to samples from other regions. SO2 content is within the permitted limits(32.11-36.79%). High content of iron (11-26.0%), potassium, calcium and low content of sodium are other features of this jaggery, adding to its nutritional benefits.

Name of the Geographical Indication and particulars:

MARAYOOR JAGGERY (MARAYOOR SHARKARA)

Logo provided below

Marayoor jaggery locally called as Marayoor *sharkara* is cane sugar (a traditional sweetener) prepared from the sugarcane grown in the Marayoor and Kanthalloor Grama panchayaths of Idukki District of Kerala State. This area lies in the rain shadow regions of Idukki district .This jaggery is produced in farm sheds from sugarcane juice extracted by crushing the cane in electric crushers, then evaporating the juice by boiling in big pans made of copper/ GI sheets, on country kilns using the sugarcane trash as the fuel. The pan will be removed from the fire at a particular temperature (decided through manual testing using traditional knowledge) and then will be allowed to cool, to make jaggery balls (*unda*), while hot, with hands. The jaggery produced from the geographical area is having a higher market demand than that produced from other regions, and from the nearby localities of other setts since it is very sweet in taste, is of good quality and generally produced without the addition of harmful chemicals .

Topography

Varying topography can be observed in Marayoor and Kanthalloor with mountains, rain forests, deciduous forests, riparian forests, brooks, rivers, waterfalls, rocky hills, sholas and hamlets. The terrain is highly undulating with altitudes ranging from 500 m at Chinnar to over 2300 m at Nandala malai. Sugarcane is cultivated in plains and valleys lying between mountains and hills. Such plains are rich in organic matter and have sufficient irrigation water. Pambar originating from Anamudi is the major source of irrigation water for the area.

Soil

The soil types of the region are clayey loam and forest loam with high organic matter content and is highly suited for sugarcane cultivation. The soil is acidic and pH ranges between 4-6. The soil has high P content and organic carbon.

Climate and rainfall

The area experiences a cool climate, mean minimum temperature ranging from 6°C to 14.91 °C and mean max. temp ranging from 19.33°C to 25.43°C. Marayoor and Kanthalloor are virtually rain shadow areas, lying in the eastern side of the Western Ghats. The average annual rainfall in Marayoor- Kanthalloor region is approximately 174mm. Rain fall is the important factor which can increase the cane juice and yield. The average climatic factors of the area are given in Table 1,2 and 3

Tables 1-3, The average climatic factors of Marayoor Kanthalloor area

Table 1.Relative Humidity (%)												
	Jan	Feb	Mar	April	May	June	July	Aug	Sept	Oct	Nov	Dec
2011	21.8	42.7	13	187.2	71.9	1055.4	984.5	901.2	567.9	245.9	113.3	17
2012	7.27	6.64	6.5	4.98	4.69	2.05	2.47	1.7	3.44	4.15	6.56	6.48
2013	0	22.6	17	125	212	171	176.6	228.7	194	127.4	66	93
2014	17	2	39	158	248	122	103.5	202.5	132	323	67	123.5
2015	0	27	84	157	245	291	63.5	71.6	281.9	160.3	249.8	189.1
2016	6.1	16	43.9	100.6	199.4	1009.4	1060.7	587.2	279.7	80	29	50
Mean	8.695	19.49	33.9	122.13	163.4983	441.8083	398.545	332.15	243.1567	156.7917	88.61	79.84667

Table 2.Rainfall (mm)												
	Jan	Feb	Mar	April	May	June	July	Aug	Sept	Oct	Nov	Dec
2011	21.8	42.7	13	187.2	71.9	1055.4	984.5	901.2	567.9	245.9	113.3	17
2012	7.27	6.64	6.5	4.98	4.69	2.05	2.47	1.7	3.44	4.15	6.56	6.48
2013	0	22.6	17	125	212	171	176.6	228.7	194	127.4	66	93
2014	17	2	39	158	248	122	103.5	202.5	132	323	67	123.5
2015	0	27	84	157	245	291	63.5	71.6	281.9	160.3	249.8	189.1
2016	6.1	16	43.9	100.6	199.4	1006.4	1060.7	587.2	279.7	80	29	50
Mean	8.69	19.49	33.90	122.13	163.49	441.30	398.54	332.15	243.16	156.79	88.61	79.85

Table 3.Min. & Max. Temperature(^{0}c)

	Jan		Feb		Mar		April		May		June		July		August		Sep		Oct		Nov		Dec	
	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
2011	8	24	7	24	7	25	13	24.5	14	25	16	19.5	15	19	16	20	14	20	13	23	12	22	10	23
2012	5	23	9.8	23	9.8	25.4	12.5	25	15.2	24	15.5	20.5	16	20.5	15.5	20.5	14.9	21	14	24	11	23	9	24
2013	6	24	10.5	24.5	10.5	25	14	25	15	24.5	14.5	19	14.5	18	15	20.5	19	21	18.5	22	12	23	7	24
2014	6	24.5	8	24.9	8	25.5	12	25	14	24	15	23	15	19	15	21	14	21	13	24	12	23	10	24
2015	5	25	9	25	9	26.7	11	22	12	22	13	21	13	20	13	21	13	21	12	23	12	23	11	22
2016	6	24	9	25	9	25	12	25.5	15	25	15	20	15	19.5	15	20	14	21	13	23	10	24	8	23
Mean	6	24.08	8.88	24.4	8.88	25.43	12.41	24.5	14.2	24.08	14.83	20.5	14.75	19.33	14.91	20.5	14.81	20.83	13.91	23.16	11.5	23	9.16	23.33

Source: Office of the Principal Agricultural Officer, Idukki Dst.

Description of goods

Marayoor jaggery (Marayoor *sharkara)* is the unrefined, concentrated product of cane juice obtained from sugarcane grown in Marayoor and Kanthalloor panchayaths of Idukki District, Kerala. It is a traditional sweetening agent and is also used in Ayurveda medicines. Generally Marayoor jaggery is prepared in ball form (*unda sharkara*). Minor quantities are produced in powder and liquid forms. The colour is brown to dark brown. No natural or synthetic colour and artificial sweetening agents are added during this jaggery preparation. Balls are prepared by hand so that the finger marks will be clearly seen on the balls. The Marayoor jaggery balls have medium hardness. Marayoor jaggery balls are available in well dried form with medium hardness and non-sticky nature. It has characteristic taste and flavour. Non salty sweetness is the characteristic unique feature of this jaggery. It is having less dirt and soil as evident from low water insoluble matter, compared to other market samples.

The nutritional and chemical qualities of Marayoor Jaggery is given in Table 4. The qualities are compared with jaggery samples collected from nearby markets.

Marayoor jaggery has a pH of 5.84 to 6.09 and a total sugar content of 77.87 to 96.52%. The market samples from Tamil Nadu showed a comparable sugar percentage of 77.38 to 93.52 and the market sample from Thodupuzha (Kerala) showed 92.00% on dry basis.

Marayoor jaggery is superior in quality and is generally produced without addition of hazardous chemicals. Jaggery is more nutritious than sugar. It contains sucrose, vitamin B and minerals including Ca, Zn, P, Cu etc. Sucrose is the crystalline sugar found in many plants, especially sugar cane. It is used widely as a sweetener. Sucrose content adds to the sweetness of jaggery and is the most important component of jaggery. Marayoor jaggery has an average sucrose content of 63-80%. The samples from nearby Tamilnadu markets, showed slightly less sucrose content of 61.0-77.24% and in market sample from Thodupuzha sucrose content was 80.25%.

Reducing sugar makes jaggery to absorb moisture. Increased reducing sugar attracts fungal infections leading to quality deterioration and loss of consistency. The percentage of reducing sugar in Marayoor jaggery ranged from 7.39 to 10.35 whereas in Tamil Nadu samples it was 11.66 and 12.21and in Thodupuzha sample it was 7.52.

The water insoluble matter in jaggery indicates the level of impurities. Level of such impurities was found less in Marayoor jaggery compared to market samples studied. It ranged between 0.08 to 0.16 % in Marayoor samples whereas in market sample from Tamil Nadu water insoluble matter was high (0.30 and 1.87 percentage respectively) and in Thodupuzha sample also it was comparatively high (0.24 %), indicating more impurities.

Acid insoluble ash on dry basis is the insoluble impurities excluding the minerals in water insoluble matter or impurities. In Marayoor jaggery it ranged from 0.021 to 0.14% and in one Tamil Nadu sample impurities was high (0.41%).The total ash in Marayoor jaggery samples ranged between 1.55 to 2.63 % .The sulphated ash found in Marayoor samples ranged from 2.10 to 2.13 percentage.

The sulphur dioxide content of Marayoor jaggery ranged from 32.11 to 36.79% whereas a higher value of 182.53 was recorded in market sample from Thodupuzha.

The iron present in jaggery increases the haemoglobin content in blood, which help to prevent anaemia by ensuring that a normal level of red blood cells is maintained. This is especially beneficial for children and pregnant women. Analysis revealed that iron content is high in Marayoor jaggery ranging from 11.10 to 26.0 mg/100g whereas samples from Tamil Nadu markets showed a low iron content of 1.69-2.82 mg/100g.

The manganese and selenium in jaggery are good antioxidants scavenging free radicles in the body. The micronutrients present in jaggery have antitoxic and anticarcinogenic properties. Its dietary intake can prevent the atmospheric pollution related toxicity and the incidence of lung cancer. Jaggery is used to treat throat and lung infections in Indian Ayurvedic medicine. It is used in the preparations of Ayurvedic drugs. Jaggery is a good source of magnesium which helps in relieving fatigue and relaxing muscles, nerves and blood vessels. It relives the symptoms of asthma, migraine, tension and soreness in muscles (Article by Bhaskaran, A, Senior Scientist (SCFM), Sugarcane Breeding Institute, Coimbatore-7) Magnesium content in Marayoor jaggery ranged between 91.0 to 110.20 mg/100g. Comparable quantities of magnesium was present in Tamil Nadu market samples and a much lesser quantity of 10 mg/100g in Thodupuzha sample.

The potassium and low amounts of sodium in jaggery maintains blood pressure and reduces water retention. Sodium content in Marayoor *jaggery* was low (34.21 to 96.82 mg/100g) compared to other market samples. This leads to the non-salty taste of Marayoor

jaggery. Non salty sweetness of Marayoor jaggery was very much recorded in organoleptic tests conducted by IPR Cell. Market sample from nearby regions of Tamil Nadu indicated high Na content of 137 -160mg /100g. The Potassium content ranged between 512.19 to 943.89 mg/100g leading to salty taste and Calcium content ranged between 509.25 to 898.44 mg/100g. Generally potassium content was low in market samples compared with Marayoor samples. Moderate amounts of calcium, improves nutritional value of jaggery and thus maintains optimum health and purifies blood, preventing rheumatic afflictions and disorders of bile (cross reference Bhaskaran, A, Senior Scientist (SCFM), Sugarcane Breeding Institute, Coimbatore-7)

Generally Marayoor jaggery has a total sugar percentage of 77.87 to 96.52%, sucrose content of 63.0—80.0% and reducing sugar of 7.39-10.35%. The water insoluble impurities was low (0.08-0.16%) and also acid insoluble ash (0.021 to 0.014%) in Marayoor jaggery compared to samples from nearby regions. SO_2 content was within the permitted limits. High content of iron, potassium and calcium and low content of sodium (34.21 to 96.82mg/100g are other features of this jaggery, adding to its nutritional benefits. Non salty sweetness and dark brown colour are the unique features of this jaggery.

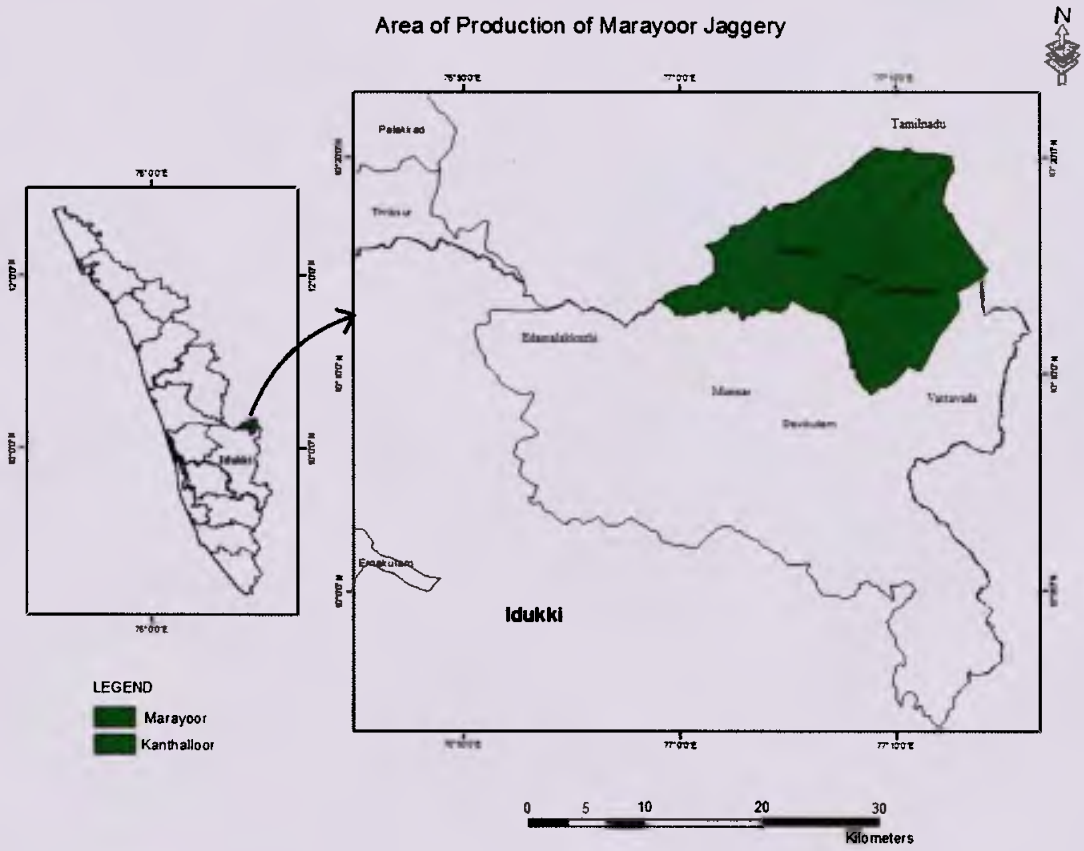
Table 4: Chemical properties of Marayoor jaggery in comparison with market samples.

Name of samples	pH	Total sugar (% On dry basis)	Sucrose (On dry basis) (%)	Reducing Sugar (On dry basis) (%)	Water insoluble matter (On dry basis) (%)	Acid insoluble Ash (on dry basis) (%)	Total ash (On dry basis) (%)	Sulphated ash (On dry basis) (%)	Sulphur dioxide (Dry basis, PPM)	Iron (On dry basis) (mg/ 100g)	Magnesium (On dry basis) (mg/ 100g)	Sodium as Na (mg/ 100g)	Potassium as K (mg/100g)	Calcium as Ca (mg/ 100g)
Marayoor sample 1	5.84	77.87	62.87	10.25	0.08	0.021	2.56	2.10	34.90	12.04	110.20	34.21	917.91	854.10
Marayoor sample 2	5.91	96.52	80.13	10.35	0.11	0.11	2.63	2.13	36.79	11.10	104.10	35.41	943.89	898.44
Marayoor sample 3	5.89	82.48	67.34	10.07	0.11	0.14	1.55	2.12	34.55	26.0	91.00	39.74	512.19	509.25
Marayoor sample 4	6.09	82.22	69.59	7.39	0.16	0.14	2.40	2.13	32.11	15.70	101.20	96.82	748.32	727.35
Market sample (TAMIL NADU)-1	6.39	77.38	61.11	11.66	0.30	0.41	3.91	2.54	33.41	1.69	109.00	140.00	686.67	671.10
Market sample (TAMIL NADU)-2	5.14	93.52	77.24	12.21	1.87	0.081	2.23	2.34	40.04	2.82	100.00	137.00	864.00	1150.00
Market sample (Thodupuzha)	5.49	92.00	80.25	7.52	0.24	0.13	2.49	1.70	182.53	19.00	10.00	160.00	210.00	560.00

Geographical area of production and map

Marayoor jaggery (Marayoor sharkara) is produced from the sugarcane cultivated in Marayoor and Kanthalloor panchayaths of Idukki district, Kerala, India. The area is surrounded by Tamil Nadu in the Northern& North Eastern sides. Munnar of Devikulam Block lies in the Southern side and Vattavada on the South Eastern side (certified map provided).

The area of production of Marayoor jaggery lies between 77°10'34.457"E 10°21'29.647"N (North), 77°12'37.27"E 10°11'10.462"N (South), 77°14'4.263"E 10°18'26.706"N (East), 77°4'19.619"E 10°13'33.744"N (West)



Area of production of Marayoor jaggery

Area Specification

The total area of sugar cane cultivation in Marayoor and Kanthalloor panchayaths is approximately 1650 acres. Approximately 900 farmers are cultivating sugar cane in this tract.

Proof of origin (Historical records): Copy attached

Marayoor and Kanthalloor are famous for the production of Marayoor jaggery or *Marayoor sharkara*. In the great epic Mahabharatha, this area has been cited. It is said that Pandavas stayed in the area during their vanavasam and hence the place was named as *Maranjirunnayoor* meaning "the place of hiding". The oral literature says that Maranjirunnayoor slowly changed to Marayoor.

The age old people of the area remember that sugarcane cultivation flourished in the area since the last 60-70 years. People from Tamil Nadu migrated to this area when the Madurai king Thirumalainaicker was defeated by Tippu Sultan, in the eighteenth century. Migrated people from Tamilnadu created five villages which are Kanthalloor, Keezhanthoor, Karayoor, Marayoor and Kottakudi. These villages together are called as 'Anju nadu', literally meaning "five regions". It is told that Sri. Pattom Thanu Pillai, the former Chief Minister of Kerala (1960-62) established colonies in the area and attracted Kerala farmers to start agriculture in the area. These colonies are still known as Pattom colonies.

In early days rice was the major crop of the area and this area was then known as the 'Kuttanad of High range". But due to scarcity of irrigation water, sugarcane replaced rice because as compared to rice, sugarcane requires less amount of water. So an alternate system of rice and sugarcane cultivation was adopted. After rice cultivation crop residues would be left in the field itself and this increased the fertility and organic matter content of the soil and thus increased the yield of sugarcane. Gradually sugarcane became the major crop of the area. It is believed that sugarcane cultivation of the area was started by Tamil farmers, especially by Ms. Govindammal from Udhumalpet. It is also belived that sugarcane cultivation first started at Anakkalpetty, near to Marayoor.

Documents to prove the history of cultivation of sugarcane in the area in earlier days are provided below-

1. Publication of "Report of Industrial Survey of Travancore" written by S. G.Barker, Ph.D, D.I.C in the year 1919 reported the crops grown in Devikulam Taluk including Kanthalloor and Marayoor panchayaths. Potatoes, garlic, plantains, sugarcane, camphor and cinchona were grown in the area. (Copy of original document attached; page 356. Annexure 1).This report revealed that sugarcane was cultivated in the area for the last 100 years.

2. The pre assessment notice from Sales Tax Officer of Munnar- Devikulam indicated that 2 acres of sugarcane cultivation can bring a net income of Rs.10840/- during the period of 1982-83 (copy enclosed as Annexure 2).
3. Copy of "Objection letter" by Mr. Scaria Joseph to Tax Assessment Notice for the jaggery produced in the year 1983 by Income Tax Officer of Munnar- Devikulam said that " the yield of jaggery produced from one acre of land was 30 bags(1 bag weighing 60 kg) only."(Copy of the letter enclosed as Annexure 3).
4. Objection letter filed by Mrs. Thresia, Cheruvallath, a sugarcane farmer of the area, against "Pre-assessment notice" served by The Agricultural Income Tax Officer of Munnar- Devikulam indicated the yield of jaggery obtained from sugarcane fields at Marayoor during 1982-83 (Copy enclosed as Annexure 4).
5. The Plan document of 9th Five Year plan of Marayoor Panchayath for the year 1998-99 revealed that sugarcane is a major crop of the area. (Copy of original document in Malayalam enclosed as Annexure 5). Translation and transliteration of documents in Malayalam are also enclosed.

Translation

- The Plan document of 9th five year plan of Marayoor Panchayath for the year 1998-99.

  This book gives a catalogue of different crops cultivated in Marayoor panchayath during **1998-99** and the details of sugarcane cultivation as given below

No.	Name of the project	Plan budget (Amount)	Achievements
4	Sugarcane cultivation	Rs.97,000	The amount was distributed to 300 farmers

Corresponding transliteration

- Marayoor panchayath 1998-99 le 9th Panchavalsara padhadiyil ninnum eduthath

No	*Projectinte peru*	*Padhadi vihidham*	*Boudhika nettangal*
4	*Karimbu krishi*	Rs.97,000	*300 karshakarkke dhanaphalam vitharanam cheythu*

6. The Plan document of Marayoor Panchayath for the year 1999-2000 documented that 80% of the people in Marayoor depend on Agriculture for their livelihood security. Rice, sugarcane, ginger and coconut are the major crops of the area. (Copy of original document in Malayalam enclosed as Annexure 6, corresponding translation and transliteration are enclosed).

Translation

- The plan document of Marayoor panchayath for the year 1999-2000 (page no.5) gives Plan outline in Marayoor panchayath during 1999-2000.

  80% of the people in Marayoor panchayath depend on agriculture for their livelyhood security. Rice, sugarcane, tapioca, ginger, turmeric etc. are the major crops cultivated in Marayoor.

Corresponding transliteration

- *Marayoor panchayathinte* 1999-2000 *le Padhadi rekhayil ninnum eduthath* (page no.5)

  Marayoor panchayathile janaghalil 80% karshika meghalayil thozhil cheythu upajeevanam nadathunnu. Evde pradhanamayum nellu, karimpu, kappa, inji, manjal etc. cheythu varunnu.

7. The area of cultivation of sugarcane in Marayoor was 800 ha during 2011 (Basic Data Book of Marayoor Krishibavan,) Copy enclosed as Annexure 7.
8. Documents of Kanthalloor Grama Panchayath revealed that the area of sugarcane cultivation in Kanthalloor Panchayath was 240 ha in 1995. (Copy of original document in Malayalam added as Annexure 8) Corresponding translation and transliteration are given below.

Translation for

Basic data book from Kanthalloor Krishi Bhavan (Annexure 8, Page 2)

The document about Kanthalloor panchayath reported that the area of sugarcane cultivation in the panchayath was 240 ha during 1995

Crop	Area (ha)
Sugarcane	240

Corresponding transliteration

Kanthallor krishibhavanile pothuvivaranmthilninnum kittiyath (Annexure 8,Page 2)

Vilavu	*Vistheernam (acre)*
Karimbu	*240*

Area and method of production

Area

Currently the total area of sugarcane cultivation in Marayoor and Kanthalloor panchayaths is approximately 1650 acres.

Method of sugarcane cultivation:

In Marayoor and Kanthalloor, sugarcane fields can be seen throughout the year. Major planting season is between June-December. Sugarcane setts of 2-3 eye buds are used as planting material. Sugarcane varieties from Sugarcane Breeding Institute, Coimbatore, TAMIL NADU are the ruling varieties of the area. The major sugarcane varieties of the area are CO 613(Vellakarimbu), CO 419 and CO 86032. The variety CO 613, also called a "nadan or local", shows better rationing ability, more intermodal length, better flavor, sweetness and have a duration of 13 months. Presently the popular variety is CO 86032. This variety has less plant height and hence shows less lodging. The variety is tolerant to redrot disease. It can be harvested within10-11 months of planting without much reduction in yield and hence farmers prefer this variety. Morphological characters of CO 86032 and CO 419 are provided below-

Character	**CO 86032**
Leaf size	Medium
Leaf colour	Dark green
Sheath colour	Green with purple
Sheath clasping	Loose
Spines	Few, hard, deciduous
Splits	Present
Stem colour	Reddish pink (exposed)
	Greenish yellow (unexposed)
Girth	Medium
Joint	Cylindrical
Bud groove	Absent
Size	Medium

Character	**CO 419**
Parentage	Poj 2878xCO290
Leaf size	Broad
Leaf colour	Green
Sheath colour	Green with Green tinge
Sheath Clasping	Loose
Spines	Present
Ligular process	Lanceolate
Stem colour	Purple
Girth	Thick
Joint	Staggered
Bud Groove	Present
Size	Medium

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Land preparation is done to bring the soil to fine tilth. For higher sugarcane yields, optimum soil environment is essential. Ploughing, tillering, levelling, earthing up, construction of ridges and furrows, making of drainage channels are the main steps in land preparation. Ploughing is done to clean the field and to incorporate previous crop's residues and organic manures. Tillage is done to loosen the surface soil, to maintain optimal soil water air relations, to have good physical conditions for early root penetration and proliferation, to incorporate preceding crop residues and organic manures and to destroy weeds and hibernating pest & disease organisms. Soil is prepared thoroughly and FYM of 1t/ha is incorporated 15 days before planting. Liming is required to adjust the pH.

Planting

Stem cuttings or sections of the stalks, called as "setts" are the planting material. Each sett contains 2-3 buds. Fresh, genetically pure, pest and disease free setts are used for planting. Germination percentage of 3-bud setts is higher .The middle bud of a 3-bud sett has the highest germination capacity. Setts are selected from the top one third of the mature sugarcane plant. A spacing of 2 feet between rows and depth of 0.5-1 feet is provided for planting the setts. Setts will be planted end to end, in a continuous manner in furrows.

Crop management

The crop will be irrigated as per requirement, at least once in 15 days or once in a month. Unwanted dry and green leaves from bottom part will be removed at regular intervals. This detrashing helps in maintaining the field clean and enhances air movement, and reduces the problem of pests and diseases. Detrashed trash can be used as mulch for moisture conservation and also as manure. Sugarcane stalks will be tied together using the bottom dry and green leaves and this practice is known as propping. It is done in 7 month after planting to prevent lodging of cane, breakage and thus loss of stalk number at harvest and thus loss of cane yield.

Harvesting

Harvesting of sugarcane is one of the important processes in jaggery production. High yield of sugarcane and better sugar content can be obtained if harvested at the proper time i.e., 11-12 months after planting. Manual harvesting is done by using sickles and felling knives. It requires skilled labourers, as improper harvest of cane leads to loss of cane and

sugar yield, and causes poor juice quality. The top portion is cut at a point where it breaks naturally when slight force is exerted. The bottom portion of the cane contains more sucrose while the top cane contains more reducing sugars like glucose and fructose. The average cane yield will be 30t/acre and jaggery will be 3.6t/ acre. Generally ratooning is practiced for 2-3 times after the main crop.

Production of jaggery

Marayoor jaggery is produced by traditional methods. Nearly 150 country sheds are operating in the sugarcane fields of the area for the preparation of unique Marayoor *sharkara*. The major operations involve juice extraction, clarification, boiling and concentration, cooling, moulding and packaging.

Extraction of juice

Clean canes without extraneous matter like soil, roots, dirt, trash and green leaves are taken for crushing. The harvested canes are crushed within 24 hours. The juicy sugar canes are churned well to extract the juice by using crusher. Crushing on the same day gives better yield. The crushed juice is filtered to remove bagasse and other suspended solids. It is then pumped to a big jar like container to allow for sedimentation of dirt's. The juice is then transferred to a large plate shaped round bottom copper/ GI boiling vessel. The capacity of the boiling vessel is 1000 L. The juice is not mixed with any harmful chemicals, colours, sweeteners etc. and hence is naturally good for health.

Clarification

Fresh juice of sugarcane contains suspended impurities in the form of coarse particles and colloids, soil particles, wax, fat, protein, gum etc. These impurities affect jaggery colour, texture, hardness etc. The process of removing these impurities and other unwanted materials from juice is called clarification. Boiling acidic juice will invert the sucrose leading to problems in solidification and development of dark coloured Sharkara. The clarificants makes juice clear. Lime is the major clarificant used in the area. 200g lime is generally added to the solution. The juice will be cleaned during heating and boiling using clarificants, to decrease the mud volume. The mud will be frequently removed from the surface of the boiling solution. The syrup will be concentrated by boiling. Long wooden spoon is used to mix the solution throughout the boiling process.

Boiling and concentration

Sugarcane juice will be boiled in huge furnace. Bagasse is used as fuel for the furnace. Efficiency of furnace is improved by installing proper chimney, maximizing the heat absorption by providing a baffle in the furnace and using well dried bagasse. Pans made up of galvanized iron sheets reduce the contamination. The ash at the bottom of the furnace is removed periodically to provide proper air flow and better combustion of the bagasse.

After juice clarification, the juice is boiled vigorously to evaporate excess water. After certain consistency juice starts frothing. Stirring will be continued to prevent charring and spilling over pan sides. This process of boiling and cleaning continues till the Critical striking temperature is reached. The critical striking temperature for solid jaggery varies from 200^0C to 230^0C. Critical striking temperature and juice consistency to stop boiling is assessed with traditional skill and method. A small quantity of syrup is dropped into cool water and its consistency is observed. If the syrup dissolves, it has not attained the striking point. If the syrup solidifies the striking point has reached. Often the consistency is assessed with bare hand, using traditional wisdom. Sharkara makers will dip their fingers in cold water and then in boiling juice in the pan and immediately again in water to assess the concentration of the juice. In water if the juice solidifies, it has reached striking point. Sometimes cooking oil is added in pans@50-100ml/1000litre of juice. Once striking point is reached, concentrated juice is removed from pan and transferred to wooden trough (setting tray) for setting. Nearly after I hour, the semi-solid jaggery is hand-rolled into balls and then kept for 30 minutes in open air to reduce the moisture content, then packed for final disposal. Jaggery without colouring agents will be brown in colour. *Unda sharkara* (ball shaped, solid form) is the main product of the area while *paani* (liquid form), and powder form are also produced in minor quantities. The approximate total production of Marayoor jaggery is 6000 ton/ year. Small scale producers hire the furnaces and sheds of bigger producers for jaggery production.

Normally jaggery yield will be 10-12% of juice yield. The average yield of jaggery from 1 acre will be 3.6t. The approximate cost of cultivation for one acre of sugarcane and production of jaggery from that cane, at Marayoor will be Rs.1,40,000 while the total income will be Rs.1,80,000 making a net benefit of Rs.40,000/acre.

Packing and storage

The prepared jaggery is packed in sacks with a layering of palm leaf. One sack will contain 60 kg of jaggery. Packed jaggery balls can be stored for 3 months under ambient conditions.

Marketing

Marayoor jaggery is mainly marketed in the Southern districts of Kerala, and some quantity is exported to other countries like USA, Dubai and UK. Local farmers sell their products to local traders and marketing agencies like Anjunadu Karimpu Ulpadhana Vipanana Sangam, Marayoor, established in 2012, MAHADS (Marayoor Hills Agricultural Development Society) established in 2015 and MAPCO (Marayoor Agriculture Product Company) established in 2016. The price for good quality Marayoor jaggery varies between Rs.50- 75/Kg. If the quality is less the price will also be less. Now efforts are taken to give training for production of good quality jaggery without addition of harmful chemicals.

Uniqueness:

The sweet and natural water, loamy soil and cool tropical climate make Marayoor sharkara made from the sweetest sugarcanes grown in Marayoor, tastier than those produced in other regions. Its taste is very unique compared to jaggery produced in nearby localities, especially that from Tamil Nadu. Marayoor jaggery is non-salty in taste and is produced without the addition of harmful chemicals, and is superior in quality. It is a traditional sweetening agent and is also used in Ayurveda medicines. Generally Marayoor jaggery is prepared in ball form (unda Sharkara). Minor quantities are produced in powder and liquid forms. The colour is brown to dark brown. No natural or synthetic colour and artificial sweetening agents are added in this jaggery preparation. Balls are prepared by hand so that the finger marks will be clearly seen on the balls. The balls have medium hardness. Marayoor jaggery balls are available in well dried form with firm consistency and non-sticky nature. It has characteristic taste and flavour. Non salty taste is the characteristic unique feature of this jaggery. It is having less dirt and soil as evident from low water insoluble matter. Sucrose content adds to the sweetness of jaggery and is the most important component of jaggery. Marayoor jaggery has an average sucrose content of 63-80% and a reducing sugar content of less than 10%. Marayoor jaggery imparts better flavour and sweetness to dishes. The sulphur dioxide content of Marayoor jaggery ranged from 32.11 to 36.79% and is within the permissible limits. High content of iron, potassium,calcium and low content of sodium are other features of this jaggery, adding to its nutritional benefits and non salty taste.

It is believed that Marayoor Jaggery has medicinal properties. This jaggery is used in the preparation of many Ayurvedic medicines. Famous Ayurveda medicine manufacturers in Kerala like Oushadi and Nagarjuna takes this jaggery for the preparation of Ayurveda medicines. It is also used for the preparation of unique sweet dishes in temples in Kerala.

Jaggery in general contains natural phyto-chemicals, which activates the digestion and helps in correcting digestive problem. Use of jaggery with black pepper increases appetite. Jaggery contains many vitamins and minerals. High iron content in jaggery is good for small school children. It is added in the preparation of medicines used for increasing haemoglobin level.

Another specialty of this jaggery is that it is made in the farm itself in a traditional manner based on traditional knowledge. Jaggery production is a cottage industry in Marayoor and Kanthalloor Panchayaths andnow a days invites tourist attractions.

Cited references

1. "Report of Industrial Survey of Travancore" by S.G.Barker, Ph.D.,D.I.C for the year 1919.
2. The assessment letter from Sales Tax Officer of Munnar Devikulam during the period of 1982-83.
3. Objection letter by Mr. Scaria Joseph to Tax Assessment Notice for the jaggery produced in the year 1983
4. Objection letter filed by Mrs. Thresia, Cheruvallath, a sugarcane farmer of the area, against "Pre-assessment notice" served by The Agricultural Income Tax Officer of Munnar- Devikulam during 1982-83
5. The Plan document of 9th Five Year plan of Marayoor Panchayath for the year 1998- 99
6. The Plan document of Marayoor Panchayath for the year 1999-2000
7. Basic Data Book of Marayoor Krishibhavan, Kerala
8. Documents of Kanthalloor Grama Panchayath
9. Jaggery making and jaggery quality – Article by Dr.A.Bhaskaran, Senior Scientist, Sugarcane Breeding Institute , Coimbatore.
10. Ref: www.agritech.tnau.ac.in

Inspection body:

Inspection body will be constituted with the following members

1. Director of Research, Kerala Agricultural University
2. Principal Agricultural Officer, Idukki dst., Kerala
3. Coordinator, IPR Cell, Kerala Agricultural University
4. Asst. Director of Agriculture, Devikulam Block, Idukki dst.
5. President of Marayoor Gramapanchayath
6. President of Kanthalloor Gramapanchayath
7. Agrl.Officer, Krishibhavan, Marayoor
8. Agrl.Officer, Krishibhavan, Kanthalloor
9. President, Anchunadu Karimbu Ulpadhana Vipanana Sangham, Marayoor
10. Secretory, Anchunadu Karimbu Ulpadhana Vipanana Sangham, Marayoor
11. President, MAHAD, Marayoor
12. Secretory, MAHAD, Marayoor
13. MD, MAPCO, Marayoor
14. CEO, MAPCO, Marayoor
15. Farmer representative-Secretary, Akshaya cluster , Kanthalloor
16. Farmer representative - Mr. P. S. Sasikumar, Poochakkara house, Marayoor Gramam , Marayoor P.O., Idukki Dst.
17. Farmer representative- Mr. S. Chandran , Anakkal petty, Micheal Giri, PO Marayoor P.O., Idukki Dst.

Along with the Statement of Case in Class 30 in respect of Marayoor jaggery in the name of Anchunadu Karimbu Ulpadhana Vipanana Sangham whose address is

Anchunadu Karimbu Ulpadhana Vipanana Sangham,
Building No. III/367 C, Marayoor town,
Marayoor (P.O), Idukki dist., Kerala, India
Pin: 685620

who claim to represent the interest of the producers of the said good to which the geographical indications relates and which is in continuous use since time immemorial in respect of the said goods.

1. Other necessary particulars called for in rule 32(1) are given in the Statement of Case

2. All communications related to this application may be sent to the following address in India.

Address: The Coordinator,
IPR Cell-KAU,
Agricultural Research Station,
Kerala Agricultural University,
Mannuthy
Thrissur-680 651, Kerala, India

Email: iprcell@kau.in

Mob: 9447878968

Signature

Name of the signatory in block letters

P. N. VIJAYAN
SECRETARY

ANCHUNADU KARUMPU ULPATHAKA VIPANANA SANGAM
Regd. No
I 30 / 2012
MARAYOOR

SECRETARY
ANCHUNADU KARUMPU
ULPATHAKA VIPANANA
SANGAM
MARAYOOR P.O


Harvesting of sugarcane


Documentation


Jaggery production sheds


Crushing of sugar cane

Jaggery production stages

Packing





Packed and Marketed


Discussions

Awareness Meeting for GI Registration

Apex body meeting in the presence of Hon'ble Minister for Agriculture

Awareness programme at Marayoor on 04/01/2018

Colour comparison with other samples

Marayoor Jaggery

Market Sample 1

Market Sample 2

Market Sample 3

भारतीय स्टेट बैंक
State Bank Of India

(70670)-KERALA AGRICULTURE UNIVERSITY CAMPUS
COLLEGE OF CO-OPERATION
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KERALA,
680 651,
INDIA

C B R Details :

Application No	Form No	Class	No of Class	Name of GI	Goods Type	Amount Calculated
613	GI-1A	30	1	Marayoor Jaggery (Marayoor Sharkara)	Agriculture	5000

Payment Details :

Payment Mode	Cheque/DD/PostalNO	Bank Name	Cheque/DD/Postal Date	Amount Calculated	Amount Paid
Cheque	714044	State Bank of India	09/03/2018	5000	5000

Total Calculated Amount in words : Rupees Five Thousand only
Total Received Amount in words : Rupees Five Thousand only

*** *This is electronically generated receipt,hence no signature required* ***