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A AGRICULTURAL UNIVERSIT

DIRECTORATE OF RESEARCH

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Dr. T.R. GOPALAKRISHNAN, Ph.D, FISVS Director of Research

479

Main Campus, Vellanikkara KAU (P.O.) - 680 656, Thrissur - Kerala

No.R8/68344/200

Dated: 26-03-2014

To

The Registrar of Geographical Indications Geographical Indication Registry Intellectual property Office Building GST Road, Guindy, Chennai - 600 032, Tamil Nadu.

Sir.

Sub: GI Registration of "Changalikoden Nendran Banana" - forwarding -

I am forwarding the application for GI Registration of "Chengalikodan Nendran" Banana - a cultivar grown in Kerala, along with supporting/ legal documents and DD for Rs. 5000/ (application fee).

I request that the application may be accepted for GI registration.

ours sincerely,

(T.R.Gopalakrishnan)

Copy of documents enclosed

- 1. Form GI 1 A in triplicate
- 2. Statement of case in triplicate
- 3. DD for Rs.5000/- DD No.776128 date. 24/03/2014
- 4. Affidavit
- 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).

Copy to : Dr.C.R. Elsy, Coordinator (IPR Cell)

स्टेट बैंक ऑफ़ त्रावणकोर क्रान्त्र Bank of Travancore Issuing Branch:SBT - OLLUKKARA

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Geographical indications Registry

Intellectual Property Building, G.S.T. Road, Guindy, Chennai - 600 032

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Receipt

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Date: 28-03-2014 Generated by :BABU

CHENGALIKODAN BANANA GROWERS ASSOCIATION, ERUMAPETTY, C/O KRISHIBHAVAN ERUMAPETTY, ERUMAPETTY P.O., THRISSUR,

KERALA,

680584,

INDIA

CBR Details:

Application No	Form No	Class	No of Class	Name of GI	Goods Type	Amount Calculated
				Chengalikodan Nendran		
479	GI-1A	31	1	Banana	Agriculture	5000

Payment Details:

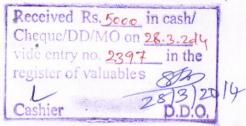
Payment	Cheque/DD/PO	Bank Name	Cheque/DD/PO	Amount	Amount
Mode	NO		Date	Calculated	Paid
DD	776128	State Bank of Travancore	24-03-2014	5000	5000

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 ***



FORM GI-1(A)



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

1. a) Name of the applicant/applicants:

Chengalikodan Banana Growers Association,

Erumapetty.

b) Address:

Chengalikodan Banana Growers Association,

C/o Krishibhavan Erumapetty,

Erumapetty PO, 680584

Thrissur, Kerala

Facilitator: Kerala Agricultural University Kerala Agricultural University (PO), Thrissur Dist, Kerala-680656, India.

c) List of Association of Persons /Producers:

All banana farmers of specified blocks in Thrissur district cultivating *Chengalikodan Nendran Banana*.

d) Type of goods:

Chengalikodan Nendran Banana and related banana products falling in Class 31

e) Specification:

'Chengalikodan' Nendran Banana, also known as 'Chengazhikode' Banana, is the most popular and traditional tasty Nendran cultivar of Thrissur district, Kerala, South India. It is believed that the name "Chengalikodan" banana came from the term "Chengazhikode" banana which derived the name from the area of origin of this cultivar viz. Chengazhikode area, in Wadakkancherry block in Thrissur Dst. Chengazhikode area derived its name from "Chengazhi Nambiyars", the then land lords of the area. This variety of Nendran banana is famous for its characteristic taste, bunch shape and fruit colour. Fruits are very tasty with a sugar content of 26-30 percent and shelf life of 7-9 days. The fruits are long

(21-25cm), have golden yellow colour for peel (rind) with red boarders/patches known as 'Kara'(meaning border in Malayalam). Chengalikodan Nendran banana differs from other Nendran cultivars of Kerala in growth habit, areas of original cultivation, physico-chemical properties of fruit and shape of fruit and bunch.

The bunches are cylindrical in shape with fruits curved upward (obliquely, at 45° angle upward) position with a fruit length of 21-25cm. Cylindrical shape with slight ridges is the characteristic fruit feature of Chengalikodan banana. Unlike other Nendran varieties having pronounced ridges for fruits, Chengalikodan banana fruits has slight ridges giving it a ridge-less round look. The mature fruits have pale yellow colour and on ripening turns to golden yellow colour with red boarders/patches which determines its beauty and market price. Such beautiful bunches of Chengalikodan are particularly used as 'Kazhchakula' (Kazhcha means gift; Kula means bunch), to be given as offering in temples, especially in the famous Guruvayoor Temple, and also as gift bunches to relatives and friends as token of culture/gratitude during Onam season. Chengalikodan requires particular traditional method of cultivation and bunch covering techniques with dry banana leaves, to create the attractive characteristic colour and shape for the fruits.

Chengalikodan Nendran banana comes in AAB genome. It is mainly cultivated in organic way and duration of crop is 13-14 months. Morphological characters of this cultivar are provided below.

a. Plant characters

1

1	Pseudostem aspect and height	Normal and tall
2	Pseudostem colour	Medium green
3	Pigmentation of underlying pseudostem	Pink purple
4	Pseudostem appearance	Shiny (not waxy)
5	Blotches at petiole base	Large blotches
6	Blotches colour	Dark brown

7	Colour of leaf	Green
8	Leaf blade length	171-220cm
9_	Leaf blade width	71-80 cm

b. Inflorescence/male bud

1	Peduncle length	31-60 cm
2	Peduncle width	6-7 cm
3	Peduncle colour	Medium green
4	Bunch position	Hanging vertically
5	Bunch shape	Cylindrical
6	Bunch appearance	Lax
7	Rachis type	Present and male bud persistent
8	Rachis position	Falling vertically
9	Rachis appearance	Neutral male flowers on the whole stalk without persistent bracts
10	Rachis length	2.5-3 feet
11	Bract base shape	Small shoulder
12	Colour of bract external face	Dark pink purple

Absence of persistent bracts on rachis gives beautiful appearance to the bunches. Normally the rachis will be retained on bunches taken for marketing as 'Kazhchakula'.

c. Fruits

1	Fruits	Biseriate
2	Fruit position	Curved upward(obliquely, at 45 ⁰ angle upwards)
3	Fruit length	20-25 cm

Fruit shape(longitudinal curvature)	Straight (or slightly curved)
	5 (B., 002 (00)
Transverse section of fruit	Slightly ridges
Fruit apex	Lengthy pointed
Remains of flower relicts at fruit apex	Base of style prominent
Fruit pedicel length	3-5 cm
Fruit pedicel width	10 mm
Immature fruit peel colour	Medium green
Mature fruit peel colour	Light yellow, with red patches
Fruit peel thickness	3-4 mm
Fruit pulp colour at maturity	Orange yellow
Fruit weight	180-310 g/fruit
Sugar content (%)	26-30
Acidity (%)	0.31-0.60
Shelf life	7 - 9days
Ripened fruit peel colour	Deep golden yellow, with red patches
	Remains of flower relicts at fruit apex Fruit pedicel length Fruit pedicel width Immature fruit peel colour Mature fruit peel colour Fruit peel thickness Fruit pulp colour at maturity Fruit weight Sugar content (%) Acidity (%) Shelf life

d. Evaluation

1	Planting to shooting	220 - 235 days
2	Crop duration	315-330 days
3	Days taken for bunch maturation	90-100 days
4	Bunch weight	12-25 kgs
5	No. of hands	5-8
6	No. of fruits	45-85
7	Pseudostem height	2.1-3.3 m
8	Pseudostem girth	50 cm

The rains stop by the end of December after North East monsoon and the rest of the period is generally dry.

The average annual rainfall in the district is 3159 mm. The average daily maximum temperature in March & April, which are generally the hottest months, is about 31°C (83° F) in the coastal regions and 36°C (97° F) in the interior. The mean maximum and minimum temperature are 31.8° C and 21.3° C respectively.

The air is highly humid throughout the year, the relative humidity being generally over 70%, but in the interior regions, the afternoon humidity during the period of December to March is between 40 to 50%.

Winds are generally light to moderate and they strengthen in the monsoon season. In the South-West monsoon season the winds are mainly Westerly or South Westerly. During the rest of the year winds are mainly North Easterly to Easterly in the mornings and blow from direction between South-West and North-West in the afternoons. Average weather data of Thrissur District for the last 15 years is provided in Table 1.

Table 1.Average weather data of Thrissur district for 15 years (1997-2011)

Month	Min. Temp. (°C)	Max. Temp. (°C)	RH 1 (%)	RH 2 (%)	Rainfall (mm)	Wind speed (km/hr)
January	22.48	32.72	73.93	41.46	0.5	7.46
February	22.69	34.36	7 7	40.6	20.59	5.33
March	24.1	35.41	84.8	45.2	32.49	3.96
April	24.88	34.46	87.2	56.73	84.38	3.38
May	24.68	32.84	89.06	64	231.45	3.28
June	23.32	29.92	92.46	76.13	669.76	3.19
July	22.75	29.02	94.46	78.13	634.9	3.28
August	23.12	29.33	94	75.33	440.94	3.06
September	23.16	30.42	92.4	70.86	307.06	2.92
October	23.08	30.7	90.46	69	338.88	3.11
November	23.1	31.49	82.4	60.06	96.01	4.72
December	22.59	31.32	74.46	49.46	13	7.47

Source: Department of Meteorology, College of Horticulture, Kerala Agrl. Uty.

<u>Soil:</u> Laterite and alluvial soils are the major soil types in areas of cultivation. Chengalikodan is mainly cultivated in the Thalapilly taluk, both in uplands and low lying areas along the course of Wadakancherry river. The river and its tributaries play an important role in improving the soil fertility of Thalapilly taluk, thus making the area more suited for traditional way of Chengalikodan cultivation. The Nendran fruits coming from this region is found more tasty and attractive compared to other areas of cultivation in the state.

g)Description of the goods:

The botanical name of banana is *Musa spp*. Chengalikodan is a clone of Nendran under AAB Genome and Plantain sub-group. The duration of crop is 315-330 days and days taken for bunch maturation is 90-100 days. Bunches can weigh up to 12-25 kg with 5-8 hands. The total number of fruits in a bunch is 45-85 according to growing conditions.

Chengalikodan banana is valued for its taste, golden yellow colour with red borders, slight and smooth ridges and appealing bunch structure and hence fetches a premium price in market. Chengalikodan is used as a premium fruit compared to other Nendran cultivars, as its main use includes offering to deity in temples and gift to relatives/friends during Onam season as a token of culture/gratitude. The morphological description of Chengalikodan is given below.

a. Plant characters

1	Pseudostem aspect and height	Normal and tall
2	Pseudostem colour	Medium green
3	Pigmentation of underlying pseudostem	Pink purple
4	Pseudostem appearance	Shiny (not waxy)
5	Blotches at petiole base	Large blotches
6	Blotches colour	Dark brown
7	Colour of leaf	Green

8	Leaf blade length	171-220cm
9	Leaf blade width	71-80 cm
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b. Inflorescence/male bud

1	Peduncle length	31-60 cm
2	Peduncle width	6-7 cm
3	Peduncle colour	Medium green
4	Bunch position	Hanging vertically
5	Bunch shape	Cylindrical
6	Bunch appearance	Lax
7	Rachis type	Present and male bud persistent
8	Rachis position	Falling vertically
9	Rachis appearance	Neutral male flowers on the whole stalk without persistent bracts
10	Rachis length	2.5-3 feet
11	Bract base shape	Small shoulder
12	Colour of bract external face	Dark pink purple
202	20 of	

Absence of persistent bracts on rachis gives beautiful appearance to the bunches. Normally the rachis will be retained on bunches taken for marketing as 'Kazhchakula'.

c. Fruits

1	Fruits	Biseriate
2	Fruit position	Curved upward(obliquely, at 45 ⁰ angle upwards)
3	Fruit length	20-25 cm
4	Fruit shape(longitudinal curvature)	Straight (or slightly curved)
5	Transverse section of fruit	Slightly ridged
6	Fruit apex	Lengthy pointed

7	Remains of flower relicts at fruit apex	Base of style prominent
8	Fruit pedicel length	3-5 cm
9	Fruit pedicel width	10 mm
10	Immature fruit peel colour	Medium green
11	Mature fruit peel colour	Light yellow, with red patches
12	Fruit peel thickness	3-4 mm
13	Fruit pulp colour in maturity	Orange yellow
14	Fruit weight	180-310 g/fruit
15	Sugar content (%)	26-30
16	Acidity	0.31-0.60
17	Shelf life	7 - 9days
18	Ripened fruit peel colour	Deep golden yellow, with red patches

d. Evaluation

1	Planting to shooting	225-235 days
2	Crop duration	315-330 days
3	Days taken for bunch maturation	90-100 days
4	Bunch weight	12-25 kgs
5	No. of hands	5-8
6	No. of fruits	45-85
7	Pseudo stem height	2.1-3.3 m
8	Pseudo stem girth	50 cm
9	No. of functional leaves at flowering	15
10	No. of functional leaves at harvest	5-6
	(Plates 24 25 26)	

(Plates 24,25,26)

Uniqueness of Chengalikodan fruit is its colour, shape, taste and also bunch characters. Unlike other Nendran bananas, Chengalikodan banana, when boiled, becomes soft and protrudes out through sides. For better shape and colour, the bunch will be fully covered with dry banana leaves. The red patches/borders seen on the fruits add beauty and price to bunch. Traditional bunch training and formation techniques are used to enhance the beauty of bunches. At harvest for fetching premium price for bunches, peduncle and male inflorescence rachis will be retained. The slightly curved fruits and male inflorescence rachis gives appearance of elephant's tusk and trunk to the bunches. Attractive bunches are selected as 'Kazhchakula' (gift bunch) to give as gift to temples and dignitaries.

Kazhchakula: Uniqueness of bunches offered as gifts (Kazhchakula) is developed during bunch growth through special care and attention given to both mother plant and bunch. Support for the pseudo stem and peduncle is provided to balance the weight of the bunch. Bunches are fully covered with dry banana leaves adopting traditional technologies. Roll of dry leaves (known as *theeta*) are kept between each hand, and fruits to obtain a elephant tusk look to the fruits. *Kudappan /Maani* (male inflorescence) is retained to add to the beauty of the bunch.

Chengalikodan Banana get premium prize compared to other Nendran varieties. When ordinary Chengalikodan banana grown on large scale get an extra price of Rs.10/- than other banana, Chengalikodan Nendran banana grown in smaller quantities for the purpose of *Kazhchakula* fetches premium price in the range of Rs.1500.00-3000.00/ bunch on the basis of colour, beauty, and shape of fruits and arrangement of fruits on bunch.

h) Georaphical area of production and map:

Thrissur district lies in the central part of Kerala, in between North Latitude 10°10'20" and 10°46'54" and East Longitudes 75° 57'20" and 76° 54'23", with Malappuram district in Northen part, Palakkad district in the Eastern side, Ernamkulam Dst. in the Southern part of Thrissur district Map exclosed Details of specific blocks in Thrissur districts recognized for Chengalikodan

cultivation are provided below.

Sl.No.	Name of Block	Name of Panchayath	Area of	
			Cultivation	
_1	Chowannur	Veloor	4.6 Ha	
2	Puzhakkal	Kaiparambu		
		Tholur	6 Ha	
		Avanur		
3	Wadakkanchery	Erumapetty	43 Ha	
4	Pazhayannur	Chelakkara		
		Pazhayannur	20 Ha	
5	Ollukkara	Pananchery		
		Nadathara		
		Puthur	16 Ha	
		Madakkathara		
	TOTA	AL	89.6 Ha	

Source: Office of the Principal Agricultural Officer, Thrissur

These blocks belong to Thalappilly & Thrissur taluks. Kodakara block, Thrissur Corporation, Mullessery block, Chavakkad block etc. are the nearby areas of Chengalikodan cultivation.

<u>Climate:</u> Thrissur is a land situated between the Great Arabian sea in the West and mountain ranges of Western Ghats in the East. A moderate temperature is maintained in the district. The district has a tropical humid climate with an oppressive hot season and plentiful and fairly assured seasonal rainfall. Average altitude is 2.83m above mean sea level.

The hot season from March to May is followed by the South-West monsoon season from June to September. After July the rainfall decreases. October and November are the monsoon season. The rains stop by the end of December and the rest of the period is generally dry. The average annual rainfall is 3159 mm.

The average daily maximum temperature in March & April,

which are generally the hottest months, is about 31°C (83°F) in the coastal regions and 36°C (97°F) in the interior. The air is highly humid throughout the year, the relative humidity being generally over 70%, but in the interior regions, the afternoon humidity during the period of December to March, is between 40% to 50%.

Winds are generally light to moderate and they strengthen in the monsoon season. In the South-West monsoon season the winds are mainly Westerly or South Westerly. During the rest of the year winds are mainly North Easterly to Easterly in the morning and blow from direction between South-West and North-West in the afternoons.

Chengalikodan suckers are planted in the month of September and irrigation starts after 3-4 months when summer starts. Irrigation will be provided twice or thrice a week for better bunch yield.

Average weather data of Thrissur district for 15 years(1997-2011)

Month	Min. Temp. (°C)	Max. Temp.	RH 1 (%)	RH 2 (%)	Rainfall	Wind speed
	 -	 			(mm)	(km/hr)
January	22.48	32.72	73.93	41.46	0.50	7.46
February	22.69	34.36	77.00	40.60	20.59	5.33
March	24.10	35.41	84.80	45.20	32.49	3.96
April	24.88	34.46	87.20	56.73	84.38	3.38
May	24.68	32.84	89.06	64.00	231.45	3.28
June	23.32	29.92	92.46	76.13	669.76	3.19
July	22.75	29.02	94.46	78.13	634.90	3.28
August	23.12	29.33	94.00	75.33	440.94	3.06
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October	23.08	30.70	90.46	69.00	338.88	3.11
November	23.10	31.49	82.40	60.06	96.01	4.72
December	22.59	31.32	74.46	49.46	13.00	7.47

Source:Dept. of Meteorology, College of Horticulture, Kerala Agricultural University.

Soil: The District may be divided into three well-defined zones. Descending from the heights of the Western Ghats in the East, the land slopes towards the West, forming three distinct natural divisions-the high lands, the plains and the sea-board. The high lands are thickly forested whereas the plains, which are fertile, are cultivated for food and cash crops. Laterite soil is the

major soil type in Thrissur, which is fertile and appropriate for banana cultivation.

Wadakkanchery river orginating from Vazhani forest runs about 30km to West, with Vazhani dam in between, through Machadu hill ranges and joins Arabian Sea at Enamakkal. The river beds of Wadakanchery river and its tributaries are ideal for Chengalikodan banana cultivation.

Wadakanchery river beds with rich alluvial deposits play an important role in improving the soil fertility of the region which also contributes to the unique taste of Chengalikodan banana in Thrissur.

i) Proof of origin:

It is believed that Chengazhikode area of Wadakkancherry block in Thalappilly Taluk in Thrissur district is the area of origin of cultivation of this banana. Mention about Chengalikodan is seen in many ancient books. It is mentioned in the book "Chengazhi Nambiyar-Vamsholpathiyum Charithravum" (Genesis and History of Chengazhi Nambiyar sect) written by Sri. V.P.Chandrashekaran Nambiyar. In this book he has described the genesis of Chengazhi Nambiyars from "Azvancheri Thambrakal." In Thalappilly Thaluk, (part of earlier Cochi Kingdom), Chengazhi Nambiyars were very powerful and their ruling area came to be known as Chengazhikode. The banana cultivated in Chengazhikode came to known as Chengazhikodan banana which later became popular as Chengalikodan banana. There is a temple near to Chengazhikode area (Kariyannur) known by the name Chengazhi Vali Chowa Muthappan Temple. (Plates 34,35,36,37,38,39). In this book he has also mentioned about products were taken to Sri. Padmanabhaswami Thiruvananthapuram for Mura Japam (yearly prayer by members of royal family). Unique products from different localities were sent to Thiruvananthapuram to use in Mura Japam. Major products sent from Chengazhikode area for Murajapam were Chengazhikodan Nendran banana and Chengazhikodan arecanut (Changazhi Nambiyar- Vamsholpathiyum Charithravum, page 8; copy enclosed).

The variability in Nendran Group in India has been characterized and evaluated under a World Bank funded project

implemented at Banana Research Station, Kannara, Kerala Agricultural University during 1998-1999. Ten morphotypes of Nendran were recognized based on detailed morphological description including Chengalikodan and a key was developed for their identification (Menon et al., 2002).

"Banana-Indian Genetic Resource and Catalogue" by S.Uma, S.Sathiamoorthy and P.Durai published in 2005 gives the characteristics of Chengalikodan (Banana-Indian Genetic Resource Catalogue, page 207-217).

Vazha Krishi (Banana Cultivation) written by Dr.R.Gopimani and V.K.Sasidhar catalogues Chengazhikode Banana as the tastiest banana (Vazha Krishi, 1994. page 22; copy enclosed).

Krishipadam, Sampoorna Karshika Vijnana Grantham (Lessons in Agriculture, The Book on Total Agricultural Information) by R. Haley in 2008 mentioned Chenagalikodan as major variety among banana. (Krishipadam, Sampoorna Karshika Vijnana Grantham, page 107; copy enclosed).

In the book "Banana" written by V.N.Madhava Rao in 1998 Chengazhikode is mentioned as the tastiest among Kerala Nendran varieties (Banana, page 23; copy enclosed).

"Banana-Taxonomy, Breeding and Production Technology" by Dr.K.G.Shanmughavelu, Dr.K.Aravindakshan and Dr.S.Sathiamoorthy published in 1992, mentioned Chengazhikodan of Thrissur as a synonym to Nana Nendran (Banana- Taxonomy, Breeding and Production Technology,page 30; copy enclosed).

Article written by K.A.Martin on 'Kaipad rice, Tirur Betel leaves, Chengalikodan banana to get GIs' mentioned the quotation of Prof.Dr.C.R.Elsy, Co-ordinator IPR Cell, Kerala Agricultural University on the peculiar characteristics of Chengalikodan banana (The Hindu daily dt.20/06/2012;copy enclosed).

'Banana, fruit for harvest season' an article on banana harvested during Onam season by Anjali Satheesh also mentioned about Chengalikodan banana (City Journal dt. 03/08/2012; copy enclosed).

Report on Chengalikodan entitled "Chengalikodan; Kalam Kathu Vacha Ruchi" (Chengalikodan - Taste conserved by generations) gave a brief history of Chengalikodan Banana narrated by Agricultural Officer, Smt.Sulochana, Erumappetty Krishibhavan, Thrissur district (Malayala Manorama dt.21/07/2012;copy enclosed).

"Erumapettyyille Chengalikodan Peruma" a report on Chengalikodan banana grown in Erumappetty taluk, Thrissur district gave a small description on characteristics, marketing, special cultivation techniques of Chengalikodan etc. (Deepika dt.16/07/2012; copy enclosed).

'Kazhchakula' an article in Karshakan, one of the leading Agricultural magazines in Kerala described peculiarities/specialties/uniqueness of Chengalikodan banana used as Kazhchakula (Karshakan, September edition 1996; copy enclosed).

Major Agricultural magazines of Kerala like Karshakashree, Krishyanganam, Karshakan etc. have written cover stories on Chengalikodan Banana due to its peculiar features (copy enclosed).

Reports in major dailies like Malayala Manorama, Deepika and The Hindu etc. mentioned about the uniqueness of this Nendran Banana (copies enclosed).

References:

- 1. Anjaly Satheesh.2012 Banana, fruit for harvest season .City Journal dt.03/08/2012.
- 2. Anon. 2005. *Thrissurinte Kazhchakulakal* . Karshakasree. October pp.14-15.
- 3. Anon. 2010. 'Kazhchakkula' offered to diety . The Hindu dt.23/08/2010.
- 4. Anon. 2012. *Ona Vipaniyile tharam 'Chengalikodan' thanne* . Malayala Manorama. dt.22/08/2012.

5. Anon. 2012. *Onavipanikku Swarnacharthayi Kazhchakulakal*. Malayala Manorama. dt.27/08/2012.

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- 6. Anon. 2008. Nammude Nendran . Karshakasree . September 2008. pp.19-20.
- 7. Anon.2012. *Chengalikodan : Kalam Kathuvacha Ruchi* . Malayala Manorama dt.21/07/2012.
- 8. Anon.2012. Erumapettyyille Chengalikodan Peruma. Deepika dt.16/07/2012.
- 9. Anon.2012. Kazhchakula . Karshakan . September 1996 . 41p.
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Translation /transliteration of the non-English text

1. **Translation** of paragraph 25th chapter 2 of book Changazhi Nambiyar Vamsholpathiyum Charithravum(page 8)(Ref:11)

In this paragraph author V.P.Chandrashekaran Nambiyar speaks about a particular prayer festival named 'Mura Japam' organized once in 12 years at Sri.Padmanabhaswami temple, Thiruvananthapuram, with participation of Namboothiris from 64 villages in Kerala. According to the order of King, food and other necessary materials for Mura Japam are to be brought from various villages under his control. Products were chosen according to their quality. Only best quality products were sent for Mura Japam. The products to be send from Chengazhikodu area were Nendran banana and Arecanut. Thus Chengazhikodan Nendran banana and Chengazhikodan Arecanut became famous.

Corresponding Transliteration

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Thiruvanandapuram Ananadapathmanabhaswami kshethrathil 12 varsham koodumbol nadanu vannirunna Mura Japathinu Keralathile gramangalile namboothirimarum ethanamayirunnu. Athupole murajapathinum bhakshanam muthalayavakum ulla dravyangal Keralathinte bhagathu ninnum konduvaranamennu oro nishchayam cheythirunnu. Dravyangalude meanmaye adisthanapeduthiyanu iprakaram cheythirunnathu. Ithu prakaakaram Chengazhikodu nattilninnum nendrakaya, adaka ennivayannu ayakendiyirunnathu. Athukondu Chengazhikodan Nendrakayayum, Chengazhikodan Chembazhukayum prasidhamayitheernu.

2. Translation of 5th point in AAB group in book Vazha Krishi. (page 22)(Ref:12)

This book gives a catalogue of different groups of banana tabulated as, variety name, genome and sub-group, and details.

Variety name	Genome & SubGroup	Detail			
Chengazhikodan	AAB, Nendran/Plantain	Tastiest cultivar			
Corresponding Transliteration					

Inathinte peruGunavibhagamKurippuChengazhikodanAAB,Nendran inamRuchiyeriya pazham

3. Translation of 1st line of 1st paragraph under the heading "varieties of plantain" in the book *Krishipadam,Sampoorna Karshika Vijnana Grantham* (page107)(Ref:13).

The paragraph describes Nedu Nendran, **Chengazhikodan**, Manjeri, Biggu, Embanga as premium varieties . Sansibar, Monsmary, Robusta etc. were described as major varieties.

Corresponding Transliteration

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Nedunendran, **Chengazhikodan**, Manjeri, Biggu, Embanga enniva mikacha nendra inangalanu. Sansibar, Monsmary, Robusta...ennivayanu vazhayille pradhana inangal.

4. Translation of Article 'Chengalikodan: Kalam Kathuvacha Ruchi' (Ref:7)gives a brief history of Chengalikodan banana and Chengazhikodu area as narrated by Agricultural Officer Smt. P.V.Sulochana.

Paragraph 5, 6, 7, 8: **Chengalikodan Nendran** variety is seen in Changazhikodu Princely State that includes Kariyannoor.

Wadakkanchery river originating from Machadu mountain ranges flow westwards till Nelluvayi and then deviates to southwest region. The fertile silt carried down from mountain ranges thus gets deposited in Changazhi area. ie Kariyanoor area near Erumapetty. Farmers believe this area to be the birth place of Chengalikodan **Banana**.

Wadakkanchery riverbed form the major area Chengalikodan Banana cultivation. It is believed that the cultivation Chengalikodan banana at this region started some 800 years before.

Even if nendran banana cultivation is seen in most of the parts of Thalapilly thaluk, it is found that, those bunches from Chengazhi area near to river beds shows peculiarities and superiority in their taste and shape.

Corresponding Transliteration

Chengazhikodu enna natturajyathil Kariyannoor ulpedunna Chengazhi pradeshathu undayirunna oru nendravazhayinamanu **Chengalikodan** ennu kandethiyittundu.

Machadu Malanirakalil ninnu uthbhavikkuna Wadakanchery puzha Nelluvayi vare padinjarottum avide ninnu thekku padinjarottumanu ozhukunnathu. Puzhayiloode ozhukiyethunna valakooreriya ekkal nikshepikkapedunnathu Changazhi pradeshathannu. Erumapettikaduttu Kariyanoor pradeshamanithu. Avideyannu **Chengalikodan** vazhayude janmadeshamennanu kaeshakarude vishvasam.

Ithine sakshapeduthanuthakunna ottera thelivukalum undu. Ie puzhayorathu thanneyanu innu ettavum kooduthal **Chengalikodan** vazha krishiyullathu. 800 varsham munpannu Changalikodan nendravazhayude janmamennu pazhamakar vishvasikkunu.

Innu Thalapilly thalukille mikka sthalangalilum ie nendravazha krishi cheyarundangillum ie puzhayorathe Changazhi pradeshathe vazhakulakalku akrithiyilum ruchiyilum prathyakathakalundannum kandethiyittundu.

5. Translation paragraph 2 of Article 'Erumapettyyille Chengalikodan Peruma'(Ref: 8) describes about specialties of Chengalikodan ,utilization, current market etc.

The one Nendran variety which is known native to Thrissur is Chengalikodan, with its birthplace in Erumapetty Village. The major characteristics that make Chengalikodan unique are its round slightly ridged fruits, golden colour and overall beauty. About 10 lakh bunches are exported to other districts and states during Onam season (August-September). Each bunch will weigh around 22-28kg. Beauty and weight of bunch determine its price. Those bunches with long male inflorescence /maani are selected to be used as Kazhchakula, and would cost around 2500-3000 rupees. Thiyyoor, Erumappetty and Kariyannoor are major areas of its cultivation.

Corresponding Transliteration

Thrissur gillayude swantham nendravazhayinamennu peruketta Chengalikodante janmadesham Erumapetty gramapanchayathannu. Urundathum eanukal illathathumaya kaykallum swarnaniravum, roopabangiyumanu Chengalikodane sradeyamakunnathu. Annyasamsthanangalilkum mattu gillakalilekkum onathinu pathulakshathiladikam kulakalanu kayatti ayakunnathu. 22-28 kilogram vare kulakku thookamundakum. Kulayude thukathinum roopabhangikkum anusarichu vilayum koodum. Maaniyum polayumulla kulakalanu kazhchakulakalku thiranjedukunnathu. 2500-3000

vilavarum. Thiyoor, Erumapetty, Kariyanoor bhagangalilanu pradhana krishiyidangal.

6.Translation of *Kazhchakula* advertisement describing uniqueness of Chengalikodan *Kachchakula* (page 41)(Ref:9).

When Onam comes with prosperity, *Kazhchakula* are offered to deity of Guruvayoor. One foot long fruits with round shape as Poovan banana and golden yellow colour are the characteristics of a perfect *Kazhchakula*. *Kazhchakula* bunches become the icon of prosperity of Onam season. These bunches are carefully groomed with proper application of fertilizers and manures.

Corresponding Transliteration

Nadengum samardhiyude Onasadyaunnumbol Guruvayoorappanulla kannikayanu Kazhchakulakal. Oradi neelamulla izhayum Povan pazhathintethupole thudavum timanja niravumanu lakshanamotha Kazhchakulaku. Paricharanathinte mikavum valaprayogathinte dharalithavum vilichariyikunna Kazhchakulakal Onakalla samrithiyude niraroopangalanu.

j)Method of Cultivation

Nendran is the commercial variety of banana in Kerala and is in demand throughout the year. Among the Nendran types, Chengalikodan variety gets its full and peak demand during the Onam Season *i.e.* August - September. Therefore Chengalikodan Nedran is planted in August - October months so that harvest coincides with Onam season.

Banana generally prefers tropical humid low lands. Optimum temperature is 27°C. Soil with good fertility, drainage and assured supply of moisture are best suited. Planting is done either in pits or furrows.

Preparation of land: Laterite soil with good sunlight is ideal for Chengalikodan banana. Fields with proper drainage and assured irrigation water are specifically selected for the purpose. Field is prepared by ploughing followed by digging pits or making furrows and ridges (Plates 1,2,3,4).

Selection of suckers for planting: 3-4 months old, disease free sword suckers (sooji kannu) from helthy clumps are selected. Generally medium sized suckers are used for planting, if Onam falls in early August. But if the festival is delayed till August end or early September, then farmers go for planting small sized suckers. Time of planting is adjusted to ensure that harvest correctly coincides with festival season. Planting time and sucker selection are based on traditional knowledge. Suckers are separated from mother clump within one week of harvest of the bunch. Pseudostem of selected sucker will be cut back to a length of 10-20cm, and old roots will be removed. The rhizomes will then be dipped in cowdung slurry and ash for 20 minutes and dried in the shade for 12-15 days and will be used for planting.

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Spacing: In pit planting, 2.0x2.0 m to 2.0x2.5 m spacing (2000-2500 plants/ha) is commonly adopted. In pit planting, size of the pit is 50x50x50cm. For furrow planting, furrows of 75 cm width, 50 cm depth and required length are prepared, keeping a distance of 2.5m between furrows. Inside the furrows, at the time of planting small pits (*Kallakuzhi*) are dug for keeping the suckers. Distance between two plants in a furrow will be 2-2.5m (7-8ft). (Plates 5&6).

Planting: Suckers are planted in upright position or slanting position in the center of pits with pseudo stem portion remaining above soil level. Soil around the suckers is then pressed to remove /avoid hollow air spaces.

Manuring: At the time of planting or after planting 500gm of lime is mixed with fertile surface soil and added to the pits. 10-25kg organic manure is also applied at the time of planting. Some farmers, in addition, apply 250gm of wood ash after planting. N: P₂O₅: K₂O is applied at the rate of 190:115:300 g/plant/year in splits. In furrow planting, after 2 months, the furrow depth will be reduced by digging and filling soil from ridges. The soil from ridges will be spread around the suckers at a distance of 1-1.5 feet away from the base to facilitate better root growth and root functioning. With the commencement of irrigation, the plants are again supplied with 1 kg ash and 20kg cowdung.

Irrigation: Nendran has a heavy requirement of moisture and during summer months irrigation is given once in 3 days. Irrigation commences in

early January and is continued till the onset of South West monsoon. Good drainage is provided to prevent water logging during rainy periods.

Weed control: During early stages, complete control of weeds is obtained by raising cowpea in the interspaces (Plates 7). In hand weeding 4-5 surface diggings are done without disturbing the base of the plant. If green manure crop is grown, weeding operations can be reduced to 1-2 diggings. Small scale farmers rarely follow chemical weed control.

Desuckering: Before bunch emergence, all the emerging suckers, as and when they appear above soil, are removed/destroyed. After bunch emergence 1-2 suckers will be maintained for next planting. Unnecessary suckers are destroyed to divert nourishment to the developing bunch.

Covering of bunches: Covering of bunches is an important cultural operation and art, mostly done using dry banana leaves collected and stored during the summer season. To protect against strong winds propping is usually done using bamboo poles. First support to the plant is given during March-April and second support is given after the bunch emergence. Bunches are first fully covered 20-25 days after bunching. After 45days, bunch covers will be removed, cleaned and again covered. In periods of heavy rain covering is repeated with fresh lot of dry leaves more than twice. (Plates 8,9,10,11,12,13).

Kazhchakula, the gift bunches:

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For production of *Kazhchakula* special care is given to the plant at all stages of its cultivation. Farmers care the plant as if they care their children and those specialized in *kazchakula* cultivation plant only 50 or less suckers every year. In order to increase the beauty and weight of bunches many traditional techniques are followed. Manuring and plant protection is according to strict schedule. Application of excess manure and incorrect proportion will result in fruit cracking and early release of immature bunch.

Covering of bunches, 20-25days after emergence, is very important in *kazchakula* production. When large scale cultivators take less effort in covering bunches, specialized farmers take more effort to cover the whole bunch intact protecting from sunlight and rain water. In bunches meant for Kazhchakula, *Maani /Kudappan* (male inflorescence) will be retained without removal. *Theeta* (rolls of dry leaves) are kept between

hands and fruits to improve orientation of hands and thus to enhance the beauty of the bunch. Some farmers even slightly massage fruits to add luster to the fruits making them more attractive. Bunch beautification will be continued in kazchakula market also, to add to the beauty of bunches. Dry banana leaf rolls will be inserted in between hands and fruits on bunches (Plates 18&19) to give better look and thus to enhance market prize. Fruits in such bunches will have the shape of elephant husk, with slight ridges than the ordinary Chengalikodan bunch produced with less care. A well matured fruit will have the colour of a ripened banana (golden yellow). Apart from specialized Kazchakula in cultivation. farmers Chengalikodan on large scale, keep a portion of their garden for production of Kazchakula

Marketing:

In general the demand for Nendran shoots up in Onam season and to meet the demand merchants directly purchase the bunches from the farmers' fields. Very often deals are made prior to harvest. In recent years Chengalikodan bunches are sold at Rs.55-65/kg during Onam. Farmers selling *Kazchakula* will get Rs.1500-3000/bunch according to the beauty and size of the bunch as a whole whereas retailers sell them for a fancy price of even upto Rs.5000/bunch. The best *Kazhchakula* will have great demand to offer in temples and to be given as special gift to dignitaries/ friends. (Plates 14,15,16,17,20,21,22,23).

k) Uniqueness

'Chengalikodan' Nendran banana, also known as 'Chengazhikodan' banana, is the most popular and traditional tasty Nendran cultivar of Thrissur district, Kerala, South India. It is believed that the name "Chengalikodan Banana" came from the term "Chengazhikode Banana" which derived the name from the area of origin of this cultivar viz. Chengazhikode area, in Wadakkancherry block in Thrissur Dst. Chengazhikode area derived its name from "Chengazhi Nambiyar", the land lords of the area.

Chengalikodan Nendran banana differs from other Nendran cultivars in growth habit, areas of original cultivation, physico-chemical properties of fruit, taste and fruit shape. This tasty variety of Nendran banana is famous for its characteristic taste, bunch shape and fruit colour. Fruits are very tasty with a sugar content of 26-30 percent and shelf life of 7-9 days. Unlike other Nendran bananas, Chengalikodan banana, when boiled, becomes soft and protrudes out through sides.

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The fruits are long (21-25cm), with pale yellow colour (Plate 27) for mature fruits. Ripened fruit have golden yellow colour for peel (rind) with red borders/patches known as 'kara' (meaning border in Malayalam) (Plate 28). Cylindrical shape of fruits with slight ridges is the characteristics fruit feature of Chengalikodan. Unlike other Nendran varieties having pronounced ridges, Chengalikodan banana have slight ridges giving it a ridge-less round look. Absence of persistent bracts on rachis gives beautiful appearance to the bunches.

The shape of bunches and orientation of fruits are also unique. The bunches are cylindrical in shape with fruits curved upward (obliquely, at 45° angle upward). The mature fruits have pale yellow colour and on ripening turns to golden yellow colour with red boarders/patches which determines its beauty and market price. Such beautiful bunches of Chengalikodan are particularly used as 'Kazhchakula' (Kazhcha means gift; Kula means bunch), to be given as offering to deities in temples (Plates 30&31), especially in world famous Guruvayoor Temple, and also as gift bunches to relatives and friends as token of culture/gratitude.

At harvest for bunches expecting premium price, peduncle and male inflorescence rachis will be retained. The slightly curved fruits and long male inflorescence rachis gives a look of elephant tusk and trunk to the bunches. Those bunches which are attractive are selected to be given as 'Kazhchakula' (gift bunch) to temples and dignitaries.

Chengalikodan banana requires particular traditional method of cultivation and bunch covering techniques with dry banana leaves, to create the attractive characteristic colour and shape for the fruits. Chengalikodan Nendran banana comes in AAB genome. It is mainly cultivated in organic way and duration of crop is 13-14 months. The unique fruit characters are provided below

1	Peduncle length	31-60 cm
2	Peduncle width	6-7 cm
3	Peduncle colour	Medium green
4	Bunch position	Hanging vertically
5	Bunch shape	Cylindrical
6	Bunch appearance	Lax
7	Rachis type	Present and male bud persistent
8	Rachis position	Falling vertically
9	Rachis appearance	Neutral male flowers on the whole stalk without persistent bracts
10	Rachis length	2.5-3 feet
11	Bract base shape	Small shoulder
12	Colour of bract external face	Dark pink purple
13	Fruits	Biseriate
14	Fruit position	Curved upward(obliquely, at 450 angle upwards)
15	Fruit length	20-25 cm
16	Fruit shape(longitudinal curvature)	Straight (or slightly curved)
17	Transverse section of fruit	Slightly ridged
18	Fruit apex	Lengthy pointed
19	Remains of flower relicts at fruit apex	Base of style prominent
20	Fruit pedicel length	3-5 cm
21	Fruit pedicel width	10 mm
22	Immature fruit peel colour	Medium green
23	Mature fruit peel colour	Light yellow, with red patches

24	Fruit peel thickness	3-4 mm
25	Fruit pulp colour in maturity	Orange yellow
26	Fruit weight	180-310 g/fruit
27	Sugar content (%)	26-30
28	Acidity	0.31-0.60
29	Shelf life	7 - 9days
30	Ripened fruit peel colour	Deep golden yellow, with red patches

Inspection body:

Inspection body will be constituted with the following members

- 1. Director of Research, Kerala Agricultural University, Thrissur
- 2. Co-ordinator, IPR Cell, Kerala Agricultural University, Thrissur
- 3. Professor & Head, Banana Research Station, Kannara, KAU, Thrissur
- 4. Principal Agricultural Officer, Thrissur District
- 5. President, Chengalikodan Banana Growers Association, Erumapetty, Thrissur
- 6. Secretary, Chengalikodan Banana Growers Association, Erumapetty, Thrissur
- 7. Agricultural Officer, Krishibhavan, Erumapetty, Thrissur district
- 8. Three farmer representatives cultivating Chengalikodan Nendran Banana in Thrissur district.

Along with the Statement of Case in <u>Class 31</u> in respect of <u>Chengalikodan</u> <u>Nendran Banana and its products</u> in the name of Chengalikodan Banana Growers Association, Erumapetty, Thrissur whose address is

Sri.Gopi.T.S,

Secretary, Chengalikodan Banana Growers Association,
C/o Krishibhavan Erumapetty,
Erumapetty PO, 680584
Thrissur, Kerala

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.

- 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.

Director of Research, Kerala Agricultural University KAU (P. O), Thrissur – 680 656 Kerala, India

Esumapety, 20-3-2014.

Signature

T.S. GOP

Name of the signatory in block letters ARY

Secretary, Chengalikadam Banana Cirowers Association Ehumapety

FIGURES INDICATING HETHODS OF CULTIVATION, DOCUMENTATION
AND MARKETING.





Plates 1&2. Pits ready for planting





Plate 3&4. Planting in ridges and furrows





Plate 5&6. An established garden



Plate 7. Intercropping with Cowpea



Plate 8. Flowering



Plate 9. Bunch covering



Plate 10. Covered bunches



Plate 11. Covered bunches



Plate 12. Support for the covered bunch



Plate 13. Opening bunch cover



Plate 14. Ready for harvest



Plate 15. Harvesting and new planting



Plate 16. Harvest for Onam festival



Plate 17. To market



Plate 18. Bunch beautification



Plate 19. Bunch beautification



Plate 20. Kazhchakula in the market





Plates 21&22. Kazhchakula in the market



Plate 23. Kazhchakula in the market



Plate 24. Characteristics of pedicel



Plate 25. Fruit apex

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Plate 26. Fruit with slight ridges



Plate 27. Mature fruit shape & peel colour



Plate 28. Ripened fruit shape &peel colour



Plate 29. Value addition



Plate 30. Kazhchakula offering at Thrissur Vadakkumnadan temple



Plate 31.Kazhchakula offering at Guruvayoor temple

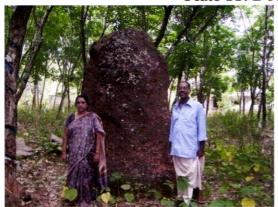


Plate 32. Documentation





Plate 33. Documentation





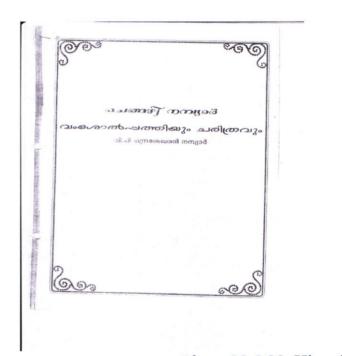
Plates 34&35. Historical proof- Kalnatty para

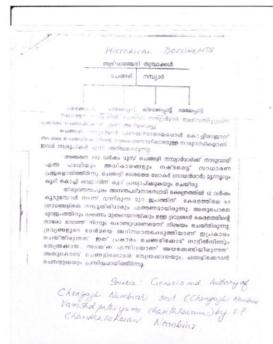






Plates 36 & 37 Historical proof - Chengazhi vally temple





Plates 38 &39. Historical Documents

Area of cultivation of Chengalikodan Banana in Thrissur District

