Advertised under Rule 41 (1) of Geographical Indications of Goods (Registration & Protection) Rules, 2002 in the Geographical Indications Journal 185 dated November 29, 2023

G.I. APPLICATION NUMBER – 833

Application Date: 15-02-2022

Application is made by Naarikisan Kashi Producer Company Limited at SA-14/109, Haveliya, Near Gandhi Ashram Railway Line Ke Kinare, Post: Sarnath, District: Varanasi - 221 007, Uttar Pradesh, India for Registration in Part A of the Register of **Chiraigaon Karonda of Varanasi** under Application No. 833 in respect of Karonda falling in Class – 31 is hereby advertised as accepted under Sub-section (1) of Section 13 of Geographical Indications of Goods (Registration and Protection) Act, 1999.

A) Name of the Applicant : Naarikisan Kashi Producer Company Limited

B) Address : Naarikisan Kashi Producer Company Limited

SA-14/109, Haveliya, Near Gandhi Ashram Railway Line Ke Kinare, Post: Sarnath,

District: Varanasi - 221 007, Uttar Pradesh, India.

Facilitated by:

 Department of Horticulture, Government of Uttar Pradesh,

2. NABARD, Uttar Pradesh

C) Name of the Geographical Indication:

CHIRAIGAON KARONDA OF VARANASI



D) Types of Goods : Class 31 – Karonda

E) Specification:

Chiraigoan Area of Varanasi District is much popular for Karonda cultivation. It is a well suited to arid climate and grown well at higher temperature. It is commonly uses for making ledge for orchards, karonda fruit is a rich source of iron and contains a fair amount of Vitamin C.

- The Chiraigaon karonda plant grows up to a height of 2 to 4 meter, with a thick grey bark holding branches that contain sharp spines, hence giving it the name of Christ's thorn. The leaves are oblong and conical in shape, green-brown in colour, from which bloom small white flowers.
- Upon developing, the unripe karonda fruit, a berry, is globular in shape with tiny seeds within, occurring in clusters of 3 fruits.

- Chiraigaon Karonda of district Varanasi is unique, superior and attractive maroon coloured.
 Fruit weight was higher (10 g) with less no. of seeds fruit-1 (3) with excellent blend of TSS (9.5 B) and acidity (1.10). Higher vitamin C (28 mg 100 g-1) content with attractive maroon coloured fruits.
- Morphological and biochemical categorization of karonda accessions into different groups provided important information. Chiraigaon of district Varanasi Karonda has unique and superior in term of fruit colour (attractive maroon), fruit weight (10 g), number of seeds (3 fruit-1), TSS (9.5 °B), acidity (1.10) and vitamin C (28 mg 100 g-1).
- Mature fruit contains high amount of pectin. The fruits are used for pickle making. It is also used for Jam. Jelly, Squash, Syrup, Chutney etc.
- There are good demand Karonda products in market. Karonda has good nutrition value. It is rich in Iron,
- The fruits also contains vitamin C and It is anti scorbutic and very useful for cure of anemia. Karonda fruits are used in many ayurvedic formulations and us to their nutritional values.
- The extract of root is used for Chest pain.
- The extract of leaves is used for fever.
- Karonda belongs to Apocynaceae family. It produces berry-sized fruits that are commonly
 used as a condiment or additive to pickles and spices. It is a very hardy, drought-tolerant plant
 that thrives well in a wide range of soils.
- The Chiraigaon Karonda plant grows up to a height of 2 to 4 meter, with a thick grey bark holding branches that contain sharp spines, hence giving it the name of Christ's thorn. The leaves are oblong and conical in shape, green-brown in colour, from which bloom small white flowers.
- Upon developing, the unripe karonda fruit, a berry, is globular in shape with tiny seeds within, occurring in clusters of 3 fruits. The unripe fruits have a tart, sour taste, being greenish-white in colour and once ripened, turn dark red or purple, secreting a tasty liquid content inside with a delicious sweet flavour.
- Karonda is a medium sized, thorny shrub It has a greenish white bark on young shoots and grayish brown on mature stems. The spines are straight and 1-3 cm long. At times, these are also forked. Its leaves are opposite, generally 2-3 cm x 1-1.5 cm, and ovate. They are green with shine above and a dull green shade below. Old leaves keep shedding throughout the year. New buds also keep sprouting through the year, though more during spring. Karonda flowers from February to June.
- The flower of these are white, scented and produced in clusters of 2 to 5 flowers. The corymbose cymes appear at the ends of twigs.
- The fruit is a globose berry. It appears from March to August and ripens between May and December. Immature fruits are green in colour and turn to white to reddish purple at maturity. These are round to oblong, sweet, though slightly acidic, juice when fully ripe.
- Karonda wood is hard, straight-grained and use for firewood purpose. The green plant serves as a protective hedge around agricultural holdings.

F) Description:

Karonda is much popular in Varanasi district, specially in Chiraigaon block and nearby blocks with the reputation and fruit, Murabba, Achar, Chutney, Jam, and going across the country and abroad too with the quality.

Whole plant and its parts are traditionally used for treatment of various ailments. Fruits of this plant are berry sized, commonly used for preparation of chutney, pickles, jelly, jams, squash, tarts, etc.

They are very rich source of iron and vitamin C, therefore, used ethno-medically for curing anemia and scurvy, as an astringent and forms remedy for biliousness.

It is even consumed to treat liver dysfunction, to break fever and to prevent putrefaction of blood.

Chiraigaon district Varanasi was found unique and superior in term of fruit colour (attractive maroon), fruit weight (10 g), number of seeds (3 fruit-1), TSS (9.5 °B), acidity (1.10) and vitamin C (28 mg 100 g-1).

Morphological characterization of Chiraigaon Karonda

Fruit weight (gm) - 10
Fruit length (mm) - 17.0
Fruit diameter (mm) - 19.0
Seed weight (g) - 14.78
Leaf length (mm) - 48.7
No. of Seed fruit-1 - 3

Nutritional value of Ripe Karonda

The Karonda fruit are rich in Thiamine (B1), Riboflavin (B2), Pantothenic acid (B5), Pyridoxine (B6), Biotin (B7), Folic acid (B9).

The sour fruits of Karonda may be eaten raw but the more acid ones are best stewed with plenty of sugar. The ripe result includes excessive quantity of pectin. Therefore, it's also utilized in making jelly, jam, squash, syrup, tarts and chutney, that are of brilliant call for in global market. The leaves and bark are wealthy in tannins.

The Karonda tree has many makes use of as it's far used in conventional medicine, and present-day scientific studies has observed that it has many useful properties.

The fruits have astringent properties and have been used for tanning and dying. Traditionally Karonda has been used to deal with anorexia and insanity.

G) Geographical area of Production and Map as shown in page no:

The Geographical Area of production of Chiraigaon Karonda of Varanasi is Varanasi district of Uttar Pradesh, India.

Varanasi District is situated 25°.20'N latitude and 83°.00'E longitudes.

H) Proof of Origin (Historical records):

Varanasi is one of the Eastern most district of Uttar Pradesh. It occupies part of middle Ganga plain – East and covers an area of 1535.0 sq. km. It is located between the parallels of 25.15 – 25 34' north latitude and 82.50 – 83. 15' cast longitude. It is bounded by Sant Ravidas Nagar (Bhadohi) district on the west, Jaunpur on the north and west, Ghazipur in some parts on the north-east, while Chandauli district bounds it from the east and Mirzapur district from the south. The sacred river Ganga flows across the district in semi circular fashion.

Climate of the district is almost of sub tropical mansoon type. The month of January and February are cold ones when the westerly and north westerly winds blow, some times it extends up to March as well, when it is followed by winter rains. Normally from the month of March, mercury starts

shooing up which sets in hot weather. Towards the end of June the rising temperature reaches its peak. After which mansoon commences to give some relief that continues up to September. From October onwards night start gradually cooling down but days are brighter and sunny. In fact October to December are transitional months when the weather is pleasant and neither too hot nor too cold. August is the month when rainfall is maximum.

Cultivation Topography of village Chiraigaon: Latitude - 25.18 Longitude - 82.9 Altitude - 65

Chiraigaon is a Town in Chiraigaon Block in Varanasi District of Uttar Pradesh State, India. It belongs to Varanasi Division. It is located 9 KM towards East from District head quarters Varanasi. It is a Block head quarter. Ladhupur, Rustampur, Dinapur, Raghunathpur, Salarpur are the nearby Villages to Chiraigaon. Chiraigaon is surrounded by Varanasi Block towards west. Chiraigaon block of Varanasi shares border with Chandauli District. Chandauli District Chahniya is East towards this place. Chiraigaon block is very fertile for cultivation of horticulture and agriculture products.

Soils: The whole district forms part of the Gangetic plain, and ite geology exposes nothing beyond the ordinary alluvium. The northernmost outliers of the Vindhyan hills are in Mirzapur to the south, and rock never appears in Benares. The depth of the alluvium has never been proved; but sections obtained by sinking wells generally give some 35 feet of loam, or clay mixed with sand in varying proportions, 30 feet of blue silt, 20 feet of strong clay and below that a water-bearing stratum of reddish sand. Topographically the district may be divided into two main tracts, one being the level upland plain known here as the uparwar and the other the tar iy or moist lowlands in the basin of the Ganges.

The two are separated by a clearly defined bank of varying height which marks the extreme flood limit of the river. But not only does the nature of the bank vary from place to place, depending as \voll on the character of the soil as on the direction taken by the stream in its winding course, but there is a great difference between the various parts of these two main tracts, the predominant factors being the slope and level of the country.

References:

Chiraigaon Karonda is a very old horticulture product of this geographical area since generations. Several gazetteers, research papers published BHU Varanasi and different product of different academic institution, media, historical books and farmers as well as producers of this area has prominently discussed about the importance, utility and benefit of Chiraigaon Karonda. It is nice in taste, aroma, color, medical benefit.

1. International Journal of Economic Plants 2020, Physico-Chemical Studies on Maroon Coloured Karonda (Carissa carandus) Collected from Uttar Pradesh, India Vijay Singh Meena, Bhanu Pratap, K.C. Bhatt, K. Pradeep, N. L. Meena, Ashok Kumar and Kuldeep Singh, Indian Council of Agricultural Research-NBPGR, New Delhi (110 012), India; Acharya Narendra Deva University of Agriculture and Technology, Kumargani, Ayodhya, Faizabad, Uttar Pradesh - Morphological and biochemical categorization of karonda accessions into different groups provided important information. Accession no. IC-0632675 collected from Chiraigaon district Varanasi was found unique and superior in term of fruit colour (attractive maroon), fruit weight (10 g), number of seeds (3 fruit-1), TSS (9.5 °B), acidity (1.10) and vitamin C (28 mg 100 g-1). This work will help karonda breeders for further improvement through conventional and non-conventional breeding approaches. Genetic variability of Karonda, in different district of Uttar Pradesh during 2019-20. Augmenting germplasm is the first and the foremost activity indeed required for this fruit crop improvement as vast diversity still present in different ecosystem. Being a rich source of iron and minerals, it has potential to improve socio economic status and nutrition standard of Indian rural population.

I) Method of Production:

Climate: Karonda is a handy fruit. It can be grown successfully is tropical and subtropical climate plant growth is affected in high rain fall and waterlogged areas. High temperature and arid climate is suitable for karonda cultivation. Temperature climate with high frost and snowfall areas are not suitable for this fruit. As the plants are sensitive for low temperature and front injury. The water logged areas of tropical and subtropical regions are not suitable for it cultivation.

Tools: Kudal, Fawada, Khurpi.

Propagation: Karonda is propagated through seed propagation and vegetable propagation methods such as cutting, layering and budding. Seed Propagation Karonda plants can be multiplied through seed very easily. Seed propagation is mostly commonly used methods in Karonda. The seed should be collected immediately after harvesting. The seeds sown immediately after extraction give higher germinated. Seeds are shown in trays and these seedlings are transplanted in poly ethylene bags at 3-4 leaf stage. The plants because ready for planting in 8-10 months. The germination in seedless or less seeded varieties is low. The plants produced from seeds have lot of variability with respect to fruit size, colour, taste etc. Thus it is not preferred for multiplication of varieties and elite lines. Vegetative propagation: Stem cutting, air layering and budding are used for multiplication of varieties / elite lines to produce true type planting material.

Cuttings: The semi hard wood cuttings are suitable for multiplication of plants. Generally, 25-30 cm long and 1' diameter cuttings may be used for propagating plants. The best time for planting cutting is June –July. The semi hard wood cutting planted during July - August gave 30 -40 % success as compared to hard wood cutting and soft wood cuttings.

Air layering: The air layering of Karonda plants was found successful well performing during June – July. The success rate was variable from 30-60% in different years. The air layers were removed the plants in the month of September and planting in polythene bags and they become ready for planting after 6-7 months.

Planting: The soil should be levelled before planting and all the old plants need to be removed. These pits filled with FYM and soil mixture to one by one different time of planting of this June-July. Karonda is planted at 3X3 meter distances in square. The method of planting the pits of 3X3 ft.size should be prepared at least one month before planting.

These pits are filled with equal amount of FYM and soil mixture. The proposed time of planting of this is June-July. The land should be cleaned and leveled with a mild slope in the opposite direction of the water source. The hedge plating of karonda is done at 2 fit

distances. The hedge planting trench of 1x1 feet size is done. The pits of 1x1 feet can be also made instead of trench. For planting of orchards, the planting is done at 3x 3 m distance with square system. The pits of 2x2 feet size should dug before rainy season.

Watering is done immediately after planting for proper establishment. Subsequently the plant is regularly irrigated till it is properly established.

Manure and fertilizer: Chiraigaon Karonda is cultivated in a traditional method and applying organic manure. The orchard Manure and fertilizer Balanced nutrition is considered to be the most important which determines productivity and quality of the fruit. Karonda responds to exogenously applied manure and response varies depending upon cultivar and soil types. Organic Manure, compost, vermin compost, other natural ingredients has used at the time of plantation and on the different intervals according to the demand.

Irrigation: Water requirement of Karonda could be very low. Irrigation after planting and manuring is essential. However, if there's no rain for the duration of the improvement of fruit, one irrigation can be given. This will boom the fruit size.

Training and Pruning: Karonda plant has comparatively weaker stem in initially years .Thus it is necessary to provide support after planting. The plant has tendency to produce several branch just above ground surface. The branches which are emerging near the ground surface need to be removed for convenience in cultural operations.

Training of the plant in the initial stage is essential to provide the required framework. Unwanted branches should be pruned to provide definite shape and to promote growth of the trunk and crown of the tree. Three to four branches 30-45 cm from ground opposite to each other are allowed to form the proper frame of the tree. The branches should be trained in open centre system for better production. The training of plant is performed only in first two years. Once the plant is big the pruning is required to maintain the size of the plant.

The Karonda plant grows slowly in arid areas and required comparatively less pruning but in humid and tropical region of the plant grow very vigorously. Heavy pruning is required every year. This help in maintaining tree size and producing regular yield. Further, water suckers, crowded and crisscross branches are removed to facilitate better growth. The branches with narrow angles are also avoided. Dried, and diseased branches should also be periodically removed. Pruning is generally performed in the month of October. Karonda planted for hedges purposes need not be trained in this manner and 3-4 branches are allowed to near ground level to make a compact hedge. The hedges are trimmed after harvesting of fruits.

Inter crop: Karonda is generally grows in dry soil where water facilities are not available some vegetables are can be grow during rainy season. During the initial period of establishment, the space between the plants can be utilized for planting of intercrops. These give additional income in the initial stage of planting without competing with the main crop. Cowpea, french bean, okra, brinjal or other suitable crops of the regions are grown as intercrops. In the mature karonda orchards, green manure cropsmay be grown and incorporated into the soil, which improves its fertility, moisture holding capacity and physical condition.

Water Management: Karonda is a hardy plant. The newly planted plants should be given irrigation. Young plants should be irrigated at 10-15 days interval in the winter and 6-7 days in summer season. The basin or flood method of irrigation is normally practiced. However, adoption of drip irrigation has been found to be effective in the economic use of water and enhanced growth. The adults orchards are generally not irrigated. Mulching with dry leaves or residues in the basin helps in moisture conservation.

Harvesting and yield: Karonda plant starts yielding after 3rd year. In Western Ghats flower starts in December to March and fruit mature in the month of April to June. The maturity of fruits is judged on the basis of change in colour. All fruits generally do not mature at one time therefore harvesting is generally done 3-4 times. Harvesting is done manually. The harvesting of fruits with stock helps to minimum the oozing of latex by fruits and enhances quality and storage of fruits. A plant may yield 4-5 kg fruits. The promising lines planted as orchard may yield 10-15 kg per tree. The fruits can be stored for 3-4 days under room temperature. The fruits used for making jam, candy and pickles.

Storage of Karonda Fruit

For the fruits to come a long way, it is suggested to store in the refrigerator and in room temperature, they are expected to come three to four days long. Irrespective of the environment type, they are to come just a week time or so, hence it is good to consume then and there. The fruit, does, however,

freeze well. They can either be packed loosely in a large freezer bag, or can be de-seeded and boiled into syrup form beforehand.

J) Uniqueness:

Chiraigaon Karonda is a very old horticulture product of this geographical area since generations. Several gazetteers, research papers published by BHU Varanasi and different academic institution, media, historical books and farmers as well as producers of this area has prominently discussed about the importance, utility and benefit of Chiraigaon Karonda. It is nice in taste, aroma, color, medical and nutritional benefit.

Chiraigoan Area of Varanasi District is much popular for Karonda cultivation. It is a well suited to arid climate and grown well at higher temperature. It is commonly uses for making ledge for orchards.

- Chiraigaon Karonda of district Varanasi is unique, superior and attractive maroon coloured.
 Fruit weight was higher with less no. of seeds fruit with excellent blend of TSS and acidity.
 Chiraigaon Karonda fruit is a rich source of iron and contains a fair amount of Higher vitamin C content with attractive maroon coloured fruits.
- 2. The unripe fruits of Chiraigaon Karonda have a tart, sour taste, being greenish-white in colour and once ripened, turn dark red or purple, secreting a tasty liquid content inside with a delicious sweet flavour.
- 3. Chiraigaon Karonda is a medium sized, thorny shrub It has a greenish white bark on young shoots and grayish brown on mature stems. The spines are straight and 1-3 cm long. At times, these are also forked.
- 4. Fruit is slightly sour and astringent in taste. Its cultivation also use as fencing bush in the surrounding of farm field for the protection and as well for the Income generation activities to the farmers as high value fruit.
- 5. The flowers of these are white, scented and produced in clusters of 2 to 5 flowers. The corymbose cymes appear at the ends of twigs.
- 6. Immature fruits are green in colour and turn to white to reddish purple at maturity. These are round to oblong, sweet, though slightly acidic, juice when fully ripe therefore it is also used in making jelly, jam, squash, syrup, tarts and chutney which are of great demand in international market.
- 7. Fruit is used for preparation of Chutney, Murabba, Jelly, Pickle and preserve.
- 8. The ripe fruit having anti-scorbutic properties is reported to be cooling, acidic and useful in bilious. Fruit is slightly sour and astringent in taste.
- 9. Chiraigaon Karonda wood is hard, straight-grained and use for firewood purpose. The green plant serves as a protective hedge around agricultural holdings.
- 10. Chiraigaon Karonda is a rich source of iron and minerals, it has potential to improve socio economic status and nutrition standard of this geographical area.
- 11. The Chiraigaon Karonda tree has used in conventional and Aurvdic medicine. Chiraigaon Karonda fruits are used in many ayurvedic formulations and us to their nutritional values.
- 12. The extract of root is used for Chest pain.
- 13. The Chiraigaon Karonda fruits have astringent properties and have been used for tanning and dying.
- 14. Traditionally Chiraigaon Karonda has been used to deal with anorexia and insanity.
- 15. Chiraigaon Karonda is good appetizer. Usually the fruit is pickled before it gets ripened. Ripe Karonda fruit contains high amount of pectin.

K) Inspection Body:

- 1. One Representative from Department of Horticulture/Agriculture, Government of Uttar Pradesh having office at Varanasi region.
- 2. One Representative from concern District Administration.
- 3. Representative from NABARD, Varanasi, Uttar Pradesh
- 4. One Representative from Traders and Exporters of GI Product.
- 5. One Representative of related applicant FPO (Farmers) / NGO.
- 6. One Representative of related Producers / cultivators / farmers and related Awardees.

L) Others:

Health benefits of Karonda Fruit

The fruit of Chiraigaon Karonda is an astringent, anti-scorbutic and acts as a remedy for biliousness bad digestion, stomach pain and constipation since generation. It is also a great cure for anemia. It is also used to treat skin conditions. Traditionally, it has been used to treat anorexia and insanity. Leaf decoction is used to treat fever, diarrhea, and earache. The roots serve as a stomachic, an anthelmintic medicine for itches and also as insect repellents.

The entire plant has medicinal values. Carissa carandas plants are used to cure various diseases such as asthma, skin disease, cough, cold and tuberculosis. They usually are prepared as fresh juices rather than boiling water and decoction leaves and flowers of Karonda and Juice from the leaves play an important role in this matter.

Traditional and Ayurvedic uses and benefits of Chiraigaon Karonda Fruit:

- Ascaris: Consume 10 ml root decoction of Chiraigaon Karonda twice a day.
- **Biliousness**: Consume 4 gram unripe fruit of Chiraigaon Karonda once a day.
- Fever: Make leave decoction of Chiraigaon Karonda. Drink a cup of it twice a day.
- **Internal Bleeding**: Eat 10 gram ripe fruit of Chiraigaon Karonda once a day. It helps to cure internal bleeding.
- **Bleeding gums**: Consuming 1-2 fruits of Chiraigaon Karonda regularly are beneficial for bleeding gums. **Abdominal pains**: Consuming 1 gram powder of Chiraigaon Karonda root along with honey is beneficial for abdominal pain.
- Dry cough: 5 ml Leaf juice is mixed with honey and is consumed regularly to overcome dry cough.
- **Diarrhea**: 1-2 gram of unripe fruit powder along with root powder of Chiraigaon Karonda is beneficial for diarrhea and other abdominal diseases.
- **Abdominal problems**: Consuming 1-2 gram of Chiraigaon Karonda root powder is considered beneficial for abdominal problems.
- **Excessive Thirst**: Consuming 1-2 gram of unripe fruit's powder is beneficial for indigestion, anorexia and other problems.
- Anorexia: Consuming ripe fruits of Chiraigaon Karonda is considered beneficial for anorexia and other diseases with Pitta predominance.
- **Abdominal pain**: Consuming 1-2 gram flower powder of Chiraigaon Karonda is beneficial for abdominal pains.
- **Dysuria**: Paste prepared from 1 gram root along with milk is considered beneficial for Dysuria.
- Ascites: People suffering from ascites should consume leaf juice of Chiraigaon Karonda from 5 ml first day,10 ml second day until you reach 50 ml and after decrease the dose until you reach 5 ml. It is considered beneficial for ascites.
- **Menorrhagia**: Paste prepared from 1-2 gram Chiraigaon Karonda root along with milk is considered beneficial for menorrhagia.

- **Eczema**: Paste prepared from Chiraigaon Karonda root when applied over affected area is quite beneficial for eczema and itching.
- **Skin Disorders**: Paste prepared from ripe fruit of Chiraigaon Karonda when applied over affected area is beneficial for Eczema, itching and other skin related problems.
- **Itching**: Root paste is boiled in oil and the oil is then filter. Such oil when applied over affected area is considered beneficial for itching.
- **Ulcer**: Paste prepared from Chiraigaon Karonda root when applied over ulcer is considered beneficial.
- Fever: Leaf decoction 10-20 ml of when consumed regularly is quite beneficial for overcoming fever
- **Rhagades**: Paste prepared from Chiraigaon Karonda seeds when applied over the cracked foot helps to heal them faster.
- Mental Health: Regular use of fruits of Chiraigaon Karonda is quite beneficial for mental health.
- **Epilepsy**: Paste prepared from 5 gram Chiraigaon Karonda leaf and <u>yogurt</u> when consumed frequently is beneficial for epilepsy.

Different Use of Karonda Plant:

- White or yellow wood is hard, smooth and useful for fashioning spoons, combs, household utensils and miscellaneous products of turnery.
- Wood is occasionally burned as fuel.
- Thorny branches used as fencing material.
- Chiraigaon Karonda leaves have furnished fodder for the tussar silkworm. Paste of the pounded roots serves as a fly repellent.
- Traditional healers of Varanasi, use the different plant parts to cover the cancerous wounds and to kill the maggots.
- Wood is used for making household furniture and for turning.

