Advertised under Rule 41 (1) of Geographical Indications of Goods (Registration & Protection) Rules, 2002
in the Geographical Indications Journal 166 dated November 30, 2022

**G.I. APPLICATION NUMBER – 730**

Application Date: 30-12-2020

Application is made by 1. Department of Horticulture and Food Processing, Government of Uttar Pradesh, Kachahari, Varanasi – 221002, Uttar Pradesh, India and 2. Namami Gange Farmer Producer Company Limited at Village: Lohradih, Kapsethi, District: Varanasi – 221 403, Uttar Pradesh, India for Registration in Part A of the Register of **Banaras Pan (Betel Leaf)** under Application No. 730 in respect of Betel Leaf 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** : 1. Department of Horticulture and Food Processing, Government of Uttar Pradesh
2. Namami Gange Farmer Producer Company Limited

**B) Address** : 1. Department of Horticulture and Food Processing, Government of Uttar Pradesh, Kachahari, Varanasi – 221002, Uttar Pradesh, India; and
2. Namami Gange Farmer Producer Company Limited at Village: Lohradih, Kapsethi, District: Varanasi – 221 403, Uttar Pradesh, India.

**Facilitated By:**
District Administration,
Government of Uttar Pradesh

**C) Name of the Geographical Indication** :

**BANARAS PAN (BETEL LEAF)**

**D) Types of Goods** : **Class 31** – Betel Leaf

**E) Specification:**

The Banaras Pan leaf is a dioeciously (male and female plants are different) shade loving perennial root climber. Piper betel vine is a tropical shade loving perennial evergreen vine. It climbs as high as 6 -10 ft in Varanasi condition. The Pan, betel leaf prefers a warm and humid climate. Leaves are simple, alternate, ovate, cordate, acuminate or acute, entire and bright green.

Banaras is most important Centre in the country known for Banaras Pan.

**Classification of Pan (Betel Leaf):**

Family - Piperaceae
Genus - Piper
Species - Betel

Banaras leaf has highest concentration of Tannins. Banaras Pan all the leaves taken in to concentration for comparison concludes that Banaras Pan has lowest chlorophyll and Carotene content therefore the color of Banaras Pan is yellowish green. Banaras Pan showing high content Tannins. Tannins are condensed polyphenolic compounds. They bind with Iron irreversibly and interfere with its absorption. At the same time, Vitamin-C which was found to be in the range of 12 to 19µg/ml/gm, is a strong reducing agent. It helps in absorption of dietary Iron by keeping it in the reduced ferrous form. Copper also helps in Iron absorption. Vitamin-C is essential for Tryptophan hydroxylation step in the synthesis of serotonin

The Banaras Pan leaf is a dioeciously (male and female plants are different) shade loving perennial root climber. It may climb as high as 8 -15 ft. The Pan, betel leaf prefers a warm and humid climate. Leaves are simple, alternate, ovate, cordate, acuminate or acute, entire and bright green. This plant has Male spikes which are dense and cylindrical while female spikes are pendulums. Roots arise from each node which aid in fixing the plant to the host tree. The color of pepper betel is yellowish green to dark green with glossy upper surface whereas the odor is characteristic and pleasant. The betel leaves are aromatic with varied taste, ranging from sweet to pungent due to the presence of essential oils.

In the Banaras, still the traditional cultivation is going on from the time of Akbar and the Pan growers are making 200 Pan in a bundle is called Dholi

**Banaras Pan Leaves have highest concentration of tannins and lowest of total sugars.**

Total tannins mg/gm leaf - 97.143
Total sugars mg/gm leaf - 67.317

**Chlorophyll Content:**

| Season | Total Chlorophyll (%) | Total Chlorophyll a(%) | Total Chlorophyll b(%) | Carotene (%) |
|---|---|---|---|---|
| Summer | 0.0930 | 0.0537 | 0.03841 | 10.8302 |
| Rainy | 0.244858 | 0.14503 | 0.097348 | 13.5634 |
| Winter | 0.29405 | 0.160478 | 0.13076 | 23.2326 |
| Average | 0.21064 | 0.11974 | 0.088840 | 15.8754 |

**Proximate Analysis - pH of leaf extracts**

| Test | Benarasi leaf powder |
|---|---|
| Colour | Brown |
| pH of 1% water extract | 6.50 |
| Ash content (%) | 12.50 |
| Water soluble ash (%) | 36.92 |
| Acid soluble ash (%) | 70.90 |
| Moisture content (%) | 15.00 |

**Banaras leaf extract: Light brown to Yellow**

Leaf varieties contain tannins, essential oil, alkaloids, sugars, protein, free amino acids, glycosides, lipids and saponins. The leaf section showed presence of glandular hair.

**Metal ion Content: Banaras leaf powder - The leaves are rich in Calcium**

| Metal Ion µg/ml/gm | Benarasi leaf powder |
|---|---|
| Zn | 19.50 |
| Ca | 14.650 |
| Fe | 104.615 |
| Cu | 8.54 |
| Cr | -- |
| Co | -- |
| Mn | 56.490 |

**Total Protein Content and Enzymatic Activity**

| Per gm of leaf | Banaras |
|---|---|
| Total protein mg/ml | 23.580 |
| Proteolytic activity- mg of protein digested/min/ml of Enzyme extract | 0.1502 |
| Specific activity- mg of protein digested/ min/mg protein | 0.0064 |
| Lipolytic activity-mg of free fatty acids released/ min/ml of Enzyme extract | 0.92 |
| Specific activity- mg of free fatty acids released/ min/mg protein | 0.039 |
| Glycolytic activity- mg maltose produced /min/ml of Enzyme extract | 0.03 |
| Specific activity- mg maltose produced /min/ mg protein | 0.0012 |

## F) Description:

Banaras is most important Centre in the country known for Banaras Pan and it has mentioned in the various historical books; articles; gazetteers and the popular song of a film – 'Khaike Pan Banaraswala, Khul jaye band akal ka tala…….

The trading Centre of Banaras Pan at Varanasi is called Pan Mandi which known as Pan-Dariba, daily turnover is nearly 12 – 15 lakh rupees per day and sometime mainly in the festival and marriage season, the Pan leaf demand has increased and the per day turnover crossed up to 20 lakhs rupees per day.

The major market area for selling Pan Leaf is old Pan-Dariba and new Pan-Dariba situated in a much densely populated area in old Varanasi.

The Banaras Pan leaf is a dioeciously (male and female plants are different) shade loving perennial root climber. Piper betel vine is a tropical shade loving perennial evergreen vine. It climbs as high as 6 -10 ft in Varanasi condition. The Pan, betel leaf prefers a warm and humid climate. Leaves are simple, alternate, ovate, cordate, acuminate or acute, entire and bright green.

This plant has Male spikes which are dense and cylindrical while female spikes are pendulums. Roots arise from each node which aid in fixing the plant to the host tree. The color of pepper betel is yellowish green to dark green with glossy upper surface whereas the odor is characteristic and pleasant. The betel leaves are aromatic with varied taste, ranging from sweet to pungent due to the presence of essential oils.

Banaras Pan plant is rich sources of various nutrients as well as ample amount of phytochemicals and antioxidants found in it. Banaras Pan show its different properties to cure different disease like anticancer, anti-mutagenic, anti-amoebic, antigiardial, anti-inflammatory, mosquito larvicidal, antimicrobial, immune modulatory, anti -ulcer genic, radio protective, antileishmanial, antifungal activity.

As well as it also cure bad breath, boils and abscesses, conjunctivitis, constipation, headache, hysteria, itches, mastitis, mastoiditis, leucorrhoea, otorrhoea, ringworm, swelling of gum, rheumatism, abrasion and cuts. It all possible due to presence of hydroxychavicol acetate, allylpyrocatechol piperbetol, isoeugenol, anethole, stearic acid, methyl eugenol, carvacrol, polyphenol, alkaloids, saponin, tannin and steroids in it.

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

Geographical areas of production of Banarasi Pan are Jaunpur, Chandauli, Balliah, Ghazipur, Azamgarh, Varanasi, Mirzapur, Sonbhadra in the State of Uttar Pradesh.

The Banaras Pan (Betel Leaf) is cultivated in the following districts of Uttar Pradesh namely:
**Varanasi** District is situated 25°.20' N latitude &83°.00' E longitudes
**Mirzapur** District - is situated 25°.15' N Latitude and 82.58' E longitude.
**Jaunpur** District situated 25°.46' NLatitude & 82°.44' East Longitude
**Chandauli** District is situated 26°.00' N latitude and 83°.16' E longitude.
**Ghazipur** District is situated 25°.19' North Latitude & 83°.40' E Longitude.
**Ballia** District is situated 28°.11' N Latitude&79°.22' E Longitude
**Azamgarh** District is situated 26°.03' N Latitude & 83°.13' E Longitude
**Sonbhadhra** District situated 25°.32' N Latitude & 82°.72' East Longitude

**H) Proof of Origin (Historical records):**

The Hindi term Pan for the quid has its root in the Sanskrit word parna for leaf. Another Sanskrit term for quid, vida, is the beeda of common current usage. The betel leaf does not possess a distinctive name of its own in any of the Indian languages or dialects. Throughout North India it is merely Pan.

The practice of chewing betel leaves after meals had become common (75 AD to 300 AD) as mentioned in **Charaka and Sushruta Samhitas and Kashyapa Bhojanakalpa.** During BC. 300 to 750 AD, after drinking some liquid following meals, betel leaves with some fragrant spices were chewed as it was believed to help in digestion, remove the phlegm, and make the mouth fragrant. Yuwan Chwang, the great Chinese traveler, received one hundred and twenty betel leaves and twenty betel nuts daily as part of his ration. During BC.730 to 1200 AD, chewing betel leaves with some spices after meals was common. Chewing betel leaves in presence of others without presenting to others was regarded as breach of social etiquette.

**Dharamshastra called Jyotirnibandha** (earlier than 1524 AD) containing 24 stanzas dealing with tambula; and Tamulamanjari of 1819 AD. In addition to the above manuscripts of social and religious nature, references are also found in agricultural treatises such as Kashyapiyakrishisukti by Kashyapa (c. 800 AD in Sanskrit), Vrikshayurveda by Surapala (c. 1000 AD in Sanskrit) (Sadhale, 1996),Lokopakara by Chavundaraya (c. 1025 AD in Sanskrit) (Ayangarya,2006), Krishi Gita (c. 15th century AD in Malayalam) (Mohan Kumar, 2008), Vishvavallabha by Chakrapani Mishra (c. 1577 AD in Sanskrit) and Nuskha Dar Fanni-Falahat by Dara Shikoh (c. 1650 AD in Persian)

In Ain-i Akbari, Abul Fazl elaborates the cultivation practices of Pan and provides description and properties of six types of leaves as Bilhari, Kaker, Jaiswar, Kapuri, Kapukant, and Bangla of the varieties of Akbar's period, Bangla and Kapukant and another variety Khas (known as Sanchi Pan) were grown in Bengal. At present, in North India, Desi, Calcutti, and Banarasi leaves are most favored.

The Deshi variety (also known as Bangla) is imported mostly from the districts of Jaunpur and Mirzapur. In tahsil Chandauli 2.77 acres of land produced pan in 1960-61. The villages of Derhaulia, Gurehun, Hingutar, Jagdishpur (all in pargana Mahaich), Mathcla (in pargana Mahuari) and Jairampur and Nadi (both in pargana Barah) are notable for the cultivation of betel leaf. In tehsil Varanasi the total area under this crop was 13.61 acres in 1960-61, of which 10.71 acres lay in the village of Bachhawan in pargana Kaswar and 2.93 acres in Kandwa in pargana Dehat Amanat. **(Ref.:** Uttar Pradesh District Gazetteer of Varanasi, 1965)

More than 50,000 Pan Shops are registered with the Varanasi Municipal Corporation. Ramesh Chandra, a betel leaf trader in Varanasi, says: "On an average, the monthly sale of betel leaves at the Varanasi Panmandi is to the tune of over Rs 50 crore.

**Pan leaf has importantly mentioned in the British period Gazetteer with the prominence of Banaras Division.**

1. In tehsil Varanasi the total area under this crop was 13.61 acres in 1960-61, of which 10.71 acres lay in the village of Bachhawan in pargana Kaswar and 2.93 acres in Kandwa in pargana DehatAmanat. **(Ref.:** Uttar Pradesh District Gazetteer of Varanasi, 1965)
2. **Ref.:** Imperial Gazetteer of India Provincial Series United Provinces of Agra and Oudh Vol. II – 1908 - Allahabad, Benares, Gorakhpur, Kumaun, Lucknow, and Fyzabad Divisions, and the Native States, Banaras
3. **Ref.:** Mirzapur District in This Gazetteer Commerce; The District exports stone, shellac, catechu, and other jungle. Produce, carpets, brass and iron utensils, grain, ghi, oilseeds, spices (chiefly betel), and raw silk; and in 1ports brass, iron.
4. **Ref.:** District gazetteer of Banaras 1908 - Traditional Tools in agriculture practices used in BANARAS mentioned gazetteer of British period Page no. 34
5. Several local and national newspapers have covered the story of Banaras Pan and its nutritional component as well as traditional cultivation method of Banaras Pan.
6. Banaras is most important Centre in the country known for Banaras Pan and it has mentioned in the various historical books; articles; gazetteers and the popular song of a film – 'Khaike Pan Banaraswala, Khul jaye band akal ka tala……..

**I) Method of Production:**

The Pan grower at Banaras has adopted traditional tools, method of production and trading pattern since generations. The Tools used by them is very traditional and locally made engineered by the growers.

**Tools:** Pan grower in his farming operations used small equipment like: spade, gainta, khurpi, ramma, kudal, sprayer, sarai, bamboo(bans), straw(patalo), rope(rassi).

**Raw Material:** In Varanasi, bareja vita structure is made up of locally available materials such as bamboos, khar, straw, jute, sticks, arhar stalks, munj and a variety of grasses.

**Soils:** Exceptionally well-drained, fertile soil, rich in humus, is the best for betel vine cultivation. It is grown in varieties of soils (sandy loam to clay). The best performance is noticed in upland having slight alkaline to neutral soil with 7 to7.5 pH . Soil with good water holding capacity and organic matter content is considered ideal. Loamy soil with a porous substratum below is also excellent. In both the sampled districts soils are fit for Banaras Pan cultivation.

**Selection of Pan Cultivation Site:** Pan which known as Betel vine or Betel Leaf is known to be very sensitive to stagnant water; therefore, selection of site for its cultivation requires adequate attention. Ideal place for Banaras Pan cultivation is Bhita (hump)

**Land Preparation**: For new plantation, deep digging up to one feet is done during early February month. After digging the field, the farmer put neem khali, mustard (sarso) khali and organic manure. After that upper soil is left exposed in sun for 15 days, because it reduces the microorganism population as well as soil borne pathogens. About 350 quintals of compost on per hectare basis is mixed in the soil. Thereafter bed is raised. The optimum size of bed is raised from place to place 3 feet to 4 feet and this gap of bed is called 'atar'. There are 6 lines in each 'atar'. and there are 600 'sarai'/sarkanda in one line Through this sarkanda, the Pan plant creeps up from 4 – 6 feet. The main aim for raising bed is to facilitate drainage and weeding (nirai) of the field.

**Preparation and Importance of Bareja**:Banaras Pan has to be grown in closed conservatories, locally called 'Barejas, with a view to protect the vines from desiccation in summer and cold in winter. 'Bareja' are generally rectangular in shape and its normal size is often 50 to 30 Sq metre. Generally barejas are small because its maintenance ought to be easy and their cost of erection is within manageable limits. In Varanasi, bareja structure is made up of locally available materials such as bamboos, khar, straw, jute, sticks, arhar stalks, munj and a variety of grasses. The construction of bareja looks like a mundop. Its height is about 3-5 metres. This is surrounded with thatched walls roof. The walls are strengthened with bamboo poles fixed at distance of about 2.0 metre each. The top roof is covered with thick straw with longitudinally divided bamboo poles supported by bamboo posts inside the bareja. The distance from one horizontal pole to another is about 2 metres to 2.5 metres. Criss cross supporting poles are used instead of erected poles. The wall and the top are covered with bamboo sticks and straw in order to protect the plants and soil surface from direct sunrays. Roof is thatched twice in a year, first at the time of construction of new bareja, and second, after the rainy season. Structure of the bareja is built strongly, so as to withstand strong winds and storms. This shape carries sound logic in terms of humidity and temperature control. The expected economic life of a bareja, on an average, is about five years from its erection.

**Traditional Features of Bareja**: Pan Plants require high humidity and mild temperature for their growth. In the study area humidity and temperature are very fluctuating from season to season. Thus, its cultivation is possible only by partially regulating the two critical factors. The design of bareja is such that it ensures suitable humidity levels within. Evaporation of water within the bareja not only raises the humidity, but also lowers the temperature. It is very crucial for plant survival during extreme summer, when low humidity coupled with high temperature can whither and damages the plants by photo inhibition. Blocking the intensity of light coming to the surface can effectively reduce the heating effect of solar radiation. The top of the bareja is designed to block check light by spreading dry leaves or straw at the top (MANDOP). During summer the thatching is thick so that more than 75.00 per cent incident of solar radiation is blocked. This reduces intensity of light falling on the tender leaves and soil, so that it could effectively check increase in air and soil temperature inside the bareja. During the rainy season when climate is most suitable for the growth of vines, the thatching on the top is reduced so that about 50.00 per cent of the incident of solar radiation reaches the leaves and soil. With the onset of winter when temperature starts falling, the grass cover at the top is increased to some extent in order to avoid frost and cold injury. During this period, the incident of light in the 25 bareja is more than in summer. The growth of plant during winter is very slow or even stopped.

**Plantation Time of Pan:** Pan planting season varies from one place to another across the state. In Varanasi, Mirzapur, Jaunpur, Azamgarh, Sonebhadra, Ghazipur, Ballia and Chandauli district (as Banaras Division – mentioned in the United Province of Agra and Oudh), it is planted during the last week of June to the last week of August. In the same mentioned districts it is also planted during the last week of February to first week of March. But the rainy season (July-August) is the most common season for spreading the planting material in sampled district. In this geographical area, Pan is generally planted and propagated between mid-February to mid-March, when climate is mild and nearly optimum for its growth. In the monsoon planting reduces mortality rate and cost

of maintenance of the new plants in new bareja. In the month of February-March, the mortality rate and cost of maintenance become higher.

**Volume and Number of Seed and Cuttings Used for Plantation:**

Generally cuttings with one or two nodes along with attached leaves are used as the propagating materials. The cutting having one node vine is found most economical. Before planting, furrows are constructed. The width of these furrows is about 50 cm. In the furrows ridges are constructed. In the ridges two rows of budded vine with a mother leaf is planted at 10 to 15 cm distance. For one hectare of planting, about 1,50,000 cuttings are required. The rate of seed/cutting varied with the variation of variety. It ranged from 1,25,000 to 1,60,000 for planting of one hectare of land. The length of sets varies considerably from region to region, but in Bihar, the sets are generally used at about 30-40 cm distance.

**Spacing in Pan Farming**:The optimum inter-vine spacing is the distance, which gives the highest economic return of betel leaves per unit area. Spacing is positively correlated with the canopy of the plant of a particular variety. In Varanasi and nearby district Deshi or Deshawari varieties are popularly grown in row to row spacing of 100 cm and 80 cm respectively. Planting is done with the help of khurpi. For planting, a hole is made with khurpi, so that the internodes below the bud pointis dipped in soil, but must be touching with surface soil. The hole is completely packed with the help of thumb finger. After that, planted material is covered with khar or straw. This planted Pan Plant needs to be watered twice a day with the help of watering cane or sprinkler. During irrigation special care is needed that after twenty days of continuous irrigation, cover on the plants needs to be removed. The newly planted bareja is maintained very carefully. Over irrigation is avoided. Alarger moist straw is spread on the planted vines to avoid evaporation.

**Manure Application** The nutritional requirement of Pan depends on the variety, type of cultivation, soil, climatic condition, etc. However, its requirement must be very much limited. It is a perennialcrop; fertilizer is applied at bi-annual intervals for ensuring optimal production of quality leaves. In a year, about 100 kg Nitrogen, 100 kg $P_2O_5$ and 150 kg $K_2O$ with cake are applied in four splits. During the application of fertilizer, sufficient moisture in the field is required. If soil cakes, such as: mustard cake, castor cake, karanj cake, neem cake are abundant, then only half of the recommended manure is used, and for the rest, farm organic fertilizers are added to the soil. Besides, inorganic and organic fertilizers, spray of zinc sulphate is also found good for high yield of the crop.

**Irrigation:** Banaras Pan is very fastidious in its water requirements. The plantation has to be located near the source of irrigation, which may be a pond, or tank, a canal, or irrigation well. Frequencies of irrigation depend upon intensity of light and humidity of atmosphere. During summer season, irrigation is given almost every day in the new plant and weekly in the old plant. During winter season, irrigation is reduced to a fortnight interval. During rainy season, ordinarily no irrigation is done, unless there are adverse climatic conditions. Excess of irrigation causes decay of roots and dropping of leaves. Irrigation in betel vine crop was given 27 through sprinkler or pot. The pot method is very costly because of intensive labour use needed in it.

**Inter culturing and Weeding in the Pan Field:** Keeping the plantation free from weeds in the Pan field, immediate removal is necessary for the better growth of Pan leaf. An advantage of growing Pan in closed conservatory or under shade is that it remains generally weed free. Only in a year during the month of November and in June, lowering of vines is done. The main aim of this practice is to give earthing to the vines lying on the soil surface. Thereafter, staking is done with the help of supporting materials. Each vine is supported with bamboo sticks or sharkanda - wooden sticks. Each supporting material in the Pan field is tied at the roof and inserted into the soil. When vine reaches to the roof of bareja, it starts lowering. Auxiliary branches are removed from the main

vine regularly in monsoon season. During monsoon all the leaves up to a height of 2 feet from the soil surface, are removed to reduce the infection of soil borne disease or pathogens. The growers keep the bareja always neat and clean.

**Harvesting:** Harvesting of leaves started after 6 months from the time of planting. It depends upon season and market conditions, financial needs of the growers and the condition of leaves. In the rainy season frequent harvesting is done. But the leaves were picked throughout the year when it became mature. The most common method of picking is hand picking. During the picking of leaves special care is taken by the growers that leaves are not harvested within 10 to 15 days of spray of pesticides. Roughly 30 lakh leaves were harvested annually from one hectare of land.

**Storage and Linking with Market:** Pandariba in Varanasi is very much important place for the marketing of Pan Leaf and maximum Pan growers of the related geographical area of Banaras Pan, which has also much popular as Desi Pan, has supplied their pan in the Pan Dariba at Varanasi. Azamgarh district has also much important Pandariba known as Pan ki Mandi.

**Making Pan Dholi –** This is a traditional practice and process for storage of Pan in a systematic manner and supplied to the various places in the traditional basket which is also much prominent of the storage of Pan. A bundle of 11,000 leaves was formerly called Lahasa but during Akbar"s time Lahasa was a bundle of 14,000. Bundle of 200 was called Dholi. In Banaras, the tradition is still going on.

## J) Uniqueness:

Banaras Pan Leaves are rich in many nutrients like water, energy, protein, fats, fiber, calcium and iron etc. and the antioxidants present are flavonoids, tannins, saponins alkaloids, terpenoids etc.Piper betel helps in curing various diseases like diabetes, hypertension, brain toxin, halitosis, boils and abscesses, obesity, wound healing, voice problems, conjunctivitis, constipation, headache, hysteria, itches, mastitis, mastoiditis, leucorrhoea, otorrhoea, ringworm, swelling of gum, rheumatism, abrasion, cuts and injuries etc.

Pan belongs to Piperaceae family. It is a vine and has heart shaped leaves. Traditionally the leaves are eaten as a quid in South East Asian countries. In India, besides this, the leaves are eaten as'Pan', after a sumptuous celebratory meal on special occasions. Also it is given to mothers during and after pregnancy. Betel leaf has been traditionally used for treatments like bad breath, constipation, ringworm, rheumatism and many more. The betel leaves are easily available appetizers, digestives and their chewing has been shown to reduce the pathogenic microorganisms in the sub gingival microflora. Eugenol which is a major essential oil present in betel leaves has been quantified. It has a lot of applications in food and cosmetic industry.

- Vitamin C was found in Banaras leaves - 18.46 µg/ml/gm
- The leaves are a rich source of calcium, iron and manganese and good source of copper and zinc. Zinc is essential for conversion of beta carotene to vitamin A.(14).
- Essential Amino Acid found in Banaras leaves
- Methanol and hexane, showed some common components in the leaves like Caryophyllene, Eugenol, Phytol, Naphthol and Butanol.
- The eating of 'Pan' after meals, or during and after pregnancy, there is considerable requirement of Calcium and Iron during pregnancy and lactation. The habit of chewing betel leaf can increase Calcium and Iron uptake.
- Banaras Pan leaf is rich sources of various nutrients as well as ample amount of phytochemicals and antioxidants found in it.

- Banaras Pan show its different properties to cure different disease like anticancer, anti-mutagenic, anti-amoebic, anti-giardial, anti-inflammatory, mosquito larvicidal, antimicrobial, immunomodulatory, anti ulcerogenic, radio protective, anti leishmanial, anti-fungal activity.

**K) Inspection Body:**

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

**L) Others:**

**Nutritional Ingredient and components in Banaras Pan Leaf:** Banaras Pan leaf have anti carcinogenic properties so the cause of oral cancer is not the betel leaves it a Banaras Pan leaf is very known to worldwide and consumed frequently as mouth freshener.

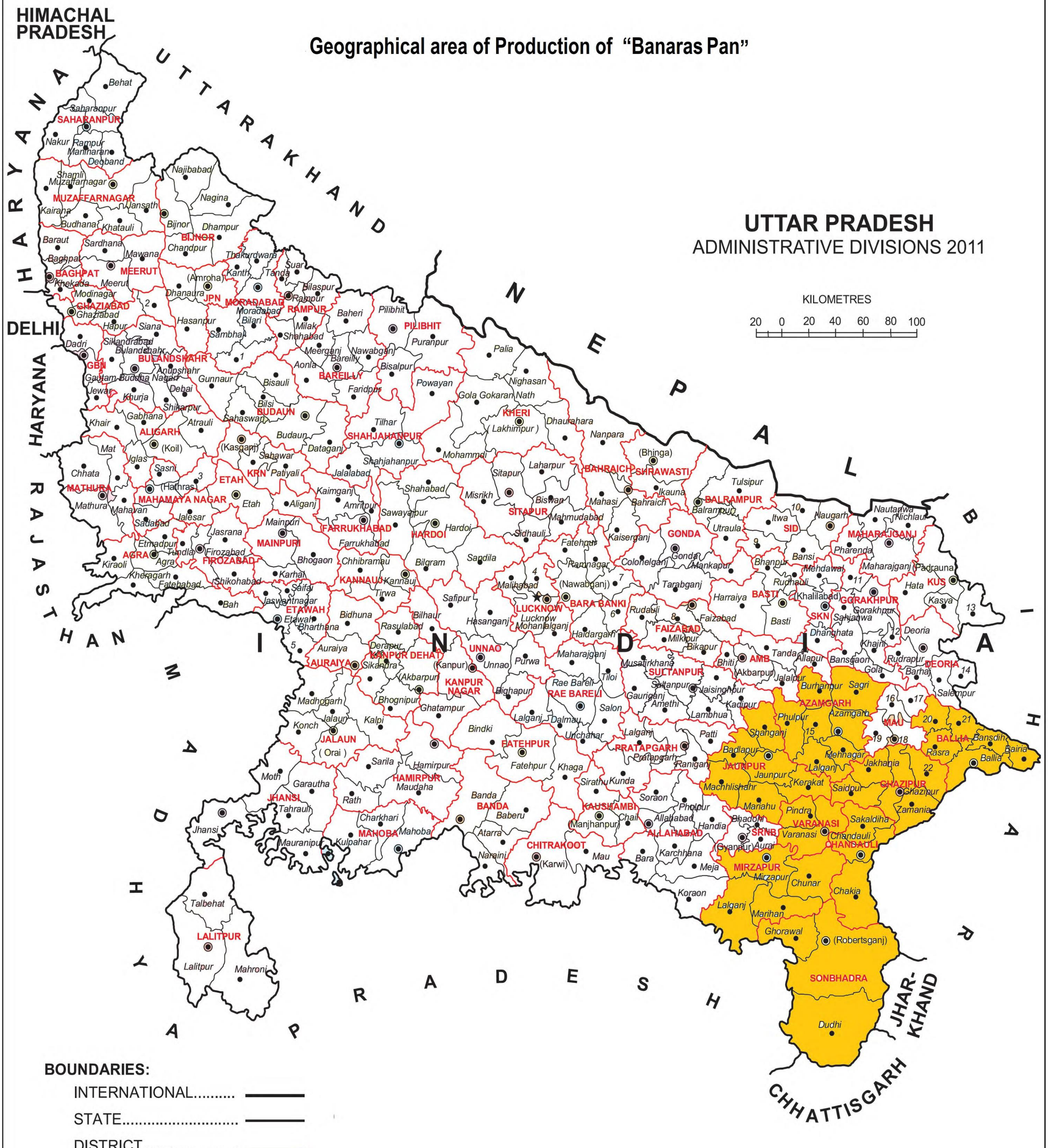
- These Banaras Pan leaves are rich in nutrients, antioxidant, phytochemical and in many nutraceuticals properties.
- Banaras Pan has several medicinal properties which is instrumental in curing several diseases
- It is a traditionally used plant since antiquities as medicinally useful due to the other carcinogenic containing ingredients.
- For curing obesity, one Banaras Pan leaf mix with Piper nigrum is prescribed for two months. Piper betel leaves also shows analgesic and cooling properties.
- Juice of Banaras Pan leaf with honey is accommodating to treat coughs, dyspnoea, and in indigestion, amongst children.
- Leaves of Banaras Pan leaf smeared with oil are useful on the breast of lactating women; it is supposed to promote milk secretion.
- For childhood and old people, leaves are mixed with mustard oil, warmed and are apply to the chest for treatment to reduce cough and dyspnoea.
- Oil used for irritation in throat, larynx, bronchi, gargle and inhalation in diphtheria.
- leaves used for curing eczema, lymphangitis, asthma and rheumatism
- Juice of leaves is used as stomachic and febrifuge.
- Banaras Pan leaf is advantageous in pulmonary infection in childhood and old age. The leaves mixed in mustard oil warmed and applied to the chest to relive cough and intricacy in breathing.
- Limited application of the leaves is efficient in procuring sore throat. The flattened fruit or berry should be mixed with honey and used to reduce irritating cough.
- Banaras Pan leaves are helpful for the treatment of nervous pain, nervous exhaustion and debility. The extract of few betel leaves, with honey serve up as a good tonic.
- On applied locally Piper betel leaves are valuable in the treatment of swelling such as arthritis and orchitis i.e. inflammation of the testes.
- A hot poultice of the leaves or their extract mixed with some bland oil as refined coconut oil which can be applied to the loins with beneficial results in lumbago.
- The leaves can also be used to heal wounds. The juice of the leaves should be extracted and applied locally to the wounds.

- According to Unani system, these leaves have a sharp taste and good smell which helps to improve appetite.
- It also used as a tonic for brain, heart and liver. It also helps to promote healthy teeth and skin.
- It helps in procurement of Disorders in physiological function of body, Skin diseases and several Eye diseases.
- Banaras Pan leaf also contains diuretic property. Juice of leaves given with milk or honey helps in easing urination.
- Banaras Pan leaf is used in aphrodisiac i.e. an agent that stimulates sexual desire.
- The essential oils which contains in the leaves are antibacterial, antiprotozoal and antifungal properties. Therefore, the oil kills or inhibits expansion of outrageous bacteria causing typhoid, cholera and tuberculosis etc. and helps in proper evaluation and exploitation. A leaf is lightly warmed till it gets soft, and then coated with a layer of castor oil. The oiled leaf is placed over the inflammation.
- The leaves are nutritive and hold considerable quantity of vitamins and minerals and therefore, six leaves with a small bit of slaked lime are said to be equivalent about 300 ml of cow milk mainly for the vitamin and mineral nutrition.
- Recovers bad breath, body odor and prevent tooth decay.
- Prevents and treats vaginal infection and reduce itching of the vagina. Stop bleeding in the nose.
- It contains vitamins such as thiamine, niacin, riboflavin and carotene.

Various research studies unveiled the antimicrobial potential of Banaras Pan (Piper betle L.) extracts. Ethanolic extracts showed the most effective result. The Pan leaves are a good source of natural antioxidant for the pharmaceutical industry,that will accomplish desirable therapeutic outcomes and can be of great potential as a health care resource for fighting against various pathogens.

Pan has a long association with India and its socio-cultural dimension. Even the great ancient physicians of our country were ecstatic about this vegetation and its usages. They prescribed numerous usages of betel leaves to cure a large number of illnesses. Gradually this South-Eastern Asian herb found its permanent place in Indian subcontinent and one day it took its cozy accommodation in our daily social lives.

# Geographical area of Production of "Banaras Pan"




*Where the district name differs from its headquarters name, the latter is given within brackets.*

The Banaras Pan (Betel Leaf) is cultivated in the following districts of Uttar Pradesh namely:

**Varanasi** District is situated 25°.20' N latitude &83°.00' E longitudes
**Mirzapur** District - is situated 25°.15' N Latitude and 82.58' E longitude.
**Jaunpur** District situated 25°.46' NLatitude & 82°.44' East Longitude
**Chandauli** District is situated 26°.00' N latitude and 83°.16' E longitude.
**Ghazipur** District is situated 25°.19' North Latitude & 83°.40' E Longitude.
**Ballia** District is situated 28°.11' N Latitude&79°.22' E Longitude
**Azamgarh** District is situated 26°.03' N Latitude & 83°.13' E Longitude
**Sonbhadhra** District situated 25°.32' N Latitude & 82°.72' East Longitude