2020

MAKHANA

A Healthy Future Begins With Healthy and Nutritional Foods

Product Information

Sumitra FOODS

A healthy future begins with healthy and nutritional foods

Empowering Women Entrepreneur

Sumitra Foods, Darbhanga-846004, Bihar, India

“ Where at every step one finds pond, fish and makhana
Where the language is sweet and good food ettiquettes.
A symbol of knowledge, wealth and peace
Such is Mithilanchal’s pride.”

Dedicated to Those That Works In Acres Not In Hours.

Makhana- An Important Crop

Euryale ferox Salisb is an aquatic crop, belonging to the family of Nympheaceae. It is commonly known as Makhana, Gorgon Nut or Fox Nut, and grown in stagnant perennial water bodies like ponds, land depressions, oxbow lakes, swamps and ditches. Makhana seeds are also called as Black Diamond. It is a plant of tropical and subtropical climate. It is a flowering plant native to Asia. It grows in water, producing large floating leaves with a quilted texture, bright purple flowers and starchy white seeds. Ecologically Makhana grows in shallow water bodies that have a certain amount of organic detritus accumulated at the bottom.

Distribution of Makhana is limited to tropical and sub-tropical regions of South East and East Asia. For its proper growth and development, the conducive range of air temperature is 20ºC - 35ºC, relative humidity 50% - 90% and annual rainfall 100cm - 250cm.

Botany

Makhana is a floating leaf emergent macrophyte. It does not bear stem but the rootstalks are short, thick and fibrous comprising 3 to 5 clusters, each consisting of about 15 rootlets. The plant roots make their way into the fine clay bottom soil while the plant shows very fast vegetative growth. The leaves are orbicular, floating and glabrous, green and corrugated above and pink or deep purple beneath, supported by stout, porous and prickly ribs. The full grown leaves are of 1.2 - 1.5 m in diameter. Petioles are prickly and deep green or pink. The flowers are about 5-6 m in diameter and are violet-blue or dark pink in color. Each plant produces 15-20 fruits, which are round, spongy and prickly outside. Each fruit consists of 20-25 seeds, which are small (0.75 cm in diameter), black and encrusted with a thick sheath around the white edible part.

It is a cash crop and marketed in the form of popped Makhana commonly known as Makhana Lawa. Makhana, primarily serves the purpose of being consumed as a food item for local and religious purposes. Being the non-cereal food, Makhana is a food item during the religious fast of various people.

Popped Makhana is used in preparation of a number of delicious and rich sweet dishes, pudding and milk based sweets. Apart from being consumed as sweets, it is also used a thickening object in curries to make it look rich. Roasted for of popped Makhana can also be consumed as a snack preparation. Apart from these, Makhana is used for medicinal purposes as well, both in India and China as documented in the ancient literatures. The seed is analgesic and aphrodisiac, hence used in the preparations of a number of Ayurvedic medicines.

Why Bihar is a Major Producer?

There are several factors that favour agriculture sector in Bihar. The state is now uniquely positioned to utilize its rich untapped natural resources such as fertile soils and abundant water. More importantly, it can avail of the benefits of increasing stress on the food processing sector at the national level. This can give the state at least a level playing field, if not a head start, in food processing provided certain critical interventions are undertaken. Considering the potential of the state economy and its existing resources, the Government of Bihar has decided to accord utmost priority to food processing sector in the state.

In the state of Bihar, major Makhana producing districts include Darbhanga, Sitamarhi, Madhubani, Saharsa, Supaul, Araria, Kishanganj, Purnia and Katihar. Approximately, 80% of total production of processed Makhana comes from Darbhanga, Madhubani, Purnia and Katihar districts alone. Out of these districts we have primarily focussed on Darbhanga and Madhubani.
Distribution of Cultivation of Makhana crop in Bihar.

In Bihar, area under Makhana cultivation is about 13,000 ha and accounts a total yield of 85%. Cultivation of Makhana is highly cumbersome, labour intensive and involve human drudgery while sweeping bottom of the water body for seed collection. It is followed by processing of raw seeds, which is equally painstaking activity. Fishermen community belonging to the weaker sections of the society is mainly involved in Makhana sector.

Makhana is a USP of state food processing sector and has rich potential to be developed as a snack item for high end consumers in the country. Recent studies show that Makhana has the ability to stand in competition to snacks like corn, oats and soya beans and thus, develop variety of products from Makhana Lawa. A large number of population, about 2.3 lakh people's, livelihood is solely dependent on Makhana cultivation and processing have main source of employment from it in both these districts of Madhubani and Darbhanga.

The Makhana cultivation and processing as micro family industries of this area has got 60,000 families engaged in these industries.
The most important aspect of these two districts is their very rich and fertile land, natural gift of perennial rivers. The climate over here is cooler and damper than that in the adjoining districts. The climate and land both are very suitable for various horticultural activities, such as cultivation of Makhana. From the recent three years, Makhana has gained quite a lot of importance, and hence the cluster has been under stress on promoting of the crop.

Nutritional Value

Thanks to the research on nutritious value of Makhana, it has become popular as a highly nutritious snack outside of its traditional and religious conotation.
Makhana pop is considered to be nutritious and healthy food with a protein content of 10 -12%. 100 gm of raw and popped Makhana gives a calorific value of 362 - kilo cal and 382 - kilo cal respectively.

Parameters	Raw Makhana Content	Pop Makhana Content
Carbohydrates	**76.9%**	**84.9%**
Protein	**9.7%**	**9.5%**
Fat	**0.1%**	**0.5%**
Moisture	**12.8%**	**4.0%**

Source: National Research Centre for Makhana, Darbhanga-84004, Bihar, India

From its root to the seeds, everything of it can be consumed in some form or the other. There are various uses attached to Makhana. Some of the uses are as follows –

• From edible point of view, Makhana is considered a superior dry fruit, as it is endowed with several rich & nutritional ingredients. Edible parts of the seeds contain 12.8% moisture, 9.7% protein, 0.1 % fats, 0.5% minerals, 76.9% carbohydrates, 1.4 mg/100g of iron and traces of carotene. The calorific value of raw and popped seeds of Makhana is 362 and 328 K Cal/100g, respectively. From nutrition point of view, the quality of Makhana protein is very superior to a number of food plants and animal based diets.

• Roasted Makhana pop is used as a snack item. It can be roasted with a small amount of desi ghee, and some salt and spices are added to it.

• Makhana pop are used in the preparation of a number of delicious and rich sweet dishes like Makhana kheer, vermicelli, halva, puddings and various other sweet dishes.

• Makhana pop is used for making curries like paneer Makhana, etc. It is used as a thickening object in the curries. Makhana raita is also tastier and digestive in nature.

• Instant Makhana Kheer mix is mainly constituted by Makhana, milk powder, sugar and a commonly available binder.

• Makhana is consumed as a non-cereal food by devotees during their fasts. Hence it solves the religious purpose. In every religion, Makhana is considered as the pious and divine food item. In Hindu religion, it is used in all the worshiping ceremonies, Various food items made out of Makhana pop.Hawan, Pooja etc. In addition to this, due to his heavenly nature, it is considered as the best offering to god and goddesses in temples. Even the Muslim Communities consume lot of Makhana during their festival of Eid.

Benefits of using FOX NUT 10-15 Gms. per day

• Strengthen kidney to preserve essence.
• Deprive dampness to relieves Leucorrhea. Globalization of the Makhana pop owing to its nutritional content.
• Toning the kidney to arrest seminal emission.
• Frequent urination protection.
• Strengthen the spleen to relieve diarrhea.
• Relieve numbness and aching near waist and knees.
• Anti Aging Effect
• Anti Oxidant

Cultivation- Of The Crop

Makhana is cultivated either in perennial water bodies having depth of 4-6 ft or in the field system. Before the onset of the crop season, water bodies are thoroughly cleaned off all the weeds and water hyacinth. Makhana plants germinate from the left over seeds of the previous season. Sprouting takes place by the early leaves appear on the pond surface.

Transplanting Method

Healthy and young plants of Makhana are transplanted in the month of March - April at a spacing of 1x1 mt. between row to row and plant to plant. Approximately after two months of transplanting, the bright purple and solitary flowers start to appear in unsynchronized manners. After 35-40 days of flowering, the fruits get fully developed and matured. The fruits and entire parts of Makhana are thorny. After getting full maturity, the spongy fruits of Makhana get start bursting. Upon bursting, the seeds float on the surface of water and after 2-3 days, they start to settle down in the bottom of the pond. The process of flowers' development and bursting of matured fruits continues up to the month of September. In the month of September/October with the help of a local device (Gaanja), all the accumulated seeds of Makhana are collected from the bottom of water bodies by professional labours. After 2-3 months of harvesting, the remaining seeds (left out during the collection) get start germinating during next crop cycle.

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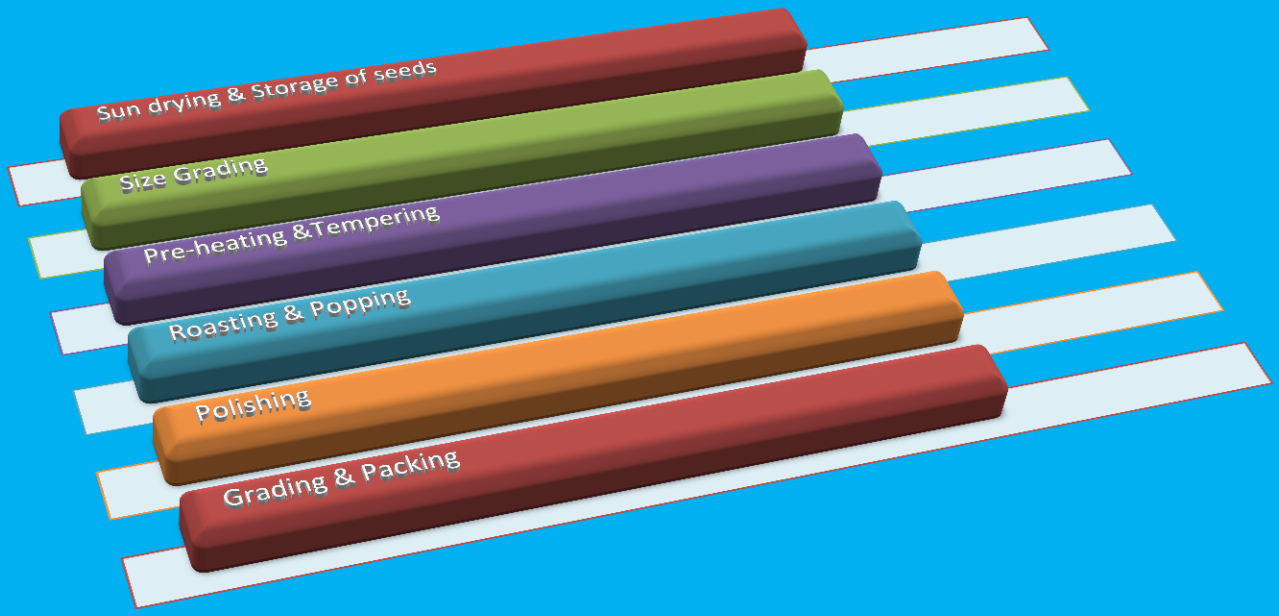
Post-Harvest Processes



For more information please feel free to contact us:

https://www.youtube.com/watch?v=-gaeLG2Swbw

https://www.facebook.com/Makhana-521638178012989/

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TRADITIONAL MARKETING CHANNEL

OUR MARKETING CHANNEL

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Product Portfolio

Hand Picked Makhana

Specification – Export Quality Premium Makhana, Sphere shaped ready to use.

- **Size – 18MM to 28MM**
- **Mandi – 6-8 Sutta**
- **Bag Size – 6 KG**

Premium Makhana

Specification – Best Quality Gold Makhana, Sphere shaped ready to use.

- **Size – 18MM to 28MM**
- **Mandi – 6-8 Sutta**
- **Bag Size – 7 KG**

Classic Makhana

Specification – Good Quality Classic Makhana, Sphere shaped ready to use.

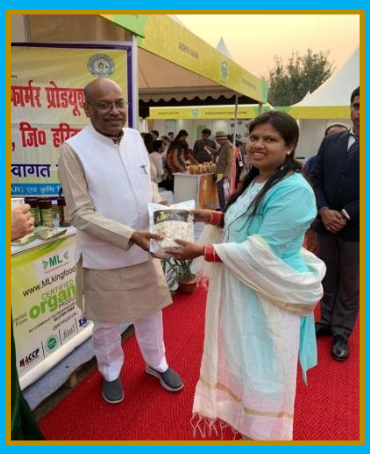
- **Size – 15MM to 20MM**
- **Mandi – 5-6 Sutta**
- **Bag Size – 8 KG**

Regular Makhana

Specification – Regular Mix Makhana, Sphere shaped ready to use

- **Size – 12MM to 18MM**
- **Mandi – Mix Makhana**
- **Bag Size – 10 KG**

Gallery



- https://www.youtube.com/watch?v=WkeicYCuYKk&t=2s
- https://www.youtube.com/watch?v=D7E1NUJjz5M&t=42s
- https://www.youtube.com/watch?v=X3uCG3uTX_s&t=4s
- https://www.youtube.com/watch?v=KVmzv6TOdtg&t=3s
- https://www.youtube.com/watch?v=1323uLtQ9Ec&t=18s
- https://www.youtube.com/watch?v=d-zCqtBgIM8&t=3s

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