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Makhana: Crop of Great Potential

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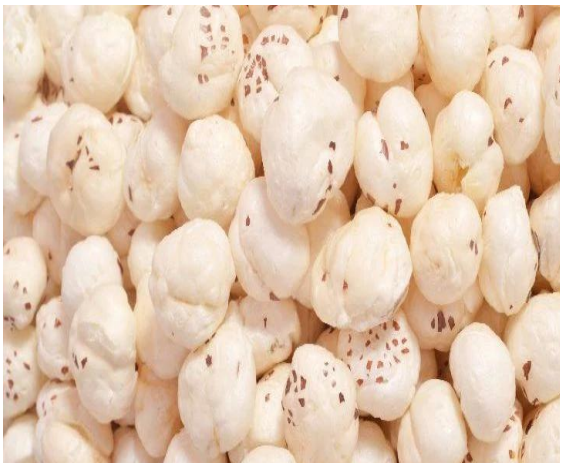
Introduction



Makhana is a type of seed derived from the *Euryale ferox* plant. They're also sometimes referred to as fox nuts or lotus seeds. Makhana is the seed of the lotus plant that is used in the preparation of sweets as well as savories. These seeds can be consumed raw or in cooked form. Makhana is also used for medicinal purposes. Makhana has high nutritional value as it is a rich source of proteins, carbohydrates, fiber, potassium, iron, and zinc. It gives a feeling of fullness when taken as a snack and prevents overeating thereby helping in weight loss. Makhana is beneficial for overall skin health (wrinkles and signs of aging) due to the presence of antioxidants and certain amino acids that have anti-aging property. According to Ayurveda, Makhana has aphrodisiac property. Eating Makhana might also help to control diarrhea as its strong astringent property helps slow down the passage of stool through the digestive tract thereby reducing the frequency of passing stool.

Not many of us would have known that fox nuts or makhana are a part of the lotus flower. The flower that's known for its beauty has a lot to offer, including lotus seeds or makhana. Makhana is highly produced in the state of Bihar in India, Korea and Japan along with a few parts of eastern Russia.Excessive consumption of Makhana might cause constipation, bloating and flatulence.

Nutrition profile

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Makhanas are low in cholesterol, sodium and saturated fats and are good for your heart. They are a good source of magnesium, potassium, manganese, phosphorous and protein. This high nutrition value of makhanas makes them a perfect and healthy snack.

Being low in calories, makhanas promote weight loss, while their high calcium content makes them good for bones. These are also good in controlling blood pressure, detoxification of the body and improve digestive health.

Other health benefits of makhanas.

Improves heart health

The low amount of sodium and high amount of potassium in makhanas help decrease the blood pressure in hypertension patients. The low sodium helps in keeping the blood pressure in check.The magnesium in makhanas helps improve the quality of blood and oxygen in the body. Low magnesium levels in the body increase the risk of heart disease.

Strengthen your bones

We all know calcium plays a big role in keeping our bones strong and healthy. Makhanas have a decent amount of calcium, which makes them perfect for strengthening your bones.

Promotes weight loss

The first thing we are advised to do when we plan to lose weight is to increase our protein intake. Makhanas are rich in protein, which keeps one full for longer. This in turn stops one from overeating later. In addition to this, makhanas are low in calories, which make them a perfect weight-loss snack. The least amount of saturated fats in makhanas makes them even healthier.

Helps in controlling blood sugar levels

Makhanas are rich in protein and carbohydrate and are in low glycemic index making them good for people with high blood sugar. The glycemic index of makhanas is lower than that of several staple foods. The high magnesium and low sodium content in makhanas make them the right food to fight obesity and diabetes.

Good for digestion

The high fibre content in makhanas helps improve one's digestive health. Including them in your daily diet can help improve the bowel movement. In fact, regular consumption can help improve digestion and keep constipation at bay.

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Anti-ageing

Makhanas make for great anti-ageing food because they have an abundance of antioxidants. A handful of makhanas every day can keep you looking younger and make your skin glow. The catch is they should not be consumed as a fried snack. The presence of antioxidants in makhanas makes them even better for digestive health. They also help in the prevention of excessive and frequent urination.

Improve cognitive function

Makhanas have high thiamine content. Thus their consumption helps in sustaining the cognitive function of the nerves. Eating makhanas help in the generation of acetylcholine and thus contributes to the process of neurotransmission.

Lotus Seeds

How is Makhana Processed?

According to the Indian Journal of Traditional Knowledge, the seeds are edible after being processed and are highly nutritious. The journal explains about the collection and harvest of makhanas by Mallah community in Bihar. Here's the complete process-

1. Collection

Makhana harvesting is a laborious method and requires skilled labour. The harvest takes place during morning at about 10:00 am and continues till about 3:00 pm. It takes around four to five hours to collect seeds at a time from the bottom of the pond or river. In some communities, people fix a bamboo pole known as kaara in one place and cover it up. Farmers take a dip in the water, diverging into different directions, along with the long poles.

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They drag the seeds with the help of their palms and gather them to the base of bamboo pole. Collected seeds are washed and cleaned.

2. Cleaning and Storage

The day's collection is put into a crescent-shaped container called gaanja, which is then shaken and swung repeatedly by touching the water surface until all the seeds get cleaned. Clean seeds are then packed into small bags. The seeds are again put into a cylindrical container, and rolled on the ground so as to make their surface smooth. They bring the seeds to their huts and keep them overnight. The next day, female members spread the seeds over mats and let them dry for about two to three hours.

3. Gradation

All processed seeds are sieved for gradation. The process involves different sizes of *makhanas* to pass through different sieving devices known as jharna, rectangular iron plates. The process requires the makhanas to pass through 10 sieves. All graded seeds are stored separately.

4. Getting the White Puff

As soon as the makhanas dry, they require frying or else they tend to get spoilt easily. After frying, these seeds are then preserved in a container made of long bamboo strips and plastered with cow dung. The upper portion of the container is shielded with a coarse cloth so as to maintain a certain temperature. After a few hours, they need to be fried again; the same process is followed and the fried makhanas are placed on a wooden plate once done. The fried nuts are left to cool off and then these seeds are manually cleaned until the white puff pops out of the black coloured seeds. It is ensured that no residue of the black seed is left on the doubly expanded white puff and kept in packets for selling them in the markets. Now you know, these fluff balls are harvested after hard days' labour and need our attention.

Effect of makhana cropping system and soil fertility

The fox nut plant or makhana as it is commonly known is known for enhancing and improving the nutrient status of soil over a period of time. This plant contains nearly 0.48% phosphorus (P), 0.40% potassium (K), 0.31% nitrogen (N), 2200 mg/kg iron (Fe), 1000 mg/kg Manganese (Mn), 8.0 mg/Kg Copper and 105 mg/Kg Zinc (Zn).

The seeds of Makhana or Gorgon nut contain 1.67% nitrogen (N), 0.40% phosphorus (P), 0.12% potassium (K), 960 mg/kg iron (Fe), 40 mg/kg manganese (Mn), 12.0 mg/Kg

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copper and 125 mg/Kg zinc (Zn). As per the research done on positive effects of Makhana cropping system by various organizations, it can be easily deduced that Makhana cropping adds nearly 8.0 t/ha/yr (Dry weight basis w/w) bio mass to the soil which significantly helps in sustainable management of soil.On an average, the plant contributes 34.35 kg/ha of Nitrogen, 56.04 kg/ha Phosphorus, 53.07 kg/ha, Potassium, 27.26 kg/ha Iron and 12.31 kg/ha Manganese in the soil system. Makhana cropping system significantly increased the nutrient status of soil.

Government Impetus and Initiatives

State governments in India are providing subsidies to farmers up to 50% on stand cost of makhana cultivation, in order to ramp up the production. More push is being given to farmers who cultivate makhana in the field system. Institutions like NABARD are extending generous subsidies to farmers as they mostly have lack of resources for cultivation. Help is also being provided in terms of loans, equipment, diesel and other resources.

Future of Makhana Cultivation

Owing to ever-increasing commercial value, multi-use of this nutritious plant, Makhana is now being recognized as a super food. This combined with the rise in global demand in countries including USA, UK, Australia, New Zealand etc has led to ramping up of the production systems and scales. Both central and state governments are providing impetus to farmers to meet the demand and grow & supply high quality makhana in various forms and packaging. Helping the farmers replace the traditional cultivation systems with new methods and also providing commensurate subsidies will lead to a complete overhaul of the cultivation system, increase the per hectare yield and thereby increasing the incomes of millions attached to it.