

## Chironji cultivation and potential uses

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### Introduction

The underutilized, commercially and nutritionally significant chironji, also known as charoli (*Buchanania lanzan* Spreng.), is the fruit of a medium-sized, evergreen, deciduous tree that can reach a height of 50 feet. It produces fruits with a single seed inside called chironji, a popular edible nut. It is widespread in India, primarily on degraded land. The fruits are consumed raw and the kernels are roasted or dried and used to make sweets. Its oil is used to flavor confections, candies, and betel-nut powder in place of almond oil. The ripened pulp of chironji fruits can be used to make high-quality juice, as the fruit's mesocarp is edible. In the Ayurvedic and Unani medical systems, priyal, an herb, is used as a medication. It is used to treat skin conditions and is reported to have tonic, cardiogenic and astringent qualities. In India, the fruit is primarily gathered and traded by tribal people. In addition to being commonly found in Uttar Pradesh, this tree is scattered throughout the states of Madhya Pradesh, Bihar, Orissa, Andhra Pradesh, Chhattisgarh, Jharkhand,

Gujarat, Rajasthan, and Maharashtra. harvesting, processing and marketing.

### Climate and Soil

Being a very hardy plant, chironji grows well on red soils that are rocky and gravelly. Even though this tree is quite resilient, wet conditions are fatal to plants. Even in soil pockets between arid rock fissures, it can thrive. Trees are planted on rocky, degraded sites, particularly soils impacted by salt. However, well-drained deep loam soil is ideal for its improved growth and productivity. It does well in droughty conditions and prefers tropical and subtropical climates.

### Propagation

Chironji plants often reproduce from seeds, which results in a lengthy gestation time (10-15 years) and significant variety. One-year-old seedlings produced for rootstock are used in vegetative multiplication through soft wood grafting; the seedlings' leaves are a pale green color. They are prepared for grafting soft

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wood. The shoots that are 3–4 months old and have a noticeable apical bud are harvested for the scion material. These shoots are defoliated eight to twelve days prior to being separated from the parent tree for grafting procedures. The apical buds ought to be intact when these shoots are cut off. Cleft grafting is used to fit the scion after the top of the stock's new growth is chopped off. A strip of 200-gauge polythene is used to tie the connection. In July and August, 60–70% success rate is possible if the scion and rootstock are chosen carefully.

### Planting

Plant the seedlings 10 m apart, and the grafted plants 8 m apart. The 1 m x 1 m x 1 m pits are excavated, and the top soil and 25 kg of farmyard manure are added to the pits until they are 30 cm below the ground. In July and August, after the monsoon arrives, the soils are leveled and planting takes place in the pit's middle.

### Training and Pruning

For chironji plants to grow their framework, training is necessary. At a height of 60–90 cm above the ground, the framework should be established by promoting the growth of 4-6 evenly spaced branches on the trunk. Chironji plants do not require pruning, with the exception of dead, diseased, and crossed branches being removed.

### Cultivars

**Thar Priya** Variety of Chironji from CIAH, Bikaner.

**Intercropping:** Sequence, planting technique, species, and cultivars must all be compatible with each other when choosing crop combinations. Intercrops that can be planted in the orchard include cluster beans, black gram, chickpeas, peas, and chickpeas.

### Manures and fertilizers:

For a one-year-old plant, the recommended dosage is 100g N, 50g P, and 75g K/plant. It ought to be raised annually at the same percentage until the child reaches ten years old. The one-year plant should also receive an additional 5 kg of FYM. For a period of ten years, it should be raised to 5 kg. In order to attain complete maturity, 50 kilogram of farmyard manure, 1 kg of N, 0.5 kg of P, and 0.75 kg of K are needed. July and August are the best months to apply farmyard manure. July is the month to apply a half dose of N and a full dose of P and K. If the weather stays rainy, the remaining dosage of N may be applied by the end of August.

### Irrigation:

Rain-fed conditions are favourable to plant survival. Plantations that are young should use a basin irrigation system, if such facilities are available. Aim for a 15 day interval while applying irrigation in the summer. Fruit development and retention after

fruit sets depend on appropriate moisture levels.

**Flowers and fruits set:** In Chironji, flowers bloom in the country's various agro-climatic zones during the months of January through February. A flower takes between 16-20 days to fully grow. After the fourth year, grafted plantings begin to bloom.

**Harvesting of chironji:** Chironji fruit is manually harvested in April and May after it reaches maturity, which takes 4 to 5 months.




**Potential Uses**

In a few Indian tribal states, raw chironji tree fruits are consumed. When consumed orally, the fruits may have a cooling impact that helps to relieve thirst and improve proper dental hygiene. In nature, fruits are laxatives-substances that aid in bowel movement. They might be useful in lowering fever. Because of its cooling qualities, the fruit can even help with fever, coughing, and burning a sense in the eyes.

**Food:**

Indian sweets (Chironji ka Barfi, shrikhand, kheer, and halwa), meaty kormas, lamb pepper with Chironji, Gajar ka Meetha, Hyderabad Haleem, Charoli mutton, Malai kofta and as a seasoning for batters and sauces are among the dishes that often feature chironji seeds.

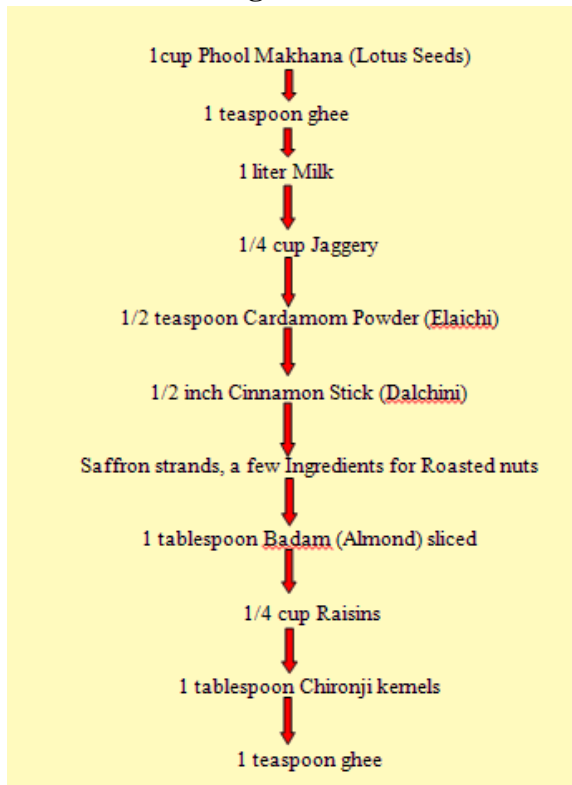
**Chironji and Makhana Kheer:** The phool makhana will first be roasted in ghee until it becomes crisp and fragrant. In a roast heavy-bottom pan, heat a teaspoon of ghee and reduce the milk until it's about half. Makhana, stirring constantly, until they turn a light brown and crisp. Using a mixer grinder, coarsely ground half of the roasted makhana and set aside. The leftover roasted makhana will be used in its entirety in the kheer. Fill a utensil with boiling milk. Add the jaggery, whole roasted Makhana, and coarsely powdered Makhana once the milk has condensed. Stir thoroughly, then cook over

		
<p><b>Dry chironji kernels a little and grind coarsely</b></p>	<p><b>Make sugar syrup and grind chironji kernels is added to the sugar syrup</b></p>	<p><b>Make <u>chironji Barfi</u> when It thicker</b></p>

medium heat for 5 to 10 minutes, stirring now and then, until the kheer thickens and the makhana is fully cooked. As the kheer cooks, gently toast all of the dry fruits in a separate small skillet with a teaspoon of ghee until they are fragrant and lightly browned. To the Makhane ki Kheer, add half of the roasted dry fruits. Simmer for three to four minutes and then remove from the heat.



### Ingredients



### Medicine:

This tree's many medical benefits in Ayurvedic medicine include curing fever, rheumatism, intestinal disorders, premature ejaculation and colds. Its bark, fruits, roots, leaves, nuts, and kernels are all used. A traditional cure for diarrhea consists of making gum out of the bark of this tree, powdering the roots and combining the dried leaves with butter milk. The leaves of Chironji gum were used as a tonic to support heart functions and as a rheumatic pain reliever when combined with cow's milk in Andhra Pradesh folk medicine. Moreover, the leaf powder was applied to promote rapid wound healing. In Unani medicine, the juice or decoction of chironji leaves is used to cure impotence, blood purification, and as a digestive system tonic.

### Cosmetic:

India has been using ground seeds mixed with milk and turmeric powder as a natural face mask to improve skin elasticity, complexion, and radiance.