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Ramkarela Farming
Tradition, Technique, and the Taste of Heritage

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Introduction

In the verdant valleys and terraced farms of Uttarakhand, a humble yet extraordinary vegetable climbs its way up wooden stakes and bamboo trellises known locally as Ramkarela, scientifically, *Cyclanthera pedata* Scrabs. This climbing vine is a close cousin of the bitter gourd, but without the intense bitterness popularly Caigua in South America, meetha karela, pahadi karela, Church Karela in India and stuffing cucumber, slipper gourd elsewhere. This is *cucubitaceous* crop with chromosome no 2n=2x=32. This cucurbit is deeply embedded in the culinary, medicinal, and cultural traditions of the Himalayan foothills. While relatively unknown to the wider world, Ramkarela has long been commonly used vegetable in the diets and herbal remedies of mountain communities and it's now gaining attention for its remarkable nutritional and medicinal properties. Ramkarela grows abundantly in the northwestern Himalayan regions, particularly between altitudes of 1,500 to 2,000 meters. Its young fruits resemble cucumbers in taste and texture, while mature ones are cooked, stuffed, and savoured in traditional dishes.

Culinary importance of *Cyclanthera pedata*

Cyclanthera pedata is a versatile and traditional vegetable widely consumed in the hilly regions of Uttarakhand, especially between August and December. Young, tender fruits are commonly cooked as a vegetable, often after lightly scraping the outer skin to remove soft thorns. These fruits have a mild, cucumber-like flavour and can also be eaten raw in salads or fresh preparations. As the fruits mature, they are often stuffed and cooked in a manner similar to gourds or marrows, offering a milder alternative to bitter gourd. Some of the unique culinary uses of *Cyclanthera pedata* in South America is the preparation of chutney from its ripe black seeds. The fruits are also frequently sun-dried and stored for use during winter months when fresh vegetables are scarce. Additionally, the seeds are sometimes used to prepare a flavourful tea, adding to the diverse culinary uses of the plant.

Medicinal importance of *Cyclanthera pedata*

What makes Ramkarela truly special is its nutrient-dense composition. It's packed with vitamin C (ascorbic acid), potassium, calcium, magnesium, and dietary fiber. It also boasts a wealth of antioxidants, anti-inflammatory, hypoglycemic, hypocholesterolemic, and antihypertensive properties. Traditionally, it's been used to treat conditions like high blood pressure, high cholesterol, diabetes, tonsillitis, and even arterial diseases. Some local remedies involve boiling it in milk to soothe inflamed tonsils or drinking its juice to regulate cholesterol. Even the roots of the plant are used often as natural toothbrushes continuing a centuries-old tradition of herbal oral care in mountain communities.

Botanical aspect of this climbing cucurbit

Botanically, Ramkarela is a vigorous climbing vine that can stretch up to 40 feet in length. Its palmate leaves and small monoecious flowers (both male and female on the same plant) make it visually striking as it sprawls across trellises. The plant exhibits a flowering sex ratio of about 20:1 (male to female), ensuring a high fruit set through efficient pollination. Interestingly, the flowering process is highly time-sensitive. Flowering begins before dawn**,** with peak anthesis and anther dehiscence (pollen release) occurring between 5:00 a.m. and 7:00 a.m. With pollen viability as high as 94%, pollination is typically successful, especially in the cool, moist climates of the Himalayas. The fruit that emerges is an ovoid pepo, usually green or pale green, spiny or smooth surface depending on the variety. Its juicy mesocarp and fluffy, white endocarp surround a hollow cavity packed with nearly square, dark brown seeds. The Young, immature fruits are eaten raw or cooked and have a similar taste to cucumbers though they are not crisp. Older fruits are cooked and can be stuffed in much the same way as marrows

Cultivation practises of Ramkarela

Climatic and Soil Requirements: Ramkarela thrives best in sunny, warm, and sheltered locations. It requires a growing season of at least four months, making it ideal for subtropical and some temperate climates. The plant is sensitive to frost and does not tolerate waterlogged soils. Optimal growth is achieved in well-drained, fertile soils rich in organic matter and with full sun exposure.

Sowing and Planting: In the mid-hills of the Himalayas, the ideal time for sowing Ramkarela (*Cyclanthera pedata*) is during early spring, typically between June and July. The 3-4 seeds are sown per pit directly into well-prepared soil, allowing for straightforward establishment. Only 1-2 plants per pit should kept after germination. Under favorable conditions, germination usually takes place within 7 to 8 days. To promote healthy growth and ensure adequate airflow and sunlight penetration, it is recommended to maintain a spacing of 1.5 to 2 meters between plants and row.

Intercultural practises: Being a climber, Ramkarela needs sturdy support. Farmers can use bamboo poles, wooden stakes, or metal trellises with jute or metal wire to train the plant vertically. This not only helps in better sunlight absorption but also improves fruit quality and makes harvesting easier. Vines are gently tied to supports to guide their upward growth.

Nutrient and Water Management: Ramkarela is not an overly demanding crop, but proper nutrient management can significantly enhance its yield. At the time of planting, a basal dose of organic compost or well-decomposed manure should be applied to enrich the soil. Regular irrigation is essential, particularly during dry spells 3-4 irrigations should be applied, to maintain consistent soil moisture. However, care must be taken to avoid overwatering, as waterlogging can lead to root rot or fungal infections, which may severely affect plant health.

Pests and Diseases Management: Ramkarela can be affected by pests and diseases like aphids, whiteflies, and cucumber beetles. Fungal infections like powdery mildew particularly in humid environments. Effective management includes regular monitoring, manual pest removal, use of organic or chemical sprays, and maintaining field hygiene. Proper spacing, ventilation, crop rotation, and timely irrigation help prevent fungal and bacterial infections, ensuring healthy crop growth and yield.

Harvesting and Storage: Ramkarela is typically ready for its first harvest in september – October after 100 to 120 days after sowing. The plant begins flowering 30-35 days after germination, producing small pale flowers that develop into gherkin-like fruits, often with spines with average fruit weight of 10-15 g. It is available in the local market for two months *i.e.* between October to December at approximately Rs 40-50 per kg. Fruits should be harvested when they are firm and green, ensuring the best taste and texture. Harvesting continues for several weeks. On an average one plant yielded 1.5-2 kg fruits, but in favourable environment fruit yield may reach upto 7 kg per plant. Mature fruits can also be sun-dried and stored for months, allowing for extended use during the off-season while preserving their nutritional quality.

Figure 1: a) *Cyclanthera pedata* plant b) Leaves and fruits of *cyclanthera pedata*

Conclusion

In a world grappling with lifestyle diseases, antibiotic resistance, and poor nutrition, traditional crops like Ramkarela offer sustainable, natural solutions**.** Its nutritional profile rivals make it unique, yet it remains underutilized and poorly understood outside its native regions. For farmers, it represents a high-value niche crop that can thrive in marginal hill terrains. For consumers, it's a low-calorie, nutrient-rich vegetable with powerful healing properties. And for scientists**,** it's a botanical and pharmacological treasure trove still waiting to be fully explored. As the demand for organic, local, and functional foods continues to rise, Ramkarela has the potential to leap from village farms to global plates. Preserving and promoting its cultivation is not just about food it's about honouring heritage, health, and harmony with nature of hill ecosystem**.**