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Thangi (*Corylus jacquemontii* Decne.): An Underutilized Himalayan Nut with Potential for Sustainable Horticulture and Livelihood Development

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The Himalayan hazelnut (*Corylus jacquemontii* Decne.), locally known as Thangi, Bhotia Badam or Thangoli, is an important wild edible nut tree of the western Himalayas. It is valued for its nutritious nuts, traditional medicinal uses, timber, fuelwood and fodder. The species occurs naturally in different parts of Himachal Pradesh, particularly Chamba, Kinnaur, Kullu and Shimla. Despite its considerable economic and ecological importance, its natural populations are under pressure due to excessive nut collection, habitat degradation and poor natural regeneration. Research has highlighted its potential as an alternative nut crop for temperate Himalayan regions. Scientific propagation, selection of superior trees, cultivation and sustainable harvesting can help transform this lesser-known forest resource into a valuable horticultural crop while supporting rural livelihoods and biodiversity conservation.

Introduction

The Himalayas are rich in wild edible fruit and nut-bearing plants that contribute significantly to the food security and livelihoods of mountain communities. Among these valuable species, Himalayan hazelnut (*Corylus jacquemontii* Decne.) holds special importance because of its edible nuts and multiple traditional uses. It belongs to the family Betulaceae and is a deciduous tree naturally occurring in the temperate Himalayan region. It is locally known by different names, including Thangi, Thangoli, Jhangi and Bhotia Badam. The nuts are traditionally consumed raw or roasted and are also sold in local markets, providing additional income to rural households. Bharti and Uniyal (2024) highlighted the importance of this species as a lesser-known multipurpose Himalayan tree with nutritional, medicinal, economic and ecological value. However, increasing exploitation and inadequate conservation measures have raised concerns about its future survival.

Distribution and Habitat

Himalayan hazelnut is naturally distributed across the western Himalayan region, extending from Kashmir towards Kumaon. In Himachal Pradesh, it is reported from Chamba, Kinnaur, Kullu, Shimla and adjoining temperate areas. The species generally grows in cool temperate climatic conditions and occurs in association with other forest trees such as oak, deodar, fir, spruce, maple and walnut. It forms an important component of the middle canopy or intermediate tree layer in many temperate forest communities. According to Gupta and Sharma (2016), hazelnut-bearing forest communities were investigated in Kotkhai forest range of Shimla and Sach forest range of Pangi, Chamba. Their study reported total tree density ranging from 445 to 535 trees per hectare. The researchers also examined tree diameter, height, basal area and crown projection, providing useful information about the

structure and composition of hazelnut-bearing forests. These observations indicate that the species is an important component of Himalayan forest ecosystems and requires suitable habitat conditions for its continued regeneration.

Nutritional and Economic Importance

The edible nuts are the most valuable product of Himalayan hazelnut. They contain fats, proteins, carbohydrates, dietary fibre, minerals and other beneficial compounds. Hazelnut kernels are particularly valued for their oil content and nutritional quality. The nuts are consumed by local communities and are also collected for sale in nearby markets. In remote Himalayan villages, their seasonal collection provides supplementary income, particularly to households dependent on forest resources. The species also has considerable traditional importance. Its leaves are used as fodder, while wood is utilized for fuel and other household purposes. Bharti and Uniyal (2024) described its diverse uses as food, medicine, fodder, fuelwood and timber. The nuts and other plant parts have also attracted interest because of their phytochemical constituents and reported pharmacological potential. However, further scientific investigations are required before specific medicinal applications can be recommended.

Potential for Horticultural Development

Himalayan hazelnut has considerable potential for development as a commercial nut crop in suitable temperate regions. Its natural occurrence in the Himalayan environment suggests that it could be explored as a locally adapted horticultural resource. Sharma and Kumar (2001) conducted a preliminary evaluation of 30 superior hazelnut seedling trees growing in Shimla district at approximately 2,000 m above sea level. Considerable variation was observed in growth, flowering, fruit characteristics, number of nuts per cluster, nut and kernel quality, and yield per tree. This variation is particularly important from a horticultural perspective because it provides opportunities for identifying superior trees for future selection and improvement programmes. Gautam and Sharma (2023) reviewed the taxonomy, distribution and cultivation practices of Himalayan hazelnut. They discussed different propagation approaches, including seed propagation, layering, cuttings and grafting. Vegetative propagation is particularly important for maintaining the desirable characteristics of selected superior trees. However, seed propagation may result in considerable variability among seedlings. Therefore, identification and multiplication of superior planting material should receive greater attention in future cultivation programmes.

Cultivation and Management Practices

For successful cultivation, suitable site selection and healthy planting material are essential. The following practices may be considered while developing Himalayan hazelnut as a horticultural crop:

1. Site selection: Select temperate locations with a cool climate, adequate soil depth and good drainage. Waterlogged soils should be avoided.

2. Planting material: Select healthy seedlings or vegetatively propagated plants from superior, productive mother trees. Vegetative propagation can help maintain desirable nut and growth characteristics.

3. Pollination management: Hazelnut production depends on successful pollination. Since self-incompatibility and differences in flowering time may occur, suitable pollinizer trees should be maintained in plantations.

4. Canopy management: Regular removal of dead, diseased and overcrowded branches can improve light penetration and maintain a healthy tree structure.

5. Soil and nutrient management: Maintain soil fertility through organic matter and balanced nutrient management based on soil testing.

6. Harvesting: Nuts should be collected at proper maturity. A portion of the mature nuts should be left for natural regeneration and wildlife consumption.

These practices should be further standardized through region-specific field trials before recommending large-scale commercial cultivation.

Conservation Challenges and Future Prospects

Despite its importance, Himalayan hazelnut faces several conservation challenges. Excessive collection of nuts before natural seed dispersal, habitat degradation, forest disturbance and inadequate regeneration can affect the long-term survival of natural populations. Gautam and Sharma (2023) also emphasized that complete harvesting of nuts can reduce the availability of seeds for natural regeneration. Similarly, Bharti and Uniyal (2024) highlighted the threatened status of this multipurpose species and the need for conservation efforts.

The following measures can support its conservation and sustainable utilization:

- Establish conservation and demonstration plantations in suitable temperate regions.
- Identify and conserve superior, healthy mother trees.
- Promote nursery-based production of quality planting material.
- Encourage sustainable nut harvesting and leave sufficient nuts for natural regeneration.
- Undertake systematic surveys of natural populations and assess their regeneration status.
- Promote community participation in conservation and value addition of harvested nuts.

Conclusion

Himalayan hazelnut (*Corylus jacquemontii* Decne.) is a promising but underutilized wild nut-bearing tree of the western Himalayas. Its nutritional value, traditional uses, economic potential and adaptability to temperate conditions make it an important candidate for future horticultural development. Research on forest characteristics and variation among naturally growing seedling trees provides a foundation for its scientific improvement. However, commercial development should go hand in hand with conservation of natural populations. Greater attention to superior tree selection, vegetative propagation, cultivation research and sustainable harvesting can help convert this lesser-known Himalayan resource into a valuable source of income for mountain communities. **Promoting Himalayan hazelnut is not only an opportunity for nut-crop diversification but also an important step towards conserving the unique plant wealth of the Himalayas.**

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