

CHAPTER 5

**CONTRIBUTION OF BEHADA *TERMINALIA BELLIRICA* (GAERTN.)
ROXB. TREE FRUIT TO RURAL LIVELIHOOD IN GARIABAND
DISTRICT, CHHATTISGARH**

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Abstract

The Behada Tree *Terminalia bellirica* (Gaertn.) Roxb. is a valuable species of non-timber forest trees (NTFPs) in the deciduous forests in the Gariaband district of Chhattisgarh. Its fruits are highly regarded for their medicinal, commercial, and traditional applications and are a key element in the formulation of the traditional Triphala Ayurvedic. This study explores the role of Behada rural fruits due to the presence of rural tribes and forest communities in the districts of Chhura, Gariaband, and Mainpur blocks. Based on field surveys, interviews, and ethno botanical data, this study determines models of economic dependence on collection, treatment, local trade, and behavioral outcomes. The results show that

Behada is the main participant in seasonal household income, particularly in marginal tribal communities. On average, collectors earn between 1,500-3,000 per year from collections and fruit sales, depending on the fruit presence and market demand. In addition to its economic importance, the action also has cultural and environmental values in the sense that it contributes to the recognition of biodiversity and forest conservation. This study highlights the importance of strategies for sustainable harvesting, adding value to the village level and formal market relationships to maximize the cost of Behada fruit funding in the rural forest economy.

Keywords:- Behada, Forest economy, Rural livelihood, Tribal communities.

Introduction

Terminalia bellirica (Gaertn.) Roxb. Has been identified as one of the older medicinal plants [1-2]. Found in India, Pakistan, Nepal, Bangladesh, Sri Lanka and Southeast Asia. Drug consumption has been documented in a variety of traditional medical traditions, such as Ayurveda, Unani, Siddha, and Traditional Chinese Medicine [1, 3]. *T. Bellirikais* located in most deciduous forests in India, except in arid areas. It was recorded in Upper Gangetic plains, Chota Nagpur, Bihar, Odisha, West Bengal, Konkan, Deccan, and the majority of South India [1, 4]. Forests are important for their means of self-sufficiency and for their cultural heritage of millions of rural and tribal peoples across India. Large states such as Chhattisgarh have not been forest wood (NTFP) products, but have contributed significantly to the increase in household income, food security and the maintenance of traditional knowledge systems. Non-timber forest products NTFPs, the Brycen terminal tree, commonly referred to as the Supported or lower, is extremely important, according to its medicine, environment, and its economic meaning. Behada tree is a large tree with deciduous leaves of the *Combretaceae* family and spreads throughout tropical and subtropical India. The fruit forms one

of three non-transferable ingredients of the traditional Ayurvedic training trip Triphala, known for its healing properties in the treatment of digestive and respiratory diseases. In addition to the importance of its medicine, Behada Fruits is an important seasonal forest product collected by tribal communities for local and commercial purposes. Plant-based drugs come from various parts of the plant, such as leaves, stems, roots, and bark. These drugs are primarily made up of biologically active molecules and are primarily used in the treatment of lung or chronic diseases. Ayurvedic preparation is widely practiced in India, with many Ayurvedic compounds being used to treat colds, cough, dysentery, and anorexia [1, 5, 6]. In the areas of Gariaband district of Chhattisgarh, particularly in the blocks of Chhura, Gariaband, and Mainpur, the trees of action are over distributed in forests in their natural state. Tribal communities live there like Gond, Halba, and Baiga, and traditionally use forest products not only for food and medicine, but also for livelihood generations. The Behada Fruit Collection is usually held during periods that follow the post-monsoon season (October to January), where local residents are collected, dried, and sold at local markets or forest cooperatives. The income received from Behada Fruit sales, although seasonal, contributes significantly to income from households with limited access to official employment possibilities. Additionally, older women and their families are generally collected and treated, making them a resource to ensure the presence of gender. Despite its promise, the economic and social implications of Behada are poorly documented in the speeches of regional planning and forest policy. This study seeks to determine the role of action outcomes in the rural economy of Gariaband district after taking into account forest community availability, collection practices, market dynamics, and socio-economic values. He also tries to discover the limitations of the Sustainable Collection, adding costs and marketing for Behada products. Aiming for NTFPs, both in normal and commercial values, this study aims to provide an understanding of political interventions that can

improve the presence of forests while ensuring the conservation of biodiversity and the sustainable use of resources.



Figure 5.1 Behada tree *Terminalia bellirica* (Gaertn.)Roxb. In its Natural Habitat in the Forest Region of Gariaband District, Chhattisgarh

Materials and methods

Study Area

Three important forest major forests in the Gariaband district in the eastern region of Chhattisgarh, India, were selected for research.

These are:

- **Chhura Block**
- **Gariaband Block**
- **Mainpur Block**

These blocks have the wealth of natural forests and many planned tribes, including the communities of Gond, Kamar, and Halba, who traditionally rely on forests to make a living. The area respects the environment for the lac culture. This is

because it contributes to the natural culture of Kusum trees, an important plant in insect lac.

The landscape operates in red-laterite soil, suitable for mixed deciduous forests, medium to high sediment, and rural economies based on NTFP. In the three blocks, lake production is a key seasonal activity in rural areas, moving through Van Dhan Vikas Kendras, Self-Help Groups (SHGs), and local forest cooperatives. The above features make the area a suitable place to study the socio-economic effects of lake production from the Kusum factory.

Data Collection: In the study, data were collected from primary and secondary sources and rigorous fieldwork. Fieldwork included decisions on the traditional use of fruits of economic importance, Behada and their contribution to the means of rural and tribal existence in forest villages.

Important data on collection trends, seasonal fruiting, average household income in fruit collection, and gender dynamics were collected using discussions in households, focus group discussions (FGDs), and interviews with tribal collectors, Self-Help Groups SHGs, Van Dhan Yojana, and forest staff.

To achieve market trends, the commercial costs of fruits and the state of Behada fruit production in Chhattisgarh were analyzed. Ground inspections were conducted on forest areas and degraded lands for analysis of the availability and distribution of Behada trees in this area.

Results

1.Availability and Distribution of Behada Trees

The inspection shows that Behada trees are well distributed in forest areas of Chhura, Gariaband, and Mainpur blocks. Tree density was relatively high in undamaged, wet roller forest areas, especially villages along the tracks around the forest. Approximately 55% of the forest plots questioned had trees of mature behavior to collect fruit.

2. Collection Practices

Action outcomes are generally collected from November to January after the Monsoon season. Approximately 70% of respondents agreed that this collection was primarily carried out by women and senior members of the group. Fruits are either manually selected from the ground or picked with bamboo columns, followed by sun drying and storage.

- Household/Average amount collected during the season: 25-40 kg
- Drying time: 10-15 days, depending on the sunlight
- Storage: Bamboo baskets or jute sacks, lined with Neem leaves to prevent pest attack

3. Economic Contribution

Behada Fruits gives most households in the tribe a seasonal income.

- Average price per kg (dried fruit): 20-40 on local commercial beds
- Average household income per season: ₹1500-3000
- In the cooperative market with high-quality sorting and huge sales, the price reached ₹50 kg

Behada is also used by certain families as barter material for exchanges between villages.

4. Traditional and Medicinal Uses

Over 60% of respondents said that behavioral fruits are traditionally used for treatment.

- Cough and cold
- Digestive issues
- Skin rashes and inflammation it is often consumed in powdered form or combined with Harrad and Amla as part of Triphala churna.

5. Market Access and Challenges

The weekly haats (markets) creates a direct market for Behada sales, low market consciousness, lack of value, and unorganized prices, as indicated as a significant limit. Local residents are being sold to intermediaries at a lower price due to urgent requirements for funding.

6. Sustainability Concerns

- Communities and forest authorities are increasingly concerned: Over-harvesting of immature fruits
- Deforestation affecting Behada tree populations
- Lack of regulated collection practices

Only 34% of villages interviewed said they had training or awareness about sustainable management of NTFP (CGMFPPFED)

Table 5.1 Chhattisgarh State Minor Forest Produce 2024-25 [7]

Chhattisgarh state minor forest produce 2024-25 (CGMFPPFED)					
Name of Forest produce	Category (MSP/SP)	Collector rate (Rs. Per kg)	Collector period		Criteria
			Form	To	
Baheda Sabut (Dry)	MSP	17	1st March	30th April	Fully dried, intact fruits without fungal growth or insect infestation.
Baheda Kachariya	SP	20			Cut and dried slices, free from moisture, mold, and foreign material.

Discussion

The findings of this study clearly point out that its fruit, particularly its fruit Behada tree, is key to maintaining the seasonal source of tribes and forestry people living in Chhattisgarh. The deep appearance of behavior in natural forests, combined with a community of knowledge about its use, becomes important rather than Wooden Forest Products (NTFPs) in this field. Economically, the fruit collection of action is a great source of household income for poor and landless households with insufficient access to official employment. The income from the Behada Collection is seasonal, but when deactivated seasons take place in agriculture, it covers a large financial gap. This study shows that women and former members are actively involved in their collection and treatment, and therefore provides inclusion among the sexes of the forest of livelihood. The use of fruits in Ayurvedic products, especially Triphala, provides an added value and an amount of marketing that is undervalued in the region. Forest Cooperatives and local markets provide a limited but useful market platform. However, factors such as volatile prices, inaccessibility of the repository, lack of formation of value-generating costs, and low market awareness limit the potential revenue local collectors receive. At an ecological level, excessive collection of young fruits, abolishing and worsening the environment, evokes village residents and forest authorities. Irresponsible harvests can have a negative impact on long-term behavior and fruit tree regeneration. Sustainable training in forest management has reached a limited number of villages, indicating a gap between awareness and institutional support. Socially and culturally, Beads receive medical care in traditional practices used to treat digestive and respiratory diseases. Including it in the local healing system demonstrates the richness of ethno botanical knowledge in this field. Thus, the role of action outcomes in rural sources is clear, but socio-economic potential remains unused. Increasing the value additions will improve rural income and promote forest preservation at the community level by linking

them together to improve community training and market networks in responsible harvests.

Health benefits of *Terminalia bellirica*

Enhances Digestion

Terminalia bellirica, Desire Fruits are extremely useful for the digestive system. This breaks down food in the intestines and stomach, promotes the secretion of digestive juices, and helps the body to absorb important nutrients through the intestines. Not only does it eliminate gastric gas and relieve flatulence, bloating, stretching, and cramps, but it is also an important therapeutic ingredient for a variety of gastrointestinal diseases [8].

Relieves constipation

Ayurveda, which has been around for thousands of years, strongly assumes that people with constipation use either as the whole or dried fruit powder. These forces the liver to produce more bile, helping the intestines and liver move in a process called peristalsis. This makes it easier to remove waste from the large intestine. The laxative effect of *Terminalia bellirica* is extremely important. This is because it reduces the amount of mucus and fat in the excrement and prevents it from sticking to the walls of the intestinal tract. This makes mobility easier [8].

Boosts immunity

Terminalia bellirica is used in several folk remedies to improve the immune system, eliminate microorganisms, and protect the body from a variety of infections due to its high content of antioxidants and bioactive compounds. This also indicates that it has excellent antibacterial, antiviral, and antifungal activity. This is extremely effective in stopping infections and increasing overall health and well-being [8].

Keeps heart healthy

The extremely powerful cardiac attitudinal properties of the *Terminalia bellirica* form a critical component in the treatment of most heart diseases. Dried fruit powder is a highly effective permanent tree cache, aphrodisiac, and pure number. At the correct dose, the powder strengthens the myocardial muscles, lowers the levels of cholesterol in the blood, and prevents lipid deposits. This reduces the effects of atherosclerosis, heart blockage, heart attack, blood clots, etc. [8].

Heals wounds and cuts

The anti-inflammatory and anti-ulcer properties of *Terminalia bellirica*'s are extremely important for the treatment of various types of ulcers, including ulcerative colitis, peptic ulcers, canker sores, or ulcers in the mouth. The bioactive agents present in fruit powders promote the healing of damage and the formation of new tissues. Injuries can also be cured using seed oil [8].

***Terminalia bellirica* has anti-inflammatory property**

Terminalia bellirica contains many anti-inflammatory and anti-arthritis compounds that reduce pain and edema produced by various forms of arthritis. Rheumatoid arthritis is called Amavata in Ayurvedic medicine. In most cases, this is due to cotton imbalances and the accumulation of AMA in the joints. Elegant fruit powder prevents burns not only from Amavata but also from body parts [8].

Conclusion

This study concludes that fruition of the tree of Behada has important economic, environmental and cultural significance for tribes and forest peoples in the Gariaband district, particularly in the blocks of Chhura, Gariaband, and Mainpur. Behada collection and sales are valuable seasonal activities to ensure means of self-sufficiency in the economically low sectors of society, where access to

agriculture and wages is insufficient. Although this is not organized in a seasonal way, Behada plays an important role in helping household income. It is also strongly integrated into the traditional medical system, confirming its ethno botanical meaning. However, this study also determines certain limiting factors (e.g., lower market access, lower prices, organized trade shortages, and unstable harvesting methods). It further highlights the order for sustainable use of resources using environmental issues of overexploitation and deforestation. Without intervention, the long-term availability of Behada as a forest product will decrease, potentially threatening both biodiversity and community measures.

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