International Journal of Botany Studies
www.botanyjournals.com
ISSN: 2455-541X
Received: 04-08-2024, Accepted: 03-09-2024, Published: 18-09-2024
Volume 9, Issue 9, 2024, Page No. 42-45

Hatga: Testament to the enduring bond between humans and plant kingdom

Minakshi Neware, Deepak Birla, Somnath Jadhav
Assistant Professor, Department of Agriculture Sciences, SAGE University, Indore, Madhya Pradesh, India

Abstract
Wild Edible Plants (WEPs) play a crucial role in providing sustenance and nutritional richness to communities worldwide. Despite the diminishing use of WEPs globally, their prevalence remains significant in many regions, particularly among populations relying on vegetarian diets abundant in carbohydrates. This article sheds light on the utilization of WEPs, with a specific focus on Hatga trees (*Sesbania grandiflora*) in the Vidarbha region of Maharashtra, India. The article reveals the nutritional and medicinal benefits of Hatga trees, which are commonly consumed by tribes and local communities in rural and forest areas of Vidarbha. Through ethnobotanical surveys and traditional knowledge systems, valuable insights are gained into the seasonal food security and economic contributions provided by the utilization of wild edible plants. By highlighting the importance of Hatga trees as a source of vitamins, micro-nutrients, and medicinal properties, this article underscores the significance of WEPs in promoting health and well-being, particularly in regions where access to fresh produce is limited. Furthermore, the economic opportunities afforded by the utilization of WEPs offer potential pathways for income generation and livelihood enhancement among tribal and rural communities.

Keywords: Hatga, nutrition, food security, vidarbha region

Introduction

Wild edible plants (WEPs) refer to species that are neither cultivated nor domesticated, but available from their natural habitat and used as sources of food (Beluhan and Ranogajec, 2010) [2]. Wild edible plants have since ancient times, played a very important role in human life; they have been used for food, medicines, fibre and other purposes and also as fodder for domestic animals (Kanchan, 2011) [7]. Various studies have found wild edible plants are the potential source of nutrition while in many cases is more nutritious than the conventionally eaten crops (Grivetti and Ogle, 2000) [5]. India is the second largest human populations in this planet, 68.8% of the population is living in the rural areas (Census, 2011) [3]. Most rural communities depend on the resources which are available in nature, including wild edible plants to meet their food needs in periods of food crises, in addition to added food supplements (Rashid, 2008) [10]. Use of wild edibles is diminishing at fast pace but it is clear that in many parts of the world the use of wild edibles is still prevalent. Consumption of wild edibles is a major source of vitamins and micro-nutrients for people using only vegetarian diets rich in carbohydrates.

Food insecurity, on the other hand, is a situation of "limited or uncertain availability of nutritionally adequate and safe foods or limited or uncertain ability to acquire acceptable foods in socially acceptable ways", according to the United States Department of Agriculture (USDA). Attaining food security is a matter of prime importance for India where more than one third of its population is estimated to be absolutely poor, and as many as one half of its children have suffered from malnourishment over the last three decades (Ittyerah, 2013) [6]. WEPs are gathered for food, nutrition and livelihoods by different cultures around the world. These plants are gathered from varied habitats from natural forests, agricultural fields to human disturbed areas such as roadsides and wastelands. Forest forms the most important source of wild foods for rural households and forest inhabitants. Among some indigenous people utilization of WEPs is integral component of their culture. Various studies have found wild edible plants are potential source of nutrition while in many cases are more nutritious than conventionally eaten crops (Grivetti and Ogle, 2000) [5]. Besides food and nutrition, utilization of WEPs as coping strategies during scarcity is prevalent, particularly in developing countries where food insecurity is more acute. Diversity of plant foods consumed provides nutritional diversity and also food during famine or scarcity of favoured foods (Hatloy *et al*., 1998). Potential of WEPs in providing source of income and livelihoods in rural settings is acknowledged around the world (Dutta, 2012) [4]. Traditional knowledge exists worldwide in all communities covering varied areas including health, agriculture and natural resource management. In case of the developing world Africa and Latin America are also rich in traditional knowledge but they are to be found by and large only as oral traditions. Asia in general and India in particular have a distinction that traditional knowledge is found not just as oral tradition but also as classical literature that is written down with its own theoretical framework and with a clear exposition of the basic principles of world views (Nene, 2012) [9]. There are reports on wild food plants used during famine in Indian conditions (Nene, 2004; Balkundi, 1998) [8] [1]. In some areas local food produce is hardly sufficient to meet about two thirds of local requirements. Thus for about four months in each year some of its unfortunate inhabitants have to migrate to the neighbouring cities and remaining people are obliged to subsist on a starvation diet.

With the rabi crops almost ready for harvest, the farms in Maharashtra have little else to offer in February. The moisture in the soil dries up, and new vegetables stop growing. Wadis, or large kitchen gardens, where some of the traditional vegetables are grown, also become barren. While farming households get busy drying the harvest in the sun, there is little variety in food to tickle the taste buds.

This gap in the food cycle, roughly from February to March, is the time when Heti flowers (*Sesbania grandiflora*) bloom. Relished as a seasonal delicacy, these soft white blossoms, with occasional pinkish streaks, provide brief succour from the monotony of dal and dried foods. Heti, which is in full bloom for almost a month, is most widely eaten in the Konkan area of Maharashtra, where it is known as Hadga. It is also relished in the Vidarbha and Marathwada regions of the state. In the bucolic landscapes of rural areas, the humble Agathi tree, known as Heta or Hadga in local dialects, is not merely a botanical entity but a source of sustenance, medicinal marvels, and culinary delights. This versatile plant, scientifically classified as *Sesbania Grandiflora*, has woven itself into the fabric of rural life, earning the endearing moniker 'Hetyachi Phule' in regional parlance of Vidharbha region of Maharashtra.

Origins: Hatga is believed to have originated in Southeast Asia or the Indian subcontinent, where it thrives in hot and humid climates. Its exact origins are difficult to pinpoint due to its widespread cultivation and naturalization across tropical and subtropical regions. Hatga holds a special place in cultural practices and rituals, where it is often associated with fertility, abundance, and well-being. In some communities, Hatga trees are planted near homes or temples for their auspicious symbolism and believed protective properties.

Morphology of the Hatga tree

The Hatga tree, scientifically known as *Sesbania Grandiflora* or *Agati Grandiflora*, is a striking specimen characterized by its elegant appearance and distinctive botanical features. From its towering stature to its delicate foliage, the morphology of the Hatga tree offers a fascinating glimpse into the intricate architecture of this revered botanical entity.

Height and stature

The Hatga tree is renowned for its tall and graceful stature, reaching heights of up to 8-15 meters (26-49 feet) when fully mature. Its erect, slender trunk forms the backbone of the tree's structure, providing stability and support for its sprawling canopy of leaves and flowers.

Leaves

The leaves of the Hatga tree are compound and pinnate, arranged alternately along the branches. Each leaf is composed of multiple leaflets, typically numbering 20-40 pairs, imparting a lush and verdant appearance to the canopy. The leaflets themselves are linear or oblong in shape, with smooth margins and a glossy green surface.

Flowers

One of the most captivating features of the Hatga tree is its profusion of showy flowers, which bloom in clusters along the branches. The flowers are pendulous and possess a striking color palette ranging from white to pink, adding a splash of vibrancy to the tree's canopy. Each flower consists of five petals arranged in a distinctive trumpet-like shape, attracting pollinators with their alluring fragrance and nectar.

Fig 1: *Sesbania grandiflora linn*

Fruits

Following the bloom of its exquisite flowers, the Hatga tree produces elongated seedpods, reminiscent of slender beans. These pods, known as fruits, develop from the fertilized ovaries of the flowers and contain numerous seeds within. When young, the pods are tender and green, gradually maturing to a woody brown as they ripen.

Fig 2: *Agati grandiflora*

Bark

The bark of the Hatga tree is light gray and corky in texture, with deeply furrowed ridges running vertically along the trunk. This rugged bark provides protection for the tree's inner vascular tissues while also serving as a distinctive feature for identification.

Root System

Below the ground, the Hatga tree boasts a robust and extensive root system, enabling it to anchor firmly in the soil and access essential nutrients and water. The roots may extend deep into the earth, forming a network of interconnected structures that support the tree's growth and development.

Culinary wonders of Heta/Hadga

In the heart of rural kitchens, Hatga blossoms into a gastronomic treasure trove. The flowers, with their delicate white to pink hues, take center stage in a variety of dishes. From Pakodas and Bhajiyas to curries and vegetable

preparations, the versatility of Hatga flowers shines through. The flowers, rich in sugar and iron, impart a flavor reminiscent of mushrooms, adding a unique touch to local delicacies. The culinary creativity doesn't stop at the flowers. Immature seedpods, resembling long, narrow beans, find their way into the local cuisine, either boiled as a vegetable or incorporated raw into salads. The seeds themselves, a protein powerhouse, become a valuable nutritional addition to the rural diet.

Medicinal marvels and traditional healing

In the realm of traditional medicine, Hatga emerges as a potentally, offering a treasure trove of healing properties derived from various parts of the plant. From its delicate flowers to its rugged bark, each component contributes to the rich pharmacopeia of rural communities, embodying centuries-old wisdom passed down through generations.

1. Bioactive compounds and therapeutic potential

At the heart of Hatga's medicinal prowess lies a complex array of bioactive compounds, including tannins, flavonoids, coumarins, steroids, and triterpenes. These phytochemicals interact synergistically to exert a wide range of therapeutic effects, making Hatga a versatile herbal remedy for a multitude of ailments.

2. Leaves: aperient and diuretic delights

The leaves of Hatga, prized for their aperient and diuretic properties, serve as the cornerstone of many traditional remedies. Crushed leaves are applied topically as poultices to alleviate sprains, bruises, rheumatism, and itching, providing soothing relief to weary bodies. Furthermore, a tea brewed from the leaves is believed to possess a potent cocktail of antibiotic, anthelmintic, antitumor, and contraceptive properties, offering a holistic approach to wellness.

3. Bark: bitter elixir of healing

With its bitter profile, the bark of Hatga emerges as a powerful astringent, febrifuge, tonic, and antipyretic agent. Decoctions made from the bark serve as potent elixirs to combat fever, diarrhea, dysentery, and even diabetes, offering respite to those grappling with the trials of illness.

4. Fruits, flowers, and beyond

Beyond leaves and bark, various other parts of Hatga contribute to its medicinal repertoire. The fruits, flowers, gum, and root barks all harbor therapeutic potential, enriching the pharmacopeia of traditional healers. As modern medicine continues to advance, the traditional healing wisdom encapsulated in Hatga faces the risk of being forgotten. However, efforts to preserve and promote indigenous knowledge systems are underway, recognizing the invaluable contributions of plants like Hatga to human health and well-being.

Botanical diversity of HATGA

At its core, HATGA encompasses two distinct botanical varieties: *Sesbania Grandiflora* and *Agati Grandiflora*. While both varieties belong to the Sesbania genus within the Fabaceae family, they exhibit subtle differences in morphology, distribution, and ecological preferences.

a. ***Sesbania grandiflora*:** This variety, characterized by its large, showy flowers and pinnate leaves, is widely distributed across South Asia, particularly in India, Bangladesh, and Myanmar. It thrives in hot and humid climates, often found in lowland areas and along riverbanks.

b. ***Agati grandiflora*:** Similar in appearance to *Sesbania Grandiflora*, *Agati Grandiflora* shares many botanical traits with its counterpart. However, subtle genetic variations and ecological adaptations distinguish it as a separate botanical variety. *Agati Grandiflora* is also native to South Asia and is cultivated for its ornamental value, medicinal properties, and culinary uses.

Cultural Diversity of Hatga

Across the diverse cultural landscapes of South Asia, Hatga takes on a multitude of regional names, reflecting the rich linguistic diversity and cultural heritage of the region. From the foothills of the Himalayas to the coastal plains of the Indian subcontinent, the tree is revered under various monikers, each carrying its own cultural significance.

1. Gaach Munga: In Hindi, the tree is affectionately referred to as "Gaach Munga," highlighting its stature as a cherished botanical entity in Indian culture. The term "Gaach" translates to "tree," while "Munga" likely denotes its characteristic flowers.

2. Shevari, Hatga, or Heta: In Marathi, the language spoken in the Indian state of Maharashtra, the tree goes by multiple names, including Shevari, Hatga, or Heta. These regional designations underscore its deep-rooted presence in local folklore, cuisine, and traditional medicine.

3. Other Regional Names: Beyond Hindi and Marathi, Hatga is known by a plethora of regional names across South Asia. In Bengali, it may be called Buko or Bak, while in Tamil, it goes by Sevvagatti or Muni. In Malayalam, it is known as Akatti, in Telugu as Ettagise or Sukanasamu, and in Kannada as Agasi. The tree's presence is also felt in Urdu as Agst and in Gujarati as Agathio.

The diverse array of regional names bestowed upon Hatga speaks to its profound significance in the cultural consciousness of South Asia. Across linguistic boundaries and cultural divides, the tree serves as a unifying symbol of shared heritage, connecting communities through a common reverence for nature's bounty.

Conclusion

The Hatga tree, with its unassuming presence in rural landscapes, is a testament to the profound interconnection between nature, culture, and well-being. Beyond the confines of traditional medicine and culinary artistry, Hatga stands as a symbol of resilience, adaptability, and the enduring relationship between humanity and the plant kingdom. As we delve deeper into the rich tapestry of biodiversity, Hatga emerges not just as a botanical entity but as a living, breathing embodiment of sustenance, healing, and the intrinsic bond between rural communities and the land they call home. Wild species and intra-species biodiversity have key roles in global food security. The utilization of wild edible vegetables is declining rapidly, yet their prevalence persists in many regions globally. These

plants exhibit remarkable adaptability to diverse ecosystems and are accessible during periods of food scarcity. Despite being overlooked, wild edible plants offer seasonal and nutritional security comparable to cultivated crops, as they are available year-round in various forms. Thus, preserving traditional knowledge and conserving these genetic resources, particularly wild relatives of crop plants, is imperative to sustain biodiversity and ensure food security in the face of changing environmental conditions.

Future Study

Intensive research is essential to determine the optimal locations, planting seasons, and quantities of wild edible plants suitable for commercial cultivation. Biodiversity considerations should be integrated into food consumption surveys to assess the performance of these plants. Documentation and protection of existing wild edible plants and their habitats are crucial for biodiversity conservation. Acquiring nutrient data on biodiversity is necessary for informed decision-making in GMO research and cultivar promotion. Reforestation efforts for wild edible plants should be encouraged to restore ecosystems. Valuing wild edible plants in different ecosystems is important for understanding their ecological significance. Empowering the collection, processing, and value addition of wild edible plants can enhance their utilization. Developing technologies for processing and value addition of wild edible plants is vital for increasing their marketability. Establishing food forests is urgently needed to address food and nutrition security for growing populations.

References

1. Balkundi HV. Famines and droughts in the Indian subcontinent during the 5th century BC to 18 th Century AD. Asian Agri-History,1998:2:305-315.
2. Beluhan S, Ranjogajec A. Chemical composition and nonvolatile components crotial wild edible mushrooms. Food chemistry,2010:124:1076-1082.
3. Census of India. Office of the registrar general and census commissioner, India. Ministry of home affairs, Government of India,2011:1:2. (http://www.censusindia.gov.in/vital_statistics/SRS_Reports.html)
4. Dutta U. Wild vegetables collected by the local communities from the Chirang Reserved Forest of BTAD, Assam. International Journal of Science and Advanced Technology,2012:2(4):116-126.
5. Grivetti LE, Ogle BM. Value of traditional foods in meeting macro and micronutrient needs: the wild plant connection. Nutrition Research Reviews,2000:13:31-46.
6. Ittyerah AC. Food security in India: Issues and suggestions for effectiveness. Indian institute of public administration, New Delhi, 2013.
7. Kanchan LV. Nutritional analysis of indigenous wild herbs used in eastern Chhattisgarh India. Emir journal of food and agriculture,2011:23(6):554-560.
8. Nene YL. Plant species utilized as food during famines and their relevance today. Asian Agri-History,2004:8(4): 267-278.
9. Nene YL. Significant milestones in Evolution of agriculture in the World. Asian Agri-History,2012:16(3):219-235.
10. Rashid A. Less known wild edible plants used by the Gujjar tribe of district Rajouri, Jammu & Kashmir state, India. International journal of Botany,2008:4(2):219-224.