Chapter 4

Begonia picta Sm., an unexplored medicinal food of forest

Kadambini Das, Sundar S Mety, Gayathri G, Jeline Rani J, BL Manjula* and Sanjeet Kumar

Department of Botany, RLSY College (Bettiah), BRAB University, West Champaran, Bihar, India
Department of Botany, Shri Gavisiddeshwara Arts, Science and Commerce Degree College, Koppal, Karnataka, India
Division of Plant Breeding and Genetics, Kerala Agricultural University, Vellayani, Kerala, India
Department of Botany, Bishop Heber College, Trichy, Tamil Nadu, India
Department of Botany, Sri Jagadguru Renukacharya College of Science, Arts and Commerce, Karnataka, India
Ambika Prasad Research Foundation, India
*Email-Id: manjulasrivats@gmail.com
DOI:

Abstract

Begonia picta is a widespread species of flowering plant in the family Begoniaceae. It is distributed throughout Nepal, Pakistan, India, and Bhutan between 600 and 2800 m elevation. The plant is harvested from the wild for local use as a food and medicine. In Ayurveda, the plant is used for curing various diseases like headaches, skin infections, stomach problems, etc. As people throughout the world are suffering from various untreatable and unknown diseases, these types of wild foods and nutraceuticals are required to boost our immunity, which will help us fight against several diseases and disorders. Keeping this in mind, an attempt has been made to gather information on B. picta and its food, medicinal and economic values. Morphological descriptions and photographs are also provided for easy identification in the field.

Keywords: Unexplored, traditional food, economic values, leafy vegetables

1. Introduction

Indigenous knowledge of different wild foods is an important part of the primary healthcare system (Misra et al. 2012; Kumar et al. 2012; Kumar et al. 2013; Kumar 2015; Kumar et al. 2021). Modernization, migration, education, and the evolution of the socioeconomic status of people affect the perpetuity of traditional knowledge (Shrestha et al. 2015; Kanhar et al. 2020; Manjula et al. 2023). Therefore, from time to time, updated information regarding unexplored foods or medicinal plants must be taken out so that any addition to the traditional knowledge is received and further studies may be conducted for the development of unexplored medicinal foods (Kumar and Jena 2017; Swain et al. 2022; Manjula et al. 2022). There are so many food plants available in the forests that are still unexplored, and *Begonia picta* is one of them, native to the Himalayan regions of India and Nepal (Rajbhandary et al. 2010). Most *Begonia* species are succulent and hydrophilic herbaceous plants. Therefore, the availability of water is essential for their growth. Hence, we can find the proper growth of *B. picta* during the rainy season on the marshy surface of rock and forest slopes (Rajbhandary and Shrestha 2010). *B. picta* has immense potential to promote public health as well as capture the national and international markets, but many countries are still far behind in grabbing the opportunities to utilise these available resources. So, priority should be given to documenting indigenous knowledge and conserving their existing species and habitats (Manandhar 1995). It is used in many parts of Nepal as an ornamental pot plant and also is used for the treatment of mud-induced toe wounds. Documentation of indigenous plants through ethnobotanical studies and scientific knowledge is becoming very essential nowadays. Further scientific and systematic explorations regarding the utilisation of medicinal herbs greatly contribute to the value addition of indigenous plants like *B. picta* (Shrestha et al. 2016; Khairnar et al. 2018). The chapter highlights the importance of unexplored nutraceutical from forest.

2. Morphology

It is a perennial, hairy herb with a globose rhizome. It is 2–3 feet in height. Branching occurs at the nodes. Leaves are ovate, oblique, hispid, and ciliate, with a bidentate margin and an acuminate apex. The venation of the leaf is palmate. Inflorescences are terminal, 6 to 15 cm tall. pubescent; bracts are ovate-lanceolate, abaxially pilose. The flowers are light or dark pink in colour, and the flowering period is from July to September. Fruit is a pendulous, oblong capsule. capsule-dry, sometimes berry-like, unequally, or sub-equally 3-winged, rarely wingless, and 3- or 4-horned. Seeds are very numerous, pale brown, oblong, minute, and reticulate. *B. picta* is mostly Located on the margins of the forest in humid environments with shade and slope area on the rocks (Huxley 1992; Saxena and Brahmam 1995; Figure 1).

3. Food values

Traditionally, *B. picta* was eaten raw or in the form of pickles by several communities. Tender shoots are also fermented and eaten as pickles. The leaves have an acidic taste and are cooked as a leafy vegetable for their delicious, sour taste (Figure 2; Present study). It is locally called Mamuli saag or Khata saag in Odisha (Present study). The flower is also used for making pickles in the Daman area of Makwanpur district (Sigdel 2004). In many areas, tribal people make chutney from the leaves (Present study). In some cases, the whole plant is fed to sterile animals to help them conceive. The flowers of this species are loved for their slightly bitter or tangy flavour. Flowers are edible and can be added to salads or a bowl of greens. It is also used as an edible garnish in cocktails and mocktails. The leaves of *B. picta* are used to flavour for fish and meat mixtures. This has also been cooked as potherbs in Myanmar (Burma), India, Indonesia, and Japan. In the West Indies, leaves are used as tea for colds (Rajbhandary 2013; Present study).



Figure 1: Habit and habitat of B. picta in Bonai Forest Division, Odisha, India



Figure 2: Dish prepared from the leaves of B. picta

This perennial herb not only offers delicious food but also provides significant potential health benefits that we may not be aware of. The beautiful-looking *B. picta* is known to fulfil vitamin C deficiencies in the body. *B. picta* also contains soluble calcium oxalates, which can efficiently heal the body, enhance the glow of skin, and promote hair growth (Pise et al. 2012).

4. Ethnomedicinal

Plants have played an important role in curing mild to chronic health problems since ancient times when allopathy had no existence on the planet (Kumar and Jena 2017). *B. picta* is a potential medicinal plant used to treat various ailments. The root juice of *B. picta* is used as eye wash to treat conjunctivitis. The juice from the whole plant is taken to relieve headaches and consumed in the treatment of peptic ulcer. The whole plant paste is applied to stop bleeding from cuts and wounds and is applied externally on ringworm and scabies (Khajuria et al. 2021). Plant decoction is used in colic and dyspepsia. Paste of young shoots is also taken for respiratory tract infections (Present study). *B. picta* also called patherchatta in India and is used in the treatment of dysentery

and mouth ulcers. The whole plant is used as an appetizer and juice of leaves about 4 teaspoonfuls three times a day is given to relieve the fever (Rajbhandary 2013; Shrestha et al. 2015; Present study).

5. Pharmacological

Fewer works have done on its pharmacological values. It contains the phytochemicals such as saponin, tannin, terpenoid, carbohydrate, flavonoid, phenol, glycosides, cardiac glycosides, anthraquinone glycosides, etc. From the studies, it is found that *B. picta* contains a larger number of phytochemicals that possess great advancement in health benefits or disease-curing components (Shrestha et al. 2015).

6. Economic importance

The Begoniaceae species are distributed worldwide in tropical areas (Bhattarai and Rana 2022). The genus *Begonia* has thousands of hybrids and cultivars. Among them, *B. picta* is primarily used as a harvested ornamental. The leaves of *B. picta* are sold in the market by many tribal people in their local market. They used to sell the leaves in bundles, and the cost per bundle is 10 to 20 rupees (Present study).

7. Conclusion

Contemporary situation demands the plants having both food and medicinal values due to lot of health problems. In this aspect, *B. picta* is suitable and unexplored plant used by tribal communities for food and medicinal purposes. Therefore, it could be a strong unexplored plant having sound potential for development of nutraceutical for all in sustainable way. It could provide a new food for urban areas and livelihood for local communities. Need to do work on it in this aspect.

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