

STUDIES ON *BEGONIA CRENATA* DRYAND. (BEGONIACEAE) – A WILD EDIBLE MEDICINAL HERB OF MELGHAT, MAHARASHTRA

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Tribals, forest dwellers and rural folk living in interior area still depend on their traditional knowledge to fulfill daily needs. About 3900 plant species are known to be used as subsidiary food/vegetables by tribals. However, scanty information is available regarding their nutritional status. Present study deals with nutritional as well as nutraceutical status of *B. crenata* Dryand, which is favored beautiful wild edible as well as medicinal herb used by Korkus of Melghat.

Keywords: Melghat; Maharashtra; Nutritional and nutraceutical evaluation; Wild edible.

Tribals, forest dwellers and rural folk living in remote areas are found to use several wild plant species as subsidiary food or vegetable. Jain¹ has listed 616 genera with one or more edible species. "A status Report" of All India Co-ordinated Research Project on Ethnobiology conducted by Ministry of Environment and Forests, New Delhi has reported 3900 wild edible plant species². Negligible work has been carried out to understand the nutritional potential of these^{3,4}. Many of the wild edibles are used as medicine also. This imparts additional health benefits. It is therefore necessary to evaluate the nutritional as well nutraceutical status of such wild edibles.

Begonia L. is represented by 80 species in India, of which 30 are exotic⁵. The leaves have pleasant flavor and acid taste. Eight species occur in Maharashtra⁶, of which only *B. crenata* is used as vegetable and to treat acidity by tribals of Melghat. There is no mention of *B. crenata* in earlier literature either as pot herb or medicine.

Plants were brought to laboratory, thoroughly washed and surface dried under cool air current. For analysis fresh material was preserved at 4°C, while dry powder was made of shade dried plants. For nutritional evaluation moisture content, crude fibre, total carbohydrates, starch, reducing and non-reducing sugars, crude protein, total nitrogen, total phenols were quantitatively estimated^{7,8}. For evaluation of medicinal properties, plant tissue was tested qualitatively for the cardenolides, flavonoids, leucoanthocyanins, simple phenolics, polyoses, polyuronoids and anthracene glycosides⁹⁻¹⁵. Plant ash was prepared to estimate the mineral content (in the form of salts) and further qualitative analysis was done to detect various minerals like sulphur, calcium, magnesium, iron, sodium, chloride, phosphorus, aluminium, copper and nickel. Phosphorus, iron, potassium, calcium and sodium were estimated quantitatively by flame photometer^{11,13,16,17}

Begonia crenata Dryand. is a small subtuberous

herb with 1-3 leaves. Stem and petioles slender, succulent, dark pink or red. Leaves 2.5 - 6 X 2 -6 cm, suborbicular, cordate at base, crenate with scattered hairs on upper surface. Flowers pink, few on long peduncle; unisexual. Male flowers with 2 sepals and 2 petals; stamens many, monoadelphous. Female flowers with 5 perianth segments. Ovary inferior. Styles three. Fruit a winged, hairy capsule. Flowers and fruits- September to October. Found occasionally on vertical, humus rich cliffs along road sides, river beds and valley bottoms.

Locally plant is known as 'Khatti Bhaji'. Young leaves are eaten raw. Some what older leaves are cooked into vegetable. Leaf juice is given orally in acidity.

The plant being succulent, moisture content is as high as 92.32%. Primary nutrient content is comparatively low (Table 1); however, it is rich in ascorbic acid, carotenoids and other pigments (Table 2). Qualitative analysis of ash shows presence of Ca, Cl, S, Mg, Fe, Na, P and Al (Table 3). Quantitative mineral profile shows high potassium, iron and sodium content (Table 4).

Though calcium content is comparatively low, it is more than Lettuce (50 mg) and Cabbage (39 mg). Iron content is much more than any conventional and less familiar foods, maximum being reported for *Portulaca* (58.2 mg). Carotene content is equivalent to *Ambatchuka* (*Rumex vesicarius*)¹⁸. Daily requirement of carotene (2400 ug) can be easily met from *B. crenata*¹⁹.

The herb was found to contain bioactive phytochemical like anthroquinones, flavonoids, leucoanthocyanins, catechol, steroids, triterpenoids and polyoses which may be imparting medicinal value to the plant. Phenol content of the herb is also quite higher, which acts as antioxidant and is useful in controlling allergies, ulcers, tumors, platelet aggregation and reducing the risk of high blood pressure and estrogen induced cancers¹⁹.

B. crenata with its beautiful pink flowers can be introduced as tasty, medicinal salad in star hotels for health

Table 1. Nutrients per 100 gm dry weight.

Starch	Carbohydrate	Reducing sugar	Non reducing sugar	Total nitrogen	Crude fibre	Crude Protein	Crude fat
124.4 mg	783.3 mg	476.16 mg	6.374 mg	178.94 mg	14.36 mg	3.350 gm	88.32 mg

Table 2. Nutrients per 100 gm. fresh weight.

Total lipids	Ascorbic Acid	Total phenols	Anthocyanins	Lycopene	Carotenoids	Chlorophyll - a	Chlorophyll - b	Total Chlorophyll
330 mg	35 mg	950 mg	2.135 gm	58.7 mg	108 mg	35.1 mg	16.64 mg	51.73 mg

Table 3. Qualitative mineral profile (- absent, + weak, ++ moderate, +++ strong response).

Calcium	Chlorine	Sulphur	Magnesium	Iron	Sodium	Phosphorus	Alumi	Manga	Nickel	Copper
									nium	nese
+++	+	++	++	+++	+++	++	+++	-	-	-

Table 4. Minerals per 100 gm dry weight.

Phosphorus	Iron	Potassium	Calcium	Sodium	Total mineral content
67.0 mg	172.39 mg	1338.65 mg	65.3 mg	1175.4 mg	13.06 gm

conscious people. If brought under cultivation it can fetch additional income for the tribals of Melghat.

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