

A review on potential underutilized medicinal fruit plant Bhela (*Semecarpus anacardium* L.)

A. GHOSH, K. DEY, B. C. DAS, F. K. BAURI, ¹S. K. GHOSH

Department of Fruits and Orchard Management,

Bidhan Chandra Krishi Viswavidyalaya, Mohanpur -741252, Nadia, West Bengal

¹Department of Pomology and Post-Harvest Technology,

Uttar Banga Krishi Viswavidyalaya, Pundibari -736165, Cooch Behar, West Bengal

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ABSTRACT

Bhela or bhallatak (Semecarpus anacardium Linn.) has been used for medicinal and non-medicinal purposes since ancient times. The toxicity of bhallatak precludes its mega scale production particularly as a medicine at the industrial level. The properties of this fruit used against various diseases after proper detoxification. However, traditional healers and physicians of Indian systems of medicine continue to use bhallatak in various forms in their clinical practice. Several experimental investigations have been undertaken in diverse in vitro and in vivo models. The major focus of these investigations reported in the current literature regarding on its historical background, botany, general uses with pharmacological activity, poisonous nature, antidotes and propagation to get a better insight and comprehend its narrow therapeutic margin. It is important to understand the significance of Ayurveda inspired investigation of this traditionally acclaimed medicinal plant.

Keywords : Bhela, medicinal plant, pharmacological activity

Plants are the basis of life on earth and are central to people's livelihood. The people are generally depends on nearby forest areas to supply their needs such as medicine, timber, fuel-wood, wild vegetables and many more. For thousands of years, cultures around the world have used herbs and plants to treat illness and maintain health. Higher plants, as sources of medicinal compounds continue to play a dominant role in maintenance of human health since antiquities (Jain and Sharma, 2013). Traditional medicines, particularly herbal medicines, have been increasingly used worldwide during the last two decades (Mukherjee, 2013). Bhela (*Semecarpus anacardium* Linn) is one of the best, versatile medicinal plant in Ayurvedic medicine, belongs to the family anacardiaceae. It is commonly known as marking nut, bhela, bhallataka and bhilawa. This plant is distributed in sub-Himalayan region, tropical region, Bihar, Bengal, Orissa and central parts of India. It is known to the world from ancient times as one of the most powerful and fast acting Ayurvedic plants and has been claimed as "HALF PHYSICIAN" in Ayurveda (Poornima *et al.*, 2013). The paper is an attempt to review the available information on historical background, botanical description, chemical composition, pharmacological activities, therapeutic evaluation, propagation and current status to tap this crop as potential for this region.

Historical background

Medicinal information referred in the old Indian literature includes only few medicinal plants which are attracted by the scientist, bhela is one of them. In Ayurveda and Siddha classics and copious references

regarding the properties and uses of this crop are found. Charak, Sushrut and Vagbhatt, the main three treatises of Ayurveda have described the medicinal properties of Bhela and its formulation (Jain and Sharma, 2013).

Botanical description

It is a moderate sized deciduous tree, growing up to a height of 12-15 m. Leaves are simple, 17.5-60.0 cm long and 5-20 cm broad, obovate-oblong, glabrous above, ashy grey or buff and pubescent beneath. The plant grows normally in tropical and dry climate. Bark is dark grey in colour and exuding an irritant secretion on incising. Flowering occurs in June and flowers are small, dull greenish yellow, dioecious, in terminal panicles. Fruits are ripe between December to March and are 2-5 cm long, obliquely ovoid, smooth, shining, black when ripe, situated on fleshy orange coloured receptacle. It has got no specific soil affinity and easily recognized by large leaves and the red blaze exuding resin, which blackens on exposure.

Chemical composition

The proximate principals, vitamins and minerals content of Bhela nuts (100g) are protein 26.4g, fat 36.4g, minerals 3.6g, fiber 10.4g, energy 587kcal, calcium 295mg, phosphorous 836mg, iron 6.1mg, thiamine 0.38mg, riboflavin 0.15mg, niacin 2.7mg. Its most significant components are phenolic compounds. Two main phenolic compounds and one glucoside are bhilavanol A (monoeneptadecyl catechol I), bhilavanol B (dienepentadecyl catechol II) and anacardoside (Goudgaon *et al.*, 1984; Gil *et al.*, 1995). Important biflavanoids such as semecarpetin, sterols, semecarpol,

Potentiality of Bhela Plant

nallaflavanone, galluflavanone, biflavanoids, amentoflavone (leaves) have been also isolated (Murthy, 1985). Different types of organic acids also present in nuts like linoleic acid (17.1 %), oleic acid (60.6 %), palmitic (16%) and stearic acids (3.8 %) (kernel oil), anacardic acid (1.4 %) *etc.* (Jain and Sharma, 2013).

Traditional uses

Bhela is used for dyeing, and promoting hair growth in folk medicine. It was used by washer men to mark cloth before washing, as it imparted a water insoluble mark to the cloth (Jain and Sharma, 2013).

Pharmacological activities

Fruits are anti-cancer, anti-tumour, anti-oxidant, anti-inflammatory, analgesic, anti-arthritis, hypotensive, anti-spasmodic, anti-allergic, nematocidal, immune suppressive, anti-neoplastic, cytotoxic, cytoprotective, expectorant, anti-arthritis, hypo cholesterolemic, anti-bacterial, moderate analgesic, immune modulatory, cardiac depressant (Mathivadhani *et al.*, 2007). They are also useful in beriberi, cough, constipation, liver disorders. The gum exuding from the bark is useful in scrofula, venereal diseases and leprosy affections. Oil is powerful antiseptic and cholagogue. It is used in scaly skin eruptions like psoriasis and leucoderma (Krithikar and Basu, 1975). In glandular swellings and filariasis, the application of its oil facilitates to drain out the discharges of pus and fluids and eases the conditions. It is also use as a brain tonic, blood purifier and haematonic tonic.

Therapeutic evaluation

A controlled clinical trial was conducted with milk decoction of bhela in 25 patients of arthritis, spondylitis, sciatica and knee joint arthritis. Among them 19 patients responded well to the therapy. *Anacardium forte*- bhilawa nuts and seeds in proportion of 1:200 was found to be beneficial in giving clinical relief to cancer patients, improves general condition and increases life span. No unpleasant or toxic symptoms were observed in any case (Krantikumar and Atul, 2015).

Poisoning nature and its antidote

Bhela is classified in Ayurveda under the category of toxic plants and associated with several side effects, if used unpurified. Individuals showing allergic reactions to it should stop and avoid the usage of bhellataka. It should not be used in small children, very old persons, pregnant women and individuals of predominant pitta constitution. The use of the same should be restricted in summer season. So, before using of bhela as internal medicinal purpose, it is necessary to detoxifying it by

washing with warm water or other method. Many traditional books described the various methods of purification for plant containing toxic materials. These purification methods are known as 'Sodhana' in traditional language (Gajjar *et al.*, 2011). For its allergic reactions like rash, itching and swelling, the externally used antidotes are coconut oil, ghee, ointment, coriander leaves pulp or butter mixed with musta (*Cyperus rotundus*). The fresh juice of the leaves of *Tamarindus indica* internally, is one of the antidotes for such symptoms (Jain and Sharma, 2013).

Propagation and cultivation

It is propagated by seeds. Having poor viability the seeds should be sown soon after collection. Seedlings are frost-sensitive but have good power of recovery; they are found to damp off at a tender stage. The tree is a moderate shade-bearer and coppices well. It tolerates variety of soils and climatic conditions.

Current status and recommendation

Bhela is one of the most important medicinally important plants which may be use as alternatives of medicine. Several studies show that it nut's extract have various phytochemical which is able to fight against several disease but due to the toxic activities, large size, allergic effect are loss of traditional knowledge generation by generation, most of the peoples don't know the importance and proper use of this crop, that's why now a day's peoples are avoiding to gardening it in surrounding area. Now bhela plant has become a wild plant, it found only in forest area. Day by day the quantity of this plant is decreasing, it is need to aware its importance to society otherwise it will be become rare and we will loss one of important plant from the dictionary of Indian medicinal plants.

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