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Review

Psoralea corylifolia L. (Buguchi) — Folklore to modern evidence: Review

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ABSTRACT

Psoralea corylifolia is an important medicinal plant which is used in several traditional medicines to cure various diseases. The plant extracts have been reported to possess antibacterial, antitumor, antioxidant, anti-inflammatory, antifungal and immunomodulatory activity. A wide range of chemical compounds including psoralen, isopsoralen, bakuchiol, psoralidin, bakuchalcone, bavachinin, flavones, volatile oils, lipids etc. are found in different parts of the plant. The present review is therefore, an effort to give a detailed survey of the literature on its botany, phytochemistry and ethnopharmacology along with special emphasis given on pharmacological activities of plant *P. corylifolia*.

Contents

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1. Introduction

Among the largest families of flowering plants – Leguminosae, contains about 500 genera and more than 12,000 species, some of the genera contains biologically active compounds for example-Species of *Psoralea*, Pongamia, Alhegi and Indigofera which are reported for the treatment of variety of ailments. A species of *Psoralea*, indigenous to United States, commonly found in Southern States and west of the Alleghenies had attracted great attention as a medicine. The name of the genus is derived from the Greek *psoraleos*, which means "affected with the itch or with leprosy".

2. Occurrence, botanical description and ethnopharmacology

Psoralea corylifolia (Leguminosae), is an erect annual herb widely used in Ayurvedic medicine as well as in Traditional Chinese medicine almost throughout India [1]. The name of the genus is derived from the Greek word *psoraleos*, which means "affected with the itch or with leprosy" [2]. In India, it is known by its vernacular names, the most commonly used ones are Bemchi, Bawchi, Babachi (Hindi), Aindavi, Avalguja, Bakuchi, Chanderlekha, Chanderprabha, Kushthahantri, Sitavari, Somaraji, Vejani, Vakuchi, Sugandha kantak, Krishnaphala, Chandraraji, Asitatvacha, Kalameshi, Somavalli, Bakuci, Sasankarekha (Sanskrit), Babchi, Bavacha, Bawachi (Urdu), Babechi, Babchi, Bavacha, Babichi, Bawchi (Gujarati), Bavachya, Bavachi Babachi, Bavanchi (Marathi), Bavanchalu, Bavanchi-vittulu, Bogi-vittulu, Karu-bogi, Kala-ginja (Telegu), Karpokarishi, Karpuva-arishi, Karpuvanshi, Kaarboka-arisi, Karpogalarisi (Tamil), Somaraji, Bavanchigida, Karbekhiga (Kanad), Karkokil, Karkokilari, Kaurkoalari (Malyalam), Habucha (Assam), Bakuchi (Oriya), Barachi, Bavachi, Hakuch, Latakasturi, Kakuch, Bakuchi (Bengal), Babchi seeds, Psoralea seeds, Malay tea, Scurf-pea, Fountain bush, and West Indian Satinwood (English). In the other parts of world, Ku Tzu, Pu Ku Chih (China), Ravoli (Srilanka), Bakuchi (Nepalese), Loelab el abid, Mahalep (Arabic), Bawchan (German), Buckidana (Bangladesh), Bavanchi (Kanarese), Waghchi, Vabkuchi, Ba bakhi (Persian), and Bodi (Sinhalese) [3–22]. *P. corylifolia* has also known by other biological names; *Cullen corylifolium*, *Cullen corylifolia*, *Lotodes corylifolia*, *Psoralea patersoniae* and *Trifolium unifolium* [23].

A species of *Psoralea*, indigenous to United States, commonly found in Southern States and west of the Alleghenies had attracted great attention as a medicine [2]. It is found as a common weed of winter season distributed throughout India in Himalayas, Dehra Dun, Oudh, Bundelkhand, Bengal, Bombay, some valley in Bihar, Deccan, Karnataka and in various plains of India, especially semi-arid regions of Rajasthan and Eastern districts of Punjab, adjoining the Uttar Pradesh [6,24]. This plant is also widely distributed in tropical and subtropical regions of the world, especially China and Southern Africa [9,10,20]. It grows up to 30–180 cm in height, requires warm location and does not grow in shade. The plant prefers sandy, loamy, clay soils and can also thrive in acid, neutral and alkaline soils. The plant seeds are sown in March–April in lines, 30 cm apart, at the rate of seven kilograms per hectare. Seeds get mature in November, and under proper care the plant may grow for 5–7 years. *Psoralea* fruit is perennial, but cannot withstand frost and has small sized flowers which look like red clover. The plant fruit is odorless, but on chewing bears a bitter, unpleasant and acrid taste, and emits a pungent odor [25]. The leaves are arranged in racemes, simple, incisodentate, broadly elliptic and the five main nerves spring from the base of the leaf. The leaves are also clothed with white hairs on both the surfaces. The plant flowers during rains are bluish purple or yellow in color, dense axillary with long-penduncled heads in 10–30 flowered racemes. The plant pods are small (3.5–4.5 mm × 2.0–3.0 mm), flat closely pitted, ovoid-oblong, dark chocolate to almost black in color and mucronate in nature. *Psoralea* is a one seeded plant which is elongated and smooth in nature. The glabrous closely pitted seeds are compressed, dark brown in color, non endospermic, oily and free of starch. The word seed has been used though botanically these are indehiscent pods of the plant, the pericarp closely adhering to the seed [25]. *Psoralea* plant is warm by nature and therefore manifests various therapeutic actions on kidney and spleen meridians [26]. The germination percentage can be considerably increased by sowing the seeds during March–April and leaving them in the heat of the soil. Seed coverings when mechanically punctured or treatment of seeds with concentrated sulfuric acid for 1 h before sowing had been found effective in breaking the dormancy of the seeds and increasing the germination percentage considerably. The crop takes 7–8 months to reach the stage of maturity. As seeds continue to mature continuously, 4–5 pickings usually can be taken between the month of December and March. Clonal propagation of *P. corylifolia* through shoot tip and auxiliary bud culture is done. Survival rate on transfer to field was 95% [6].

The plant has been widely used in Ayurvedic and Chinese medicine system as a cardiac tonic, vasodilator, pigmentor, antitumor, antibacterial, cytotoxic and antihelmenthic [27–29].