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Research Paper

Review On: Psoralea Corylifola Linn's

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ABSTRACT:
Bakuchi (Psoralea corylifolia Linn) belongs to family Fabaceae commonly known as 'Avalguja' is a traditional medicinal plant which has been used for thousands of years in Ayurvedic system of medicine as a "Kusthaghni" (cure skin disease). In traditional medicine bakuchi is extensively used in all forms of leucoderma.It imparts vigour and vitality improves digestive power and receptive power of mind, improves the texture and complextion of skin and helps growth hair. It possesses pharmacological activites like anti-psoriatic, anti-leucodermic, anti-inflammatory, hepatoprotective, anti-helminthes effect, neuroprotective, antibacterial,anti-fungal etc. This paper gives all information regarding its various traditional uses, pharmacogonosy,phytochemical constituents and pharmacological activites to enrich our knowledge about this plant.

Keyword: *Psoralea Coryofolia Inn, pharmacological activates, Bakuchi*

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I. INTRODUCTION

Plant and produce are being used as a source of medicine since long. According to Word Health Organization (WHO) more than 80% of the world's population, mostly in poor and less developed countries depend on traditional plant based medicines for their primary health care needs [1]

Medicinal plants are the nature's gift to human beings to make disease free healthy life. If plays a vital role to preserve our health. India is one of the most medico- culturally diverse countries in the world where the medicinal plant sector is a part of time- honored tradition that is a respected even today. Here, the main traditional systems of medicine include Ayurveda, Unani and Siddha.

The earliest mention of the use of plant in medicine is found in the Regveda, which was written between 4500 and 1600 BC. During British period due to Western culture our Traditional art of natural healing is disappeared. Now it is reappearing due to realization of its important in curing disease without any side effect. Owing to the global trend towards improved "quality of life" there is considerable evidence of an increase in demand for medicinal plant [2].

plants, have been used to help mankind sustain human health since the dawn of medicine. The traditional medicine has been used since time immemorial and has been well accepted and utilized by the people throughout history. Since ancient times, plants have been an excellent source of medicines1. Plant-derived medicinal products have attracted the attention of scientists around the world for many years due to their minimum side effects and positive effects on human health [3,4]

The Psoralea corylifolia L. family is Fabaceae (Leguminosae), and is an endangered herbaceous and medicinally useful plant. It is mostly found in tropical and subtropical region of the world and it grows in the plains of Central and Eastern India.[5,6]

II. CLASSIFICATION

The plant classification details are
Kingdom: Plantae
Division: Angiospermae
Class: Dicotyledoneae
Order: Rosales
Family: Leguminosae
Subfamily: Papilionaceae
Genus: Psoralea
Species: corylifolia Linn. [7]

III. BOTNICAL DESCRIPTION

Habitat

It grows throughout the plains of India, especially in the semi-arid regions of Rajasthan and Eastern districts of Punjab, adjoining Uttar Pradesh. It is also found throughout India in Himalayas, Dehra Dun, Oudh, Bundelkhand, Bengal, and Bombay, some valley in Bihar, Deccan, and Karnataka.. The plant thrives well in areas with low to medium rainfall during the summer months and on a variety of soils ranging from sandy, medium loam to black cotton in dry tropical regions of India. The germination percentage can be considerably increased by sowing the seeds during summer, that is, March–April and leaving them in the heat of the soil. For breaking the dormancy of the seeds methods like presowing treatment with concentrated sulfuric acid for 60 min or mechanical puncturing of the seed coverings has been found effective in considerably increasing the germination percentage. The crop takes 7–8 months to reach maturity. As seeds continue to mature continuously, 4–5 pickings are usually taken between December and March. Clonal propagation of P. corylifolia through axillary bud and shoot tip culture is done. Survival rate on transfer to field was 95% [8]

Chemical composition of the plant:

The plant contain various chemical compounds including flavonoids (neobavaisoflavone, isobavachalcone, bavachalcone, bavachinin, bavachin, corylin, corylifol, corylifolin and 6-prenylnaringenin), coumarone (psoralidin, psoralen, isopsoralen and angelicin) and meroterpenes (bakuchiol and 3-hydroxybakuchiol) [9] Very high concentrations genistein found in the leaves of Psoralea corylifolia[10]

Many studies have confirmed that plants and foods rich in polyphenolic content are effective scavengers of free radicals, thus helping in the prevention of these diseases through their antioxidant activity[11]

Antioxidants which are present in plants, herbs and dieta sources help in preventing vascular diseases in diabetic patients[12]. The tannins and flavonoids are the secondary metabolites in plants supposed to be the natural source of antioxidants which stop destruction of β-cells and diabetes-induced ROS formation[13] it is used to manage diabetes as a whole with plants which show good enzyme inhibitory and antioxidant activities [14]

IV. PLANT PARTS AND USES

The plant used both externally internally. Most parts of the plant (roots, leaves, seeds and an oil from the seeds) less to be used, seeds being most commonly used.

Seed:

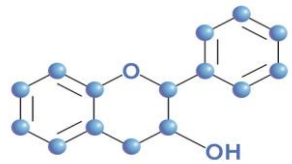
Seed and extract powder are used as diuretic, anthelminthic, laxative, and for healing wounds. Seeds are antipyretic and alexiteric. Seeds are used as stomachic, stimulant, aphrodisiac, and diaphoretic. It is an effective

against impotence, menstruation disorder, and uterine hemorrhage. It shows coronary vasodilatory activity It is a cure for gynecologic bleeding. It is also used to treat spermatorrhea and premature ejaculation

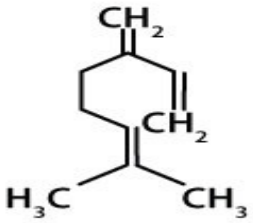
Roots:
The root of the plant is useful in treating the caries of the teeth. Psoralea corylifolia is used to promote bone calcification, making it useful for treating osteoporosis and bone fractures. The root of the Psoralea corylifolia plant used in the treatment of dental problems.
Leaves:
Leaves are used to alleviate diarrhea.
Fruits:
Fruit is bitter, helps to prevent vomiting, cures difficulty in micturition, used in treating piles, bronchitis, and anemias and improves complexion. The fruit of the Psoralea corylifolia plant have properties aphrodisiac and applied to the genital organs, as a tonic. The fruits used for treating febrile diseases, incontinence, premature ejaculation, bed wetting, frequent urination, impotence and lower backaches.
Oil:
The use of Psoralea corylifolia oil help to cure several skin diseases like tinea versicular, scabies, ringworm and psoriasis. The babchi oil use for vitiligo treatment.[15]

V. PHYTOCHEMISTRY

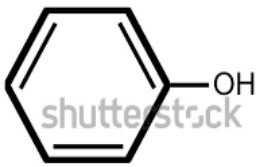
Main chemical components of PCL
The chemical components of PCL are mainly coumarins and flavonoids; coumarins contained include furanocoumarins and coumestrol and flavonoids contained include flavonols , dihydroflavones, isoflavonoids and chalcones. In addition, the chemical components of PCL also include monoterpene phenols and benzofurans . Other components in PCL mainly include trace elements such as potassium, manganese, calcium and selenium, lipids such as monoglyceride, diglyceride, triglyceride and free fatty acid, glycosides such as daucosterol, methylglycoside and PCL polysaccharide, as well as fatty acids in volatile oils and non-volatile terpenoid oils such as palmitic acid, oleic acid, linoleic acid and stearic acid.[16]



Flavanoid



Monoterpene: Myrcene



Phenol, C_6H_5OH

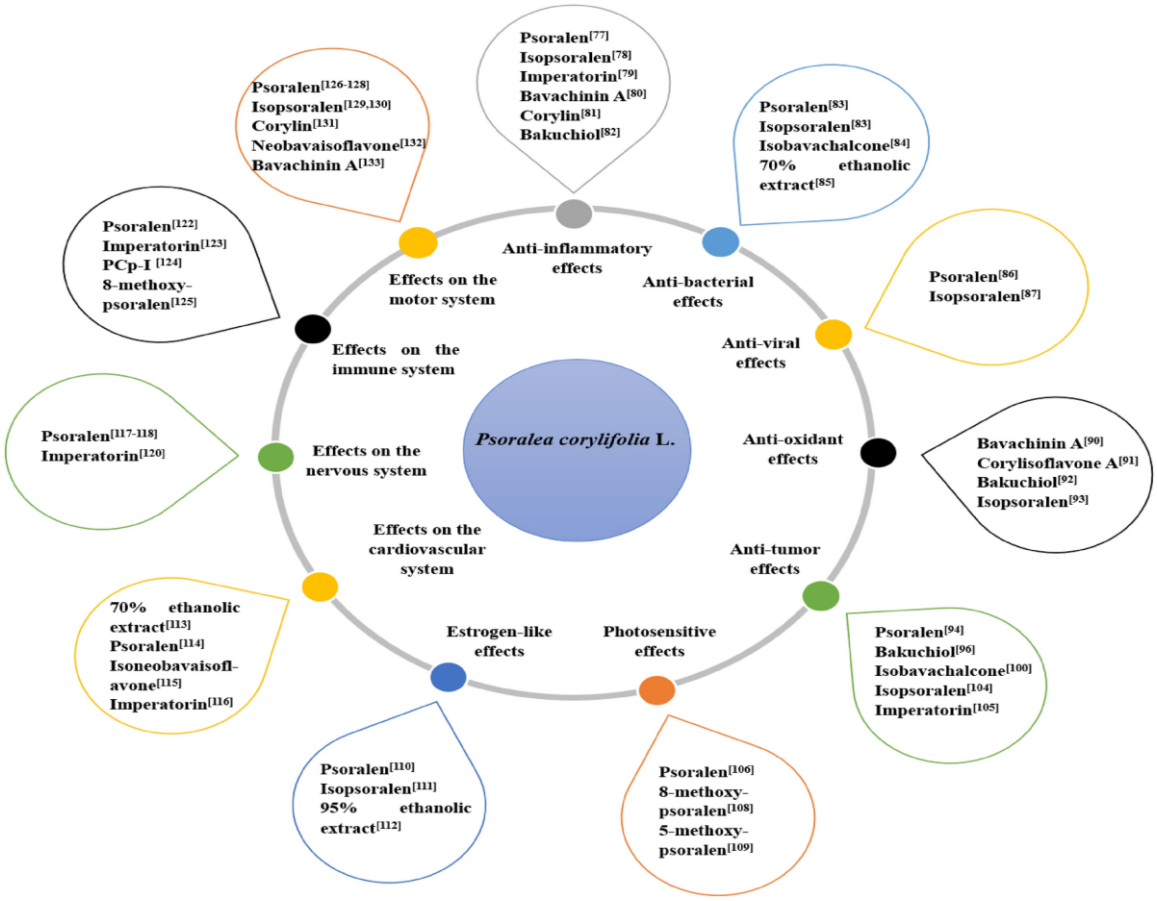
Traditional Uses

The seeds have great medicinal value. The plant is used both internally as well as externally. The seed oil is extremely beneficial, externally in numerous skin ailments. In hypopigmented lesions if the skin likes leucoderma and psoriasis respond well, to local application along with oral therapy. In leucoderma, the seed powder of Bakuchi mixed with Haratala Bhasma (Yellow arsenic), in 4:1 proportion and mashed with the cow's urine. This paste is applied on the lesions of leucoderma. In scabies and ringworm infestations, the bakuchi seed powder mixed with buttermilk is applied externally.

In leprosy, the seed oil is recommended orally, with beatlenut leaf. amalaki and Khadira are valuable adjuvants, with bakuchi, in dermatoses . In chronic skin disease, a mixture of bakuchi and karanja oil is commonly used with vaseline Scabies, Psoriasis ringworm and tinea versicular are treated successfully with bakuchi.[17]

VI. PHARMACOLOGICAL ACTIVITIES

Psoralea corylifolia has been used in Ayurveda as a laxative, aphrodisiac, anntithelmintic, diuretic and diaphoresiac in fibril condition. The plant finds use in about many Ayurvedic formulations, which include traditional formulation. Blood puri (containing 40 mg seed extract per 200 ml syrup), Safi (containing 9.09 mg seed extract per 5 ml syrup) and purim (containing 36 mg seed extract per tablet) are some formulation containing P. corylifoliad eveloped by Indian Ayurveda.



Antibacterial:
Three new prenyflavonoids, namely corylifols A-C were isolated from the seed of P. corylifolia showed antibacterial activity against Staphylococcus aureus and S. epidermidis [18]

Antifungal activity:
The plant possess potent inhibitory activity against 4 species of fungi viz. Trichophyton rubrum, Trichophyton mentagrophytes Epidermophyton floccosum and Microsporum gypseum [19]

Antitumor activity
The activity-oriented fractionataion of Psoralea corylifolia led to and isolation of a (+) bakuchil 1 as an active principle of its antitumoral property in vitro. It was observed to exhibit a mild cytotoxicity against five kinds of cultured human cancer cell lines. i.e. the A549, SK-OV-3, SKMEL-2, XF498 and HCT-15. The synthesized 2,3 epoxide of bakuchiol showed the similar activity as the bakuchiol. Whereas the other oxidation derivatives 4 and 5 including the acetyl (+) bakuchiol 2 showed a decreased activity [20]

Pesticidal activity
The pure compound 6-(3-methyl but -2-enyl) 6-7 dihydroxycoumestan 1 isolated from chloroform extract of the seed of P. corylifolia L. was evaluated for the pesticidal activity against both adults and different instars of Tribolium casteneum Hebrst. [21]

Anti-Inflammatory Activity:
From the fruits bavachini an isolated which revealed a marked antiinflammatory, antipyretic, and mild analgesic properties at a dose of 25–100mg/kg? It has demonstrated better antipyretic activity than paracetamol and showed no effect on the central nervous system, and the maximum lethal dose was greater than 1000mg/kg in mice. Several flavonoids from P. corylifolia mightuseful remedies for treating inflammatory diseases by inhibiting IL-6-induced STAT3 activation and phosphorylation. It also showed antiinflammatory activity against carrageenan-induced edema in rats [22]

Anthelmintic effect
The alcoholic extracts of seeds of evaluated for antithelmintic activity using two-enzyme system taking rat brain as a model for Ascaridia galli [23]

Hepatoprotective
The aqueous extract of seed furnished one hepatoprotective compound, bakuchiol 1, together with two moderately active compounds bakuchicin 2 and psoralen 3, on tacrine-induced cytotoxicity in human liver-derived Hep G-2 cells. [24]

Anti-Depressant Activity:
The various studies in rats suggesting a possible antistress and anti-depressant effect, although they are not to a remarkable degree. TFPC possess potent and rapid antidepressant properties that are mediated via MAO, the hypothalamic–pituitary–adrenal axis, and oxidative symptoms. P. corylifolia, is most potent and valuable drug for the treatment of depression in the elderly. also proved psoralen's antidepressant effects, using forced swimming test model of depression in male micsed, and there is possibility of interactions between Psoralea and classical stimulant [25]

Anti- Alzheimer's:
The two compounds isolated from commonly used in clinical practices in ancient Chinese Medicine P. corylifolia named as IBC and BCN mod-late amyloid β(Aβ) peptides, especially the peptides with 40 (Aβ40) or42 (Aβ42) residues, which are believed to be responsible for the development of amyloid plaques in Alzheimer's disease. The peptides prepared in the lab in dried form in DMSO; Aβ42 5mg/ml was used and was diluted in PBS to 50μM. Both the compounds acted in variuos way. IBC importantly inhibits both oligomerization and fibrillarization of Aβ42, whereas BCN converts Aβ42 into large unstructured build up in neuroblastoma cells. Both compounds were quite effective in Alzheimer's [26]

Anti- obesity:
The various studies on animals exposed that genistein has the ability to reduce the body weight by reducing food intake. It also reduced theft pad weight and enhanced the apoptosis of adipose tissues. For example, one such study was performed on ovariectomised mice. This commonly known trihydroxyflavone, Genistein, has also been isolated from P. corylifolia, exhibited a potential anti- obesity and obesity related low grade inflammation activities through multiple mechanisms and cell signalling pathways. P. corylifolia extract possesses anti-obesity and ant- diabetic activity by its action on adipocyte life cycle, obesity- related low- grade inflammation, and oxidative stress. [27]

Antiprotozoal activity:
The extract of P. coryfolia with methanol showed excellent activity against I. multifiliis theronts in concentration of 1.25mg/L or more when was revealed for a period of 4 hr. The Psoralea corylifolia extract at 5.00mg/L concentration produce 100% mortality of protomonts and 88.9% of encysted tomonts. It was found that longer time (24hr) and more concentration (5.00 mg/L) caused the significant reduction of the survival rate and reproduction of tomont of I. multifiliis, which were exited from the fish after in- bath handling in situ (Ling et al., 2013). Psoralea corylifolia has been found to be an alternative to malachite green to control I. multifiliis, external protozoan parasite. The screening showed that Psoralea corylifolia extract have the more activite against I. multifiliis theronts. When the experiments were conducted in vivo, at 1.25mg/L or more concentrations of methanol extract of P. corylifolia, it caused 00% mortality of the ronts during the 4 hr of exposure. [28]

VII. CONCLUSION

This analysis reveals that the plant has potent pharmacological activities. The plant was found to have auspicious Antipsoriatic, Antioxidant, Antitumor,Antifungal, Antibacterial, Antidermatophytic, Antihelmintic ,Cytotoxic and Antidepressant, neuroprotective, hepatoprotecative, antimicrobial activities etc. The plant is usually claimed to be useful in the treatment of various disorders such as extensive eczema, Psoriasis, Leprosy, Leucoderma etc.

Babchi (P.corlyfolia) plant extracts content psoralen and isopsoralen which may possess antitumor, antihyperglycemic, antidepressant and antioxidant activities.Its water extract possesses antibacterial property. Additional research are needed to isolate the various phytoconstituents present to get a clear idea of the mechanism of action of the plant and utility of Bakuchi (P.Corlyfolia) in clinical practices.[29]

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