



ETHNO MEDICINE AND ITS RELEVANCE IN PRESENT CONTEXT FROM THE PERSPECTIVE OF *BRIDELIA SCANDENS* WILD

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Submitted on- 17-04-24

Revised on- 22-04-24

Accepted on-23-04-24

ABSTRACT:

Ethnobotany as a research field of science, has been widely used for the documentation of indigenous knowledge on the use of plants and for providing an inventory of useful plants from local flora. Plants are being used as a medicine to cure various disorders from the beginning of civilization. *Brideliascandens* Wild. belonging to the family Euphorbiaceae is distributed in India and other regions in the world. Different parts of *B.scandens* are traditionally used in treatment of various ailments Viz. joint pain, jaundice, malaria, herpes, allergies, inflammation, scabies, and dermatitis and so on. Further *B.scandens* Wild. has been investigated by researchers for its biological activities and therapeutic potentials such as antidiabetic, antioxidant, antibacterial, hepatoprotective activity. However extensive studies are yet to be carried out in order to prove the folklore usage of this plant. The present review focuses on folkloric and traditional uses, phytoconstituents, and pharmacological activities of *B.scandens*.

Keywords: Ethnobotany, *Bridelia scandens* Wild., Antioxidant, Antidiabetic.

INTRODUCTION:

Ethnobotany as a research field of science, has been widely used for the documentation of indigenous knowledge on the use of plants and for providing an inventory of useful plants from local flora. Plants that are used for traditional herbal medicine in different countries are an important part of these studies. Use of herbal medicine in Asia represents a long history of human interaction with the environment. Written accounts testify to the usefulness of herbs for medicinal purposes.

From ancient literature to modern scientific records of traditional medicinal knowledge, there is evidence that plants supply the main medicinal source of people's, health care in developing countries. According to the World Health Organization (WHO), more than 80% of the World's population relies on traditional herbal medicine for their primary health care needs. These valuable herbal traditions found in developing countries have always been considered an important component of the cultural heritage of the world. Till the industrial revolution herbal medicine was only known to mankind in the name of therapy [1, 2]. However, today there is colossal storage of knowledge concerning to therapeutic usage of these medicinal plants [3]. India is known for its wealthiest resource of medicinal flora, used traditionally from last two centuries. Because of its extensive variation in meteorology, topography and climate, enormity of flourishing flora is raising anywhere else on the surface of

earth. Research on plant based curing for different conditions was strengthened in the 20th century [4]. Investigation for new drugs or phytotherapy is emphasized further apart from identifying and documenting [5,6]. Based on the available scientific literature from past decades says that use of herbal medicine as an alternative or complementary therapy is of great importance for well-being

Traditional use and management of medicinal plants:

Traditional management of medicinal plants and practices of herbal medicine are built on the basis of indigenous knowledge. There is a long tradition, in rural societies, of using medicinal plants for both prevention and curative health care; local people have developed reliable knowledge and effective methods to identify, harvest, utilize, maintain, and preserve medicinal plants and their habitats for sustainable use. The same has been emphasized in *Charaka samhita* where it has been stressed that knowledge regarding usage of medicinal plant should be obtained from all quarters [7].

Importance of ethnomedicinal inventory and documentation:

The ethnopharmacology is a research field to study the medicinal use of plants by indigenous cultures and to validate scientifically their effects and side effects. Since they are culturally acceptable and allow developing nations to reduce health hazards, ethnopharmacological methods can be

recommended for use in such countries. Ethno medicinal information's on medicinal plants and their uses by indigenous cultures is useful for community health care and drug development. This information is utilized as a guide for drug development under the assumption that a plant that has been used by indigenous cultures over a long period of time may have a reliable application.

Ethnobotanical documentation and inventories are scientifically organized with local and scientific names, medical uses, cultural interpretations, and information on the ecology, botany, phenology, harvesting, distribution, management, and conservation of medicinal plants. The information is derived from local herbal doctors, community healers, and herbal traders at various local markets as well as community members who hold the knowledge. The indigenous knowledge documented and described involves rich, diverse, and often reliable local experiences in prevention, curing and maintaining the health of people in the local environment. The inventory and documentation can be usefully incorporated into community resource management programs and biodiversity conservation at the local level. It can also be used as information to guide the selection of plants and collection of samples for laboratory identification and pharmacological testing in drug development. This documentation and inventory can be considered as the information bank of traditional medicine.

Ethnobotanical information on Ethnomedicine has been considered a great treasure for regional economic development and for new drug development. In India, 2500 plant species are reported to be used by traditional healers and 100 species of plant serve as regular sources of medicine. In recent years, there has been an increased interest in documenting and inventorying traditional herbal medicine in Himalayan countries using ethnobotanical approaches. International organizations such as UNESCO, WWF International, ICIMOD, IDRC and European funding agencies have played an important role in the promotion and support of different ethnobotanical programs in the Himalayan countries.

Use of ethnobotanical information in drug development:

With remarkable improvements in health care on one hand and environmental deterioration on the other, a growing demand for natural products and phytomedicine has shifted research and development works into new drug discovery. Many research institutions and companies in this field have turned to traditional medicine, mainly the use of plants as a source of new drugs. Researchers use ethnobotanical information as the "clue to which plants are prime candidates for further screening and chemical analysis".

Screening of medicinal plants:

Ethnobotanical information on medicinal plants is often used to guide chemical

screening of new drug development. Traditional herbs which had proven clinical efficacy and safety were the first chosen for screening. Then plant materials collected and identified with reference to ethnobotanical information and phytochemical information and phytochemical analysis were screened in consultation with local users of the herbal medicine. The identified lead compounds of herbal medicines are tested through phytochemistry, pharmacy, animal experiments, and clinical trials. It is then possible to use them in the formulation of new medicines according to government regulations concerning new medicinal development.

The future of ancient traditional medicine in the new millennium is uncertain, and depends on the innovations of science and technology, the interests of large industry groups, and the policies that govern cultural traditions in developing countries. There is also the undesirable truth that, at present, no single medical system is perfect and complete in its ability to treat all forms of illness and disease whether it is Western, Eastern, Allopathic, or Homeopathic. Therefore, it is important for health care providers worldwide to understand and examine the medical tradition as that are being practiced in all countries (Pei Sheng Ji 2001).

Bridelia scandens Wild. is a large woody evergreen climber or straggling shrub with pendent branches armed with large deflexed spines. Leaves are elliptic-oblong or ovate 2.5-10 x 1.2-5cm, subcoriaceous, glabrous above,

pale pubescent beneath. Flowers are monoecious, greenish-yellow, in small dense axillary clusters or long spikes, often subtended by stipular hairy obliquely lanceolate acute bracts. Calyx 5mm long, hairy, Segments are triangular-ovate, acute, connate at base, crenulated at apex. Staminal column is 3mm long, top anthers, styles with long slender arms. Drupes are 9mm long ellipsoid-oblong seated on the slightly enlarged calyx and is black juicy when ripened [8]. It is disturbed in India and Southeast Asia. In India it is spread throughout the dense evergreen forests of Western Ghats [9].

Bridelia scandens, Willd which is an ethnomedicinal plant, claimed to be beneficial in the treatment of 'Amavata' in South Kanara by traditional healers around Sullia. Bark decoction of *B.Scandens* is used for cough, fever and asthma [11] and jaundice [12, 13]. Decoction of wood of *B.Scandens* administered orally to treat malaria disease [14]. Leaf extracts are used to treatment of jaundice [15,16], allergy [17,18] inflammation, scabies, dermatitis [19] and anaemia due to pregnancy. Leaf powder and warm leaf poultice are applied to white spots in the skin. Root extract along with the combination for other plant is used to treat herpes [20]. Fruits are edible, yield a black coloring matter [21].

Chemical Constituents:

Tannins were isolated from the bark of *B.scandens* [22], fatty alcohol called bridely alcohol and phlobatannin was isolated from

leaves [23], taraxenone and taraxenone was from roots [24] till date. Methanol extract of *B. scandens*(leaf) contains good antibacterial compounds azaperone, bifonazole, fusidic acid, lasalocid and quinine. Lasalocid is the major phytocomponent of LCME which exhibited good inhibitory activity against bacterial enzyme DNA gyrase[29].

Few of the important Pharmacological activities reported on *Bridelia scandens* Wild are listed out here which may act as guiding factor for further study on this drug which is used traditionally extensively in many areas of Karnataka.

1.1 Antimicrobial Activity

Antimicrobial activity were screened for different extracts of stem bark and leaf of *B.scandens* against various gram positive and gram negative bacteria, wherein the methanolic extract exhibited the highest zone of inhibition of 23mm against *Staphylococcus aureus* and lowest of 11.9mm. Antifungal screening of *B.scandens* against *Aspergil lusniger*, *Candida albicans*, and *Saccharomyces cerevisiae* for various extracts ranges between 9 to 17.5mg [26].Inhibitory effect of the leaves and fruit extracts of *B.scandens* on *Staphylococcus aureus*, *Escherichia coli* , *Pseudomonas aeruginosa*, *Salmonella typhi*, *Shigella flexneri* . This illustrates that *B.scandens* can be used as source of antimicrobial agent against pathogenic bacteria. [26].

1.2 Antioxidant Activity

In vitro antioxidant potential of various extracts of whole plant of *B. scandens* was determined by different model shydroxyl radical scavenging, nitric oxide, and total phenol content. Whereas IC50 value for methanolic extract found to be more effective (50µg/ml) in hydroxyl radical and nitric oxide (130µg/ml) scavenging than petroleum ether and ethyl acetate extracts. Compare to all extracts and standard, methanolic extract showed better results in scavenging activity. It also showed considerable amount of phenolic content (4.80±0.039mg/g of catechol), which attributes for its antioxidant activity [9].

1.3 Anti hepatotoxic Activity

In vivo antioxidant activity and lipid peroxidation was evaluated for various solvent extracts (300mg/kg body weight) of whole plant of *Bridelia scandens*Wild.in CCl₄ induced rats. Methanolic extract of *B. scandens* in CCl₄ treated rats reduced the concentration of TBRAS, when compared with CCl₄ treated rats. Administration of methanolic extract of *B. scandens* in CCl₄ treated rats showed significant (p<0.001) increase in the levels of antioxidant enzymes like superoxide dismutase(SOD) ,Catalase(CAT), Glutathione peroxidase, Glutathione reductase and reduced the level of non- enzymatic antioxidant glutathione. Methanolic extract of *B.scandens* showed a significant antioxidant property, helpful in preventing various oxidative stresses [27].

1.4 Antidiabetic Activity

Alcoholic leaf extract of *B.scandens* (200 & 400mg/kg body weight) was evaluated for its antidiabetic property in streptozotol induced rats. Blood glucose level was determined by GOD-POD kit method and was compared with the oral dose of 0.6mg/kg Glibenclamide. Alcoholic extract significantly lowered blood glucose in dose dependent manner compared to standard drug glibenclamide [28].

1.5 Antibacterial activity

The antibacterial activity of LCME was evaluated at the concentrations of 500, 1000 and 1500 µg/ml of DMSO. 1500 µg/ml concentration shows significant antibacterial property noticed against clinical pathogen strains *Staphylococcus aureus* (17.67±0.88 mm.d.), *Streptococcus pneumonia* (13.67±0.33), *Pseudomonas aeruginosa* (16.33±0.67), *Salmonella typhi* (17.67±0.33), and *Vibrio cholera* (15.33±0.33), as compared to the standard drug ciprofloxacin. The MIC assay was performed by modified resazurin assay the extract shows highest inhibitory activity against *S.aureus* with a significant MIC value of $1.10 \pm 0.15 \times 10^{-2}$

CONCLUSION

Bridelia scandens Wild is successfully used by few tribes of Western Ghats to cure many ailments, which may form a basis to carry out the further research activity. Different parts of *B. scandens* ranging from leaf to juice are being used in the traditional system of medicine to cure various illness pertaining to human kind

[29]. Many of the researchers have confirmed it for few pharmacological abilities of *B.scandens* and is also proved to be safe. Further this herb may be subjected for its many ethnobotanically claimed activities which will benefit the mankind and will help to unearth traditional potentials of *B.scandens* which in turn will benefit mankind.

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Raghurama Bhatta U, Ravi Rao S, Rajani B, P P Sharma. Ethno medicine and its relevance in present context from the perspective of *Bridelia scandens* Wild. Jour. of Ayurveda & Holistic Medicine, Vol.-XII, Issue-IV (April 2024).

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CITE THIS ARTICLE AS

Raghurama Bhatta U, Ravi Rao S, Rajani B, P P Sharma. Ethno medicine and its relevance in present context from the perspective of *Bridelia scandens* Wild. *J of Ayurveda and Hol Med (JAHM)*. 2024;12(4):50-57

Conflict of interest: None

Source of support: None