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A Comprehensive Review Of The Medicinal Properties Of [Teramnus Labialis] Seeds: Pharmacology, Pharmacognostic, Phytochemistry.

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Abstract

Researching the utilization of traditional medicines can aid in the discovery of new drugs in the future. According to the conventional system, Labialis is one of the more potent phytochemically and pharmacologically of the large genus Teramnus, which is a member of the Fabaceae family.

According to this study, Teramnus plants are a rich source of chemicals that have the potential to both prevent and treat a wide range of illnesses. These molecules have various qualities such as antioxidant, anti-inflammatory, and antibacterial, and they include things like diterpenoids, flavonoids, and iridoids. They may thus be able to assist with anything from liver protection to infection prevention to cancer treatment. It is obvious that teramnus plants have the potential to be extremely significant in medicine, even though further research is required.

Keywords: *Teramnus Labialis*, Flavonoids, Traditional Medicine, Anti-inflammatory.

Introduction

Worldwide, legume seeds are eaten and constitute a significant source of nutrients for human diets [1, 2]. They supply protein, fats or carbs for energy, a number of vitamins, and a large number of vital minerals for human health. While many wild species of legumes are also harvested and used on a lesser scale by rural or tribal populations, several legume species have been exploited for large-scale production in a variety of climatic zones [3-6]. In recent years, there has been a lot of interest in the possibility of turning these wild legume into cultivars, particularly as initiatives to raise the mineral content of human seed foods have grown [7]. Teramnus labialis (L.) Spreng is one such wild legume that has gotten very little attention as a grain crop. This legume is native to tropical regions of Asia, Africa, and the Americas [8–9]. It has been stated that certain tribal groups in South India use it as a seed diet.

The traditional medical system known as Ayurveda is very important to modern healthcare and immune response modulation for illness treatment.[15] Since the beginning of time, one of the primary sources of medicine has been plants. According to Ayurveda, the study of life, every plant in the cosmos has some kind of therapeutic value and that is why it is important to use them as medicine[16]. Ayurvedic reports attribute traits like the capacity to develop health and strength to the Balya medicinal plants. One of the medications that is described in the Balyagana is Mashaparni,[17] and the Samhita mentions numerous uses of Mashaparni, including Balya, Shukrajanana, Jeevaniya, Bhrumaniya, and so on. According to Charaka, there are three sorts of Bala: Ahara, Vihara, and Yogas (acquired immunity), which are the means by which one obtains Yuktikrutabala.[18]

Teramnus labialis, the scientific name for blue wiss, is a species of plant in the Fabaceae family. While Teramnus labialis' secondary metabolites seem to have received little attention, studies on other Teramnus species and plants in the Fabaceae family can provide insight into potential secondary metabolites. Fabaceae plants typically have flavonoids, alkaloids, tannins, saponins, and phenolic compounds as secondary metabolites. These secondary metabolites frequently increase the plant's medicinal properties, antioxidant activity, and defense mechanisms against pathogens and herbivores.

Vernacular Names:

Sanskrit- Mashaparni

English- Vogel-Tephrosis

Marathi- Ran Udid

Hindi- Mashaparni, Mashavan, VanaUrada, Jungliudad.

The taxonomicposition of this plant is as follows:

Teramnus is the genus name for a group of flowering plants in the legume Fabaceae family. There are eight species of climbing herbs and subshrubs that are native to the tropics of the Americas, sub-Saharan Africa, the Arabian Peninsula, the Indian Subcontinent, Indochina, Hainan, Taiwan, and New Guinea. Grasslands, wooded areas, forest clearings, and seasonally dry tropical bushland and thicket—variously located in rocky, open spaces—are typical habitats.

Kingdom – Plantae

Phylum- Angiosperms

Class – Magnoliopsida

Order – Fabales

Family – Fabaceae

Genus – Teramnus

Species – Teramnus Labialis

Teramnus labialis is a grass that twines or trails and reaches lengths of 0.3 to 3 meters. Its bristles face posterior. On occasion, its thin stems root at nodes. Each constructed leaf is composed of three alternating elliptical leaflets. The small blossoms can be arranged in purple, pink, or white cream hues. They range in size from 5 to 12 cm. The berry is a pod with hairs.

Typical behavior: ultra-thin, lianescent plant that trails along the ground or becomes malleable when it comes into contact with a support that it is attached to. It can reach up to three meters in length.

Subterranean system: The plant has a deep, robust taproot.

Spread across Ceylon and India, Teramnus labialis Spreng (Leguminosae) is referred to as "Mashoni" in Hindi. This plant's fruit has antipyretic properties. It is helpful in the management of rheumatism, paralysis,

bronchitis, biliousness, and nervous system infections [11,12]. This plant has never before been the subject of any systematic phytochemical studies, which is why the current analysis is necessary.

Pharmacological Profile[21]:

Anti-inflammatory effects: The potential of Teramnus labialis to lessen inflammation in ailments like irritation of the skin, inflammatory bowel disease, and arthritis may be investigated in future studies. To investigate if it can reduce inflammation and associated symptoms, this may involve studying it in preclinical or clinical settings.

Antioxidant Properties: Research may examine the potential benefits of Teramnus labialis in the prevention or treatment of oxidative stress-related diseases such as neurological disorders, heart disease, and some types of cancer. Studies may focus on its antioxidant properties and its impact on oxidative damage in relevant disease models.

Hepatoprotective Effects: Teramnus labialis may be able to shield the liver against diseases such as fatty liver disease, liver fibrosis, and hepatitis. This may involve evaluating its effects on liver function, liver tissue histological changes, and liver enzyme levels.

Antidiabetic Activity: The hypoglycemic qualities of Teramnus labialis may be studied in relation to treating diabetes mellitus or related metabolic disorders. Studies could look into how it works, such as increasing insulin sensitivity, improving glucose absorption, or protecting pancreatic beta cells.

Potential for Wound Healing: Studies may assess Teramnus labialis's capacity to promote tissue regeneration and the healing of wounds in conditions such as burns, cuts, and chronic ulcers. One method to achieve this could be to evaluate its effects on the rates of wound closure, inflammatory conditions, collagen deposition, and epithelialisation.

Anti-Cancer Properties: Researchers may investigate the potential anticancer effects of Teramnus labialis in relation to cancers such as breast, colon, and leukemia. Its capacity to destroy cancer cells, trigger apoptosis, halt the growth of tumors, or modify cancer-related signaling pathways may be the focus of research.

Antimicrobial Activity: The effectiveness of Teramnus labialis extracts as a defense against infections caused by bacteria, viruses, fungus, or parasites may be investigated in future research. This includes studies that evaluate its effectiveness against specific pathogens that cause diseases such as parasite infections, bacterial infections, or fungal skin infections.

Pharmacognostical Studies:

Teramnus labialis seeds are subjected to extensive investigations in pharmacognostical studies in order to ascertain their physical and chemical properties. Understanding the quality, possible applications, and medicinal qualities of the seeds depends on these investigations. This is a thorough guide on how to perform pharmacognostical analyses on Teramnus labialis seeds.

Extraction Process of Teramnus Labialis:

Material:

Plant material for Mashaparni was gathered from Bangalore's natural habitat and the herbal garden of Sri Sri College of Ayurvedic Science and Research.

Method of Extraction Process:

The seeds are collected and then split into the same two portions to make a powder. Teramnus Labialis seeds were extracted one at a time using a soxhlet device and ethanol.[20]

Phytochemical Screening:[19]

Detection of Alkaloids:

Wagner’s Test and Mayer’s Test were conducted to detect alkaloids in the plant extract. The appearance of reddish-brown precipitates with Wagner’s reagent and yellow precipitates with Mayer’s reagent indicated the presence of alkaloids.

Detection of Flavonoids:

The extracts were treated with diluted NaOH, and the appearance of a yellow color, which disappeared or turned colorless upon the addition of diluted H2SO4, confirmed the presence of flavonoids.

Detection of Saponins:

The samples were mixed with distilled water and shaken vigorously. The formation of stable, persistent froth indicated the presence of saponins.

Detection of Steroids:

The extracts were mixed with concentrated H2SO4, and the appearance of a dark reddish-green color along the side walls of the test tube confirmed the presence of steroids.

Detection of Tannins:

The extracts were dissolved in 45% ethanol, boiled, and then treated with 15% ferric chloride solution. The appearance of a greenish to black color confirmed the presence of tannins.

	Constituents	Test Performed	Result
1	Alkaloid	Mayer's Test	Positive - Formation of Creamy precipitate
2	Coumarine	Alkaline Test	Negative
3	Flavonoids	Shinoda Test	Positive - Formation of red,purple, or pink color
4	Sterols	Liebermann-Burchard reagent	Positive - Formation of green or blue color
5	Tannin	Neutral $FeCl_3$ (Ferric chloride test)	Negative
6	Glycoside/Suger	Hydrolysis followed by fehling's test	Positive - Formation of brick-red precipitate
7	Terpenoids	Salkowski Test	Negative
8	Saponins	Forth Test	Positive - Formation of stable foam upon shaking
9.	Fixed Oil	Stain Test	Negative
10.	Starch	Iodine Test	Negative
11.	Carbohydrates	Molisch's Test	Negative
12.	Protein	Biuret Test	Negative

Discussions:

Physicochemical Study:

Physicochemical parameters of the drug Mashaparni obtained was within the permissible limit of Ayurvedic pharmacopeia of Indian medicinal plants. This infers the proper collection of theplant material for the research work.[10]

Phytochemical Study

The aqueous extract of Mashaparni showed the presence of Glycosides, Alkaloids, Flavonoids, Saponins, Tannins & Phenolic compounds, and Steroids, whereas the Ethanol extract of Mashaparni showed the presence of only Alkaloids and Saponins. This could be because of phytochemical constituent of Mashaparni are more soluble inaqueous media than in ethanol media [14].

Pharmacognostic Study:

This review present the data on pharmacognostic of the *Teramnus Labialis* plant which parts of plants seed. The morphological studies such as color, odour and taste, size and shape of the seeds of T. Labialis were studied [13].

Acknowledgement

Emphasis must be laid on the pharmacological activity of the phytoconstituent to unravel the hidden medicinal qualities of this plant as well as the local knowledge system should be globalize which would increase the benefits obtained to wider population. There are no clinical data available that would provide evidence of efficacy of Teramnus Labialis in humans. Extracts and constituents of Teramnus Labialis may have considerable clinical potential in humans and need to be studied further in in vivo models and ultimately in clinical studies.

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