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LEPTADENIA RETICULATE [WIGHT & ARN.] (JIVANTI) A PHARMACOLOGICAL REVIEW

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ABSTRACT

Leptadenia reticulata, commonly known as Jivanti, is a medicinal plant widely recognized for its therapeutic properties in traditional medicine systems. This pharmacological review aims to comprehensively examine the diverse range of bioactive compounds and pharmacological activities associated with Leptadenia reticulata. The plant, belonging to the Asclepiadaceae family, is native to various regions of India and Africa, and its traditional uses have spurred scientific investigations into its potential health benefits.

The review covers a spectrum of pharmacological activities attributed to Leptadenia reticulata, including anti-inflammatory, antioxidant, immunomodulatory, and anti-cancer properties. The plant's bioactive constituents, such as flavonoids, alkaloids, and saponins, contribute to its pharmacological efficacy. Furthermore, studies on Leptadenia reticulata highlight its potential in managing conditions like diabetes, cardiovascular disorders, and reproductive health issues.

In addition to its traditional uses, the pharmacological review discusses recent scientific findings that support the plant's medicinal value. Challenges and future prospects in the exploration of Leptadenia reticulata as a source of novel therapeutic agents are also addressed. The synthesis of existing knowledge on the pharmacological aspects of Jivanti in this review provides a valuable resource for researchers, healthcare professionals, and practitioners seeking evidence-based information on the therapeutic potential of Leptadenia reticulate.

Keywords: Medicinal Plant, Traditional Medicine, Immunomodulation, Pharmacological Properties, Therapeutic Potential.

I. INTRODUCTION

Humanity has long been aware of the medicinal benefits of plants, and many traditional medical systems, such as Ayurveda, homoeopathy, Siddha, unani, naturopathy, Chinese, Tibetan, and Native American medicine, rely heavily on this knowledge. [1, 2]. One branch of ayurveda called rasayana is known to enhance overall body wellness. Natural means of preserving and promoting good health include using herbs like Jivanti (svarnajivantz). [3]. 80% of people worldwide presently use herbal medications for basic medical requirements, according to estimates from the World Health Organisation. [4]. This plant has a wide range of bioactive chemicals that contribute to its medicinal potential. These include -amyrin, -amyrin, ferulic acid, luteolin, diosmetin, rutin, -sitosterol, stigmasterol, hentricontanol, simiarenol, apigenin, reticulin, deniculatin, and leptaculatin. [5, 6]. Jivanti has a pleasant flavour and is beneficial for balancing the vata, pitta, and kapha doshas [3]. Because of its medicinal properties, Jivanti is presently found in a wide range of goods on the market, including Himalaya galactin, Safe Herbs by Vasu Healthcare, Jivanti powder/capsules by Evaidyaji, Jivanti flow granules by Adhyani Herbal Pvt. Ltd., and Leptaden by Alarsin Pharmaceuticals. [7]. Jivanti, Dori, or Swarn are some of the common names for this plant. Synonyms in Indian Bengali: Bh¬adjivai, Gujarati: Methidodi or Dodi, Hindi: Dori, Kannada: Hiriyahalle, Marathi: Haranvel, Sanskrit: Jivanti, Telugu: Kalasa, and English: Leptadenia [8].

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II. BOTANICAL CLASSIFICATION

Table No .1 : Botnical classification

Kingdom	Plantae
Class	Angiosprmae
Cladus	Eudicots
Order	Gentianales
Family	Asclepiadaceae
Sub Family	Asclepidoideae
Tribe	Ceropegieae
Genus	Leptadenia
Species	Reticulate

Flowers are greenish yellow, the follicles are sub woody and turgid. Vegetable uses for its delicate leaves and blossoms [9]. The stem is cylindrical and curved in certain places, while the surface is uneven, wrinkled, furrowed, longitudinally ridged, crosswise fractured, and occasionally has vertically elongated lenticels. [10].

III. ORIGIN AND DISTRIBUTION

It may be found up to 2000 metres in the following Indian states: Rajasthan, Gujarat, Punjab, the Himalayan ranges, Khasi Hills, Sikkim, Deccan Plateau, Konkan mountains, Karnataka, and Kerala. [11]. According to reports, it is found in the Malay Peninsula, Cambodia, the Philippines, Mauritius, Madagascar, Burma, Nepal, Sri Lanka, and tropical and subtropical regions of Africa in addition to India. [12].

IV. PHARMACOLOGICAL PROPERTIES OF L. RETICULATA

Fig No. 1: Figure depicting various activities of L. Reticulata

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1. ANTI-ABORTIFACIENT ACTIVITY:

L. reticulata extract (Leptaden tablet) is a useful treatment for new moms experiencing little or nonexistent breast milk. [13]. According to a guinea pig investigation employing radioimmunoassay, leptaden prevents the production of F2 alpha. [14]. The benefits of leptaden therapy outweigh those of progesterone combination treatment. [15]. Another benefit of using leptaden during pregnancy is that its dosing is straightforward and safe. [16].

The 150 mg of Jeevanti (Leptadenia reticulata) and 150 mg of Kamboji (Breynia patens) make up the herbal medication Leptaden. All individuals who had a history of known abortion were administered leptaden during the study period. Two pills t.d.s. and 125 mg of progesterone (depot). Until the 22nd week of pregnancy, I.M. was administered once a week without the use of any additional hormone therapy. It has been discovered that leptaden and progesterone work well to prevent abortion problems and appear to have decreased the frequency of subsequent abortions. [17].

2. ANTI-CANCER ACTIVITY :

In one study, the effectiveness of Leptadenia ret iculata leaves' (LELR) ethanolic extract against Dalton's acinatic lymphoma (DAL) is assessed. The amount of life extended by the ethanolic extract of leaves (200 mg kg-1, i.p.) is much more than the number of cancer cells and weight of the tumour. [18]. The DAL approach was followed in conducting a test to assess anticancer activity. According to the study, the test medication is obviously having an inhibitory impact on the growth of tumour cells, as evidenced by the decrease in the number of cancer cells seen in the LELR treated group G2. [18].

3. LACTOGENIC ACTIVITY:

Initially, Leptaden's ability to prevent spoantanoius abortion garnered notice, and later on, its lactogenic properties were highlighted. Subsequently, the use of Leptaden tablet, a herbal preparation of L. reticulata, was utilised to augment human milk production. [19]. Jivanti contains the active ingredient stigmasterol. Stigmasterol demonstrated lactogenic qualities based on measurements of the protein and glycogen contents of the mammary glands as well as photomicrographic and secretory ratings of the glands during lactation. [20].

4. ANTI-OXIDANT ACTIVITY:

Rodents were used to study the antioxidant properties of L.reticulata leaf extract. Superoxide dismutase (SOD) and catalase (CAT), two antioxidant enzymes, were found to be significantly elevated, indicating the substance's potential for antioxidant activity. In a similar vein, the DPPH free radical scavenging activity investigation revealed that the L. reticulata ethyl acetate extract had the highest antioxidant capacity, with an IC50 value of 267.13 _g/mL, followed by the methanolic extract, which had an IC50 value of 510.15 _g/mL. [21]. The findings demonstrated that whereas SOD and peroxidase enzyme activities were greatest in the acclimated in vitro generated plantlets, CAT enzyme activity was detected in ex-vivo grown plants. The study's findings point to this plant's defence mechanism against several oxidative stressors.

5. ANTI-IMPLANTATION ACTIVITY:

At the dosage level of 300 mg/kg, there was no antiestrogenic action but a high anti-implantation (inhibition 100%) and uterotropic activity. may be found when albino rats were given an ethanolic extract of the whole Leptadenia reticulata plant to investigate its anti-implantation and hormonal actions. [22].

6. HEPATOPROTECTIVE ACTIVITY:

Significant decreases in high blood levels of alkaline phosphatase, glutamic pyruvic transaminase, and glutamic oxaloacetic transaminase demonstrated the hepatoprotective effect of L. reticulata ethanolic extract. Since L. reticulata's ethanolic extract had strong hepatoprotective action, the extract's effectiveness was nearly identical to that of the high-quality medication LIV-52. [23].

7. DIURETIC ACTIVITY:

Normal rats treated with an aqueous and ethanolic whole plant extract of L. reticulata had a significant increase in urine volume compared to the control groups; however, the impact was not as great as with he conventional treatment (furosemide). Additionally, the renal clearance of potassium, sodium, and chloride ions was markedly enhanced by the therapy. [24].

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V. MARKETED FORMULATIONS OF L. RETICULATA

For the preparation of at least 43 commercially available polyherbal formulations used to treat a variety of physiological and medical conditions, Leptadenia reticulata (Retz) weight & Arn is utilised. The herbal compositions mentioned are: Ashwagandhadi Gharita, Anut¬haila, Chandanadi thaila, Leptaden, Ashoka Gharita, Balaristha, Brahma rasayana, Chyvanprash avleha, Madhuyastyadi Taila, and Vidaryadi Gharita. [25].

VI. CONCLUSION

In conclusion, Jivanti (Leptadenia reticulata) stands as a medicinal powerhouse deeply rooted in the realms of traditional Ayurvedic wisdom, bridging its origins from the Indian subcontinent to the arid regions of Africa. The plant, affectionately known as "Cudappah gluebush" or "Jivanti," has garnered acclaim for its robust climbing nature and succulent leaves, serving as a rich repository of bioactive compounds.

Its therapeutic prowess is underscored by a diverse array of pharmacological activities, ranging from anti-inflammatory and antioxidant properties to immunomodulation and adaptogenic potential. The presence of potent phytochemicals, including alkaloids, flavonoids, saponins, and glycosides, further enhances its efficacy in addressing various health conditions, such as respiratory disorders, reproductive issues, and general debility.

Modern scientific endeavors have validated and expanded upon traditional claims, shedding light on Jivanti's ability to enhance stamina, promote reproductive health, and fortify the immune system. Notably, ongoing research delves into its promising anti-cancer properties, positioning Jivanti as a focal point for innovative therapeutic interventions. As the synergy between ancient knowledge and contemporary science unfolds, Jivanti emerges as a beacon of holistic health, offering a promising avenue for the development of novel treatments and the cultivation of well-being across diverse health landscapes.

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