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A CONCEPTUAL STUDY ON BHUMYAMLAKI MEDICINAL PLANT

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ABSTRACT

The Ayurvedic medical system is currently quite popular, and as a result, there is a developing demand for diverse medicinal plants used in the production of Ayurvedic medications. Because these plants are grown in different geographical regions, there is a lot of adulteration or substitution in the commercial markets. Studies on plant drugs' histology are critical for understanding adulterants as well as for precise identification. The herb has astringent, diuretic, bitter, invigorating, antiseptic, and fungal properties. Indigenous medical systems including Ayurveda, Siddha, Unani, and homoeopathy employ it for its hepato-protective, anticancer, antidiabetic, antihypertensive, analgesic, anti-inflammatory, and antibacterial qualities. The plant can treat a variety of conditions, including dropsy, jaundice, diarrhoea, dysentery, intermittent fevers, urino-genital system infections, scabies, ulcers, burns, and the common cold. The hepatitis B virus is resistant to its powerful antiviral activities. In addition to having anti-inflammatory and anti-nociceptive actions, it also contains anti-diabetic and anti-lipidemic qualities.

KEYWORDS: *Bhumyamlaki, Phyllanthus,* Pharamcognosy *etc.*

INTRODUCTION

The herb has antiseptic, diuretic, bitter, astringent, cooling, gastric, and febrifuge properties. It is frequently utilised for its hepatoprotective, anticancer, antidiabetic, antihypertensive, analgesic, anti-inflammatory, and antibacterial qualities in indigenous medicines including Ayurveda, Siddha, Unani, and homoeopathy. The plant is also used to treat colds, scabies, ulcers, wounds, diarrhoea, dysentery, intermittent fever, dropsy, jaundice, and intermittent diarrhoea.[1] to treat skin problems, bhuyamlaki leaf paste is applied to the skin. In the event of

a fracture, the area causing the agony is covered with rock salt and Phyllanthus nirui plant paste. When administered as a paste, the plant's root is converted into a paste by being rubbed with lime juice or rice gruel.[2] about 30% of diabetes individuals get the relatively early and frequent condition known as diabetic neuropathy. Although the development of insulin and hypoglycemia has greatly benefited diabetics, these individuals might not have access to the most effective treatments for their neuropathic consequences. Despite having some negative effects, the most common drugs are used primarily to relieve symptoms. It's also critical to look at other therapy options that can be safer and more effective.[3] A plant known as Phyllanthus niruri (Phyllanthus niruri) has been classified as a Pitta and Kapha lowering plant, meaning it can aid in balancing these two. Symptoms such as Suptata (numbness) and Daha (burning sensation) in body parts, especially the hands and feet, are identified as Purvarupa of Prameha in Ayurvedic classics. Additionally, Prameha's Upadravas mentions Daha (complications). The symptoms of diabetic neuropathy include those listed above.[4]

HABIT AND HABITAT

The leaves are elliptical in shape and oblong in shape, with dimensions of 3.0-11.0x1.5-6.0 mm. The elliptical-oblong leaves range in height from 10 to 60 cm. Their stem is upright and treaded, and their leaf is 3.0–11.0 x 1,5–6.0 mm. The first 2-3 axils of axillary flowers are home to unisexual 1-3 male flowers, and the following axils are home to bisexual flowers.[5] Male flowers: pedicel 1 mm long; calyx 5, oblong-elliptic, apex acute; hyaline with unbranched midrib; disc segments 5, rounded; stamens 3; filaments connate; filaments connate; filaments connate; filaments connate; filaments connate; filaments connate; filaments connate; filaments connate; filaments connate; filaments connate (Bagchi et al., 1992).[6]

AIM & OBJECTIVES:-

To investigate Bhumyamalaki's effects under various conditions.

METHOD AND MATERIALS

Bhumyamalaki resources, authentic websites (PubMed, medicinal plants, etc.), authentic magazines, literature, manuscripts, a Sanskrit dictionary, the Shabdakosha, and other works have been assembled from a variety of periodicals and journals, as well as from Ayurvedic and contemporary writings.

BHUMYAMALAKI

Schum and Thonn's novel vegetal materials from Phyllanthus amarus. Phyllanthus Web. Phyllanthus maderaspatensis, Linn Phyllanthus simplex, Linn Urinaria, and Phyllanthus simplex. The samples of vouchers were gathered from the foothills of the Western Ghats in India and placed at the Department of Pharmaceutical Sciences at Guru Jambheshwar University in Hisar and Haryana. Both samples had the shadow dried. To analyze the epidermal structural tests for the dried leaves, the epidermis of the leaves must first be prepared. A home adhesive (Quick fix) was consistently applied to the top and lower epidermis of the dried leaves. It is then allowed to dry at ambient temperature. A clean, dry glass slide is then put with the imprint surface facing up

and the dried clear "Quick repair" film is delicately pulled away from the leaf's surface. It is covered with a cover slip, which is then softly tapped to flatten the film. Then it is examined under a compound microscope. Line drawings were produced using a lucida camera with a mirror-like design.[7]

In resolutions, the World Health Assembly emphasised the significance of utilising current monitoring techniques and employing suitable standards to guarantee the safety of medicinal plant products. Traditional pharmacognostical studies are used to monitor the quality of herbal medications. To create criteria for individual medications and compound formulations in order to verify the authenticity of unprocessed drugs with sources from plants, minerals, and animals, In order to develop standards for both single pharmaceuticals and compound preparations, pharmacognostical standardization of herbal drugs encompasses macroscopic, microscopic, physio-chemical constants, and fluorescence investigation of studied sections.[8] According to WHO (1998), the macroscopic and microscopic examination of a medicinal plant is the first stage in identifying its categorization and purity and should be carried out before any studies are carried out.

Phellodenthus niruri the plant drug "Bhumyamalaki," one of the promising herbal medications used in Indian system of medicine for various liver problems, was created by Lin, a member of the Euphorbiaceae family. Only the West Indies include P. niruri; India is not home to this species. Phyllanthus species known as "Bhumyamalaki" include P. amarus Schum and Thonn, P. fraternus Web, P. maderaspatensis Linn, P. simplex Retz, and P. urinaria Linn. Additionally, it has been used to treat various ailments as well as skin ulcers, sores, and itching. Phyllanthus emphasises its capacity to inhibit viruses, particularly the hepatitis B virus. Studies show that Phyllanthus can lessen the quantity of hepatitis B virus in the circulation and impede the growth and replication of the virus. Although its effectiveness in eradicating viruses has not been shown, it has been demonstrated to be efficient in easing symptoms and combating the hepatitis B virus. Phyllanthus can also improve the overall condition of the liver.[9]

A examination of the literature reveals that few scientists have studied the specifics of P. fraternus's structure. Saha and Krishna Murthy examined the P. fraternus Web's structural features (1959). Yelene et al. later completed the study on leaf structure. The three distinct Phyllanthus species were examined by Khatoon et al. The microscopic diagnostic characteristics of every Phyllanthus species known to have hepatoprotective qualities have not yet been compared in a published study. Studies on plant drugs' histology are critical for understanding adulterants as well as for precise identification.[10]

PHARMACOLOGICAL ACTIVITIES

ANTIOXIDANT ACTIVITY:

Phyllanthus amarus fresh and dried samples were used to calculate the Total Phenolic Content (TPC) and antioxidant activity using the Folin-Ciocalteau method, 2,2-diphenyl-1-picrylhydrazyl (DPPH) free radical scavenging activity, and Ferric Reducing Antioxidant Strength (FRAP) tests. The antioxidant capabilities of P.

amarus Methanolic extracts were significantly reduced by various drying techniques, with microwave drying producing the highest drop in TPC and antioxidant activity.[11]

ANTI-HEPATOTOXIC ACTIVITY:

When ethanol is administered, the levels of triglycerides, cholesterol, and phospholipids in the liver, brain, kidney, and heart are decreased (Tripathi et al., 1992). Whole plant powder at dosages of 35 and 70 mg kg-1 for cattle. (1995; Sane et al.).[12]

ANTIVIRAL ACTIVITY:

Elisa antigen screening was done after P. amarus alcoholic, hexane, chloroform, butanol, and water extracts were tested in vitro on HbsAg, HBeAg, and HBV-DNA in blood samples positive for the HBV antigen. The butanol extract was the most efficient against HBV antigen (Mehrotra et al., 1991). A single injection of cells obtained from human hepatocellular carcinoma with an aqueous extract at a dosage of 1 mg mL-1. HBsAg secretion was stopped for a total of 48 hours (Jayaram and Thyagarajan, 1996; Yeh et al., 1993). Phyllanthus amarus might be employed as an antiviral drug since it interfered with the Hepatitis B virus's reproduction, transcription of its mRNA, and polymerase activity. Phyllanthus amarus might be employed as an antiviral drug since it interfered with the Hepatitis B virus's reproduction, transcription of its mRNA, and polymerase activity (Lee et al., 1996; Ott et al., 1997).

ANTI-BACTERIAL ACTIVITY

Using the Bauer disc diffusion technique, the antibacterial effectiveness of root and leaf extracts was evaluated against ESBL-producing Escherichia coli isolated from stool samples of HIV-positive individuals. All strains of HIV-positive individuals' cells were sensitive to various dosages of the extracts (5, 10, 20, 40 and 80 mg mL-1). This demonstrates the extract's ability to combat germs (Akinjogunla et al., 2010).

HEPATOPROTECTIVE ACTIVITY

Total cholesterol, AST, ALT, urea, uric acid, total protein, prostatic, alkaline, and acid phosphatases all statistically significantly decreased following a methanol extract of Phyllanthus amarus leaves (p0.05 student's t-test) (50-800 mg kg-1). Uric acid showed the largest decrease impact at 400 mg kg-1 P. amarus extract, but total cholesterol showed the least reduction effect. The quantity and duration of this impact were likewise significant. This demonstrates the leaves of P. amarus have hepatoprotective, nephroprotective, and cardioprotective characteristics (Obianime and Uche, 2008).

DISCUSSION

The plant is also used to treat scabies, ulcers, burns, jaundice, diarrhoea, dysentery, intermittent fevers, urino-genital system infections, and intermittent fevers. The hepatitis B virus is resistant to its powerful antiviral activities. In addition to having anti-inflammatory and anti-nociceptive actions, it also contains anti-diabetic and antilipidemic qualities. In order to incorporate a thorough evaluation of the literature on its pharmacological,

traditional, and phytochemical qualities, the current study tries to do just that. Microscopic examination of the Phyllanthus species revealed that P. fraternus and P. maderaspatensis exclusively exhibit anisocytic stomata, but P. amarus possesses both anisocytic and paracytic stomata. While P. maderaspatensis has smooth epidermal cell walls, P. amarus and P. fraternus have wavy epidermal cell walls. The Phyllanthus species mentioned above are all referred to as "Bhumyamalaki" in India and are used to cure a variety of liver conditions. However, not all Phyllanthus species have the active ingredients necessary for treating liver illnesses.[13]

P. amarus Schum and Thonn, P. fraternus Web, P. maderaspatensis Linn., P. simplex Retz., and P. urinaria Linn. are all separate species that make up Phyllanthus niruri Linn. P. amarus Schum and Thonn, P. fraternus P. niruri, listed in the flora of British India, and "Bhumyamalaki," referenced in the classical literature, have lately been equated with P. amarus based on clinical effectiveness. Phyllanthus niruri Linn. is a combination of five separate species. However, because all five kinds of Phyllanthus share morphological characteristics, they can occasionally be confused and marketed in herbal medicine marketplaces all over the world under the same common name. This investigation, which was carried out utilising a highly particular realistic technique, generated diagnostic features for all five Phyllanthus species investigated.[14]

CONCLUSION

Using straightforward methods, the current study's microscopic diagnostic characteristics will aid in the identification of genuine Phyllanthus samples utilised in liver illnesses. This is the first study of its sort on "Bhumyamalaki's" comparative microscopic diagnostic traits. In India, the whole plant is utilised to treat a number of illnesses. There are many in vitro tests that may be used to determine the extracts' antioxidant capacity. The efficacy of root and leaf extracts as antibacterial agents was evaluated using extensive spectrum lactamase. P. amarus, antitumor and anticancer action can be shown by the suppression of cell cycle regulators as well as the metabolic regulation of carcinogens.

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Conflict of Interest: *Nil*

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