A REVIEW ON PHARMACOLOGICAL ACTIVITY OF EUPHORBIA HIRTA

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ABSTRACT

The intention of this literature evaluation was once to grant increase lookup information for the future scientists to find out new drug molecules from the medicinal plant, E. Hirta Linn. This review article provides updated information on Euphorbia hirta Linn., an annual medicinal herb of Kumaun Himalaya Uttarakhand, which is commonly known as 'Dudhy' and is used in conventional medicine to treat various diseases such as gastrointestinal disorders, respiratory system disorders, and asthma. The review compiles information on the plant's medicinal uses, phytochemicals, and biological activities. Qualitative and quantitative phytochemical studies revealed the presence of various chemical compounds in which flavonoids, terpenoids, and phenols are the major constituents. The plant has interesting antimicrobial, antioxidant, antidiabetic, and antitumor properties, and some traditional uses of the plant also indicate its high medicinal potential. The crude hydroalcoholic extract of E. hirta has more pharmacological activities and is used as an important medicinal and nutritional source for curing many severe illnesses in different parts of the world. The article emphasizes the need for further research and clinical trials to explore the pharmacological activity and clinical efficacy of this plant, including the isolation and identification of more bioactive constituents and elucidation of their structure and activity.

Keyword: - *E. hirta, Dudhy, flavonoids, terpenoids, phenols, etc.*

1. INTRODUCTION :-

Euphorbia hirta Linn., also known as milkweed or Dudhy, is a plant with various medicinal properties and is called different names in different parts of the world. The plant has a milky white latex which can be toxic. Studies have shown that E. hirta and its active constituents possess various pharmacological potential such as antibacterial, antifungal, antioxidant, anti-inflammatory, antiasthmatic, antitumor, antimalarial, larvicidal, diuretic, and antidiabetic activities. The plant has been used for medicinal purposes in China for a long time, and different compositions such as crude drug, infusion, lotion, decoction, and powders are also used. E. hirta plays a major role in traditional medicinal systems due to its wide range of biological and pharmacological properties. The plant was first recorded in 'Ling Nan Cai Yao Lu' due to its effects on curing skin ulcers and body swelling, and more than 10 books regarding the folk medicinal uses of this plant have been recorded in China. A comprehensive and updated review is necessary to advance research on E. hirta. This review discusses the chemical constituents and pharmacological potential of E. hirta, in addition to taxonomic detail and ethnobotany.

2. PLANT PROFILE

Euphorbia Hirta Linn is a small, erect, annual herb, with numerous branches and small green flowers. The stem is slender, hairy, and succulent, and the leaves are simple, alternate, and oblong in shape, with serrated margins. The plant produces small green fruits, which contain three seeds each. The seeds are oval in shape and brown in color, with a smooth surface.

3. GEOGRAPHICAL SOURCES

Euphorbia Hirta Linn is found in many parts of the world, including Asia, Africa, Australia, and America. It is commonly found in tropical and subtropical regions, and it thrives in sandy or rocky soils, waste areas, and disturbed sites. It is a common weed in many countries and is often considered a nuisance plant. In India, it is widely distributed and is known by different names in different regions, such as Dudhi in Hindi, Amman Pacharisi in Tamil, and Thotta Chinungi in Telugu.

4. ORGANOLEPTIC STUDIES

The organoleptic properties of Euphorbia Hirta Linn have been studied extensively. The plant has a characteristic odor that is slightly pungent and bitter. The taste is bitter and astringent, with a cooling effect. The leaves and stem of the plant are used for medicinal purposes, and their organoleptic properties are important in determining their quality and potency.

5. HISTORY

Euphorbia Hirta Linn has a long history of use in traditional medicine. It has been used for centuries in different parts of the world to treat various ailments, including respiratory problems, gastrointestinal disorders, skin diseases, and infections. In India, it is considered a sacred plant by some communities and is used in various rituals and ceremonies. In Ayurvedic medicine, it is known as Dugdhika or Dudhi, and it is used to treat asthma, bronchitis, fever, and diarrhea. In traditional Chinese medicine, it is known as Yiyiren. Euphorbia hirta Linn is a species of flowering plant in the family Euphorbiaceae. It is commonly known as asthma weed or snakeweed and has been used in traditional medicine for its various medicinal properties.The history of Euphorbia hirta Linn dates back to ancient times when it was used by indigenous people in various parts of the world. The plant is native to tropical and subtropical regions of the world including Africa, Asia, and America. In traditional medicine, Euphorbia hirta Linn has been used to treat a variety of ailments including asthma, coughs, bronchitis, diarrhea, dysentery, fever, and skin infections. The plant contains several bioactive compounds including flavonoids, alkaloids, terpenoids, and tannins which are responsible for its medicinal properties. In India, Euphorbia hirta Linn has been used in Ayurveda, a traditional system of medicine, for thousands of years. It is known as Dudhi in Hindi and is used to treat respiratory problems, digestive disorders, and skin diseases. In China, the plant has been used in traditional Chinese medicine for its diuretic and antipyretic properties.

Taxonomic classification of Moringa oleifera

Kingdom	Plantae
Super division	Spermatophyta
Division	Spermatophyta
Class	Dicotyledonae
Order	Malpighiales
Family	Euphorbiaceae
Genus	Euphorbia
Species	Hirta

6. BOTANICAL DESCRIPTION

Synonyms

1. Gujarati: dudeli.
2. Hawaiian: kokokahiki.
3. Hindi: baridhudi, dudhghas, dudhi.
4. Indonesia: patikankebo.

5. Kinaray-a: tawa-tawa.
6. Luganda: kasandanda.
7. Nepali: dudhejhar.
8. Nigeria, Yoruba: emi-ile.
9. Sanskrit: chara, amampatchairasi.
10. Seychelles Creole: zanrober.
11. Tagalog: tawa-tawa, gatas-gatas.
12. Tamil: ammaanpachcharisi.
13. Telugu: reddivarinanabalu.
14. Twi: kaka wieadwie.
15. Urdu: laldodhak.

7. MORPHOLOGY

Dudhi, also known as Euphorbia hirta Linn, is an annual herb that can be found growing in areas such as wastelands, along walls, and beside roadsides in conditions of high humidity. The stem of this plant is slender, smooth, densely branched, and reddish in color, with delicate roots that emerge from nodes. Between the months of June and November, the plant produces thin, fibrous, and sensitive roots that bear flowers. The male flowers are sessile, with linear bracteoles, a solitary stamen that is fringed and lacks a perianth, while female flowers have a short pedicel, a superior ovary, a ringed perianth, three styles, three-celled, minute, and two-fid apex hairs. The inflorescence of the plant is known as cyathium, which is a cyme made up of many cyathia that are crowded together. The fruits of the plant are contained in yellow, three-lobed, three-seeded, and keeled capsules. The fruits contain three brown, four-sided, angular, and wrinkled seeds, with a base that is truncate, hairy, and 1-2mm in diameter. The seeds themselves are oblong, four-sided, pinkish brown, slightly wrinkled, and without caruncle. The stems of the plant are small and either glabrous or hairy and have 2-3 internodes. Finally, the roots of the plant are arranged in a taproot system manner.

8. PHARMACOLOGICAL PROPERTIES

1) Anti-inflammatory effect: Euphorbia hirta Linn has been found to possess anti-inflammatory properties due to the presence of flavonoids, alkaloids, and other compounds. It has been shown to reduce inflammation in various models, including carrageenan-induced paw edema and cotton pellet-induced granuloma in rats.

2) Anti-microbial effect: The plant has been found to exhibit potent antimicrobial activity against a range of pathogenic bacteria, fungi, and viruses. The antimicrobial activity is attributed to the presence of tannins, alkaloids, flavonoids, and other compounds.

3) Anti-cancer effect: Euphorbia hirta Linn has been found to possess anticancer properties due to the presence of various bioactive compounds such as flavonoids, terpenoids, and alkaloids. It has been shown to inhibit the growth of cancer cells in vitro and in vivo.

4) Anti-diabetic effect: The plant has been found to possess anti-diabetic properties due to the presence of alkaloids, flavonoids, and other compounds. It has been shown to reduce blood glucose levels in diabetic rats.

5) Analgesic effect: Euphorbia hirta Linn has been found to exhibit analgesic properties due to the presence of flavonoids and alkaloids. It has been shown to reduce pain in various models, including acetic acid-induced writhing and hot plate tests in rats.

6) Anti-asthmatic effect: The plant has been traditionally used for the treatment of asthma and has been found to possess anti-asthmatic properties due to the presence of flavonoids, alkaloids, and other compounds. It has been shown to reduce bronchoconstriction and airway inflammation in various models.

9. CONCLUSIONS

The plant Euphorbia hirta was subjected to phytochemical screening, which identified the presence of various compounds including reducing sugars, terpenoids, alkaloids, steroids, tannins, proteins, fats, oils, gums, mucilages, glycoside, saponin, coumarin, cardiac glycosides, anthroquinones, flavanoids, and phenolic compounds. Previous studies on this plant have shown that it has a wide range of medicinal properties including antioxidant, antimicrobial, sedative anxiolytic, antiepileptic, anti-inflammatory, analgesic, antipyretic, antihistaminic, antiasthmatic, antidiabetic, anticancer, wound healing, gastrointestinal, diuretic, antiparasitic, immunological, hepatoprotective, galactogenic, angiotensin converting enzyme inhibiting, and anti-dipsogenic activities. This review provides an overview of the chemical constituents, pharmacological effects, and therapeutic potential of Euphorbia hirta

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