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AN OVERVIEW: PHARMACOLOGICAL ACTIVITIES OF DOLICHANDRONE FALCATA

[1]Vignesh D. Misal*,[2]Prashant S. Malpure,[3]Rishikesh S. Bachhav

[1]Department of Quality Assurance

R.G.Sapkal College of Pharmacy,Anjaneri,Nashik,Maharashtra ,India422213

ABSTRACT:

Review of the medicinal elements included in photochemical preparations of Dolichondroma falcata's bark, leaves, fruits, and Seem leaf is provided. It has been revealed that these plant extracts can be used as anti-allergic, anti-inflammatory, antioxidant, anti-estrogenic, anxiolytic, and anti-parasitic drugs. The leaves of this plant are antioxidant, anti-estrogenic, and anti-diabetic. Dolichandrone falcata may be interchanged with Markhamia falcata, a member of the Bignoniaceae family.

Keywords: Dolichandrone falcata, Phytochemical, leaves, fruit

I. INTRODUCTION:

Finding new physiologically active principles in higher plants can be done in a number of ways. One such method is systematic screening, which may result in the discovery of novel, effective biomolecules. Methodologies for screening for physiologically active medicinal compounds have been applied to well-known plant species that are used in traditional medicines [1] The Dolichandrone falcata plant has grown significantly in importance within the medical and pharmaceutical sectors in recent years. Small deciduous tree Dolichandrone falcata belongs to the Bignoniaceae family. It is restricted to in India. A tree may grow up to 15-20 feet tall. Compound leaves have 3-6 obovate or oval-shaped leaflets and are 2–6 inches long. Flowers are fragrant and white. This blooms between April and May. Despite these uses, the chemical makeup of this plant has not yet been determined. Numerous medical benefits of the plant include anti-allergic, anti-inflammatory, antioxidant, anti-estrogenic, anxiolytic, and anti-parasitic properties. [2] This herb also functions as an anthelmintic, analgesic, antiviral, and antifungal, as well as being used to treat anaemia and bloody diarrhoea [3]. In addition to being used to create snake venom, the plant is also used to treat liver ailments. Phytochemistry is the study of the chemical composition of medicinal plants or phyto-drugs. The market for herbal medicines is now expanding significantly, and this growth is being matched by the search for new herbal remedies. For both practical research and commercial uses, standardised herbal extracts and phytochemicals are in great demand. Finding physiologically active compounds is a crucial prerequisite for plant-based pharmaceutical quality monitoring and dose calculation.[4]

II. TAXONOMIC CLASSIFICATION [5]

Kingdom: Plantae

Order: Lamiales

Class: Magnoliopsida

Family: Bignoniaceae - bignonias

Genus: Dolichandrone

Species: Dolichandrone alba (Sim) Sprague

Dolichandrone alternifolia (R. Br Seem)

Dolichandrone arcuata (Wight) C. Bclarke

Dolichandrone Columnaris Samtisuk

Dolichandrone Fakata (wall. ex DC) Seem

Dolichandrone filiformis (DC) fenzl ex.F.muell

Dolichandrone Heterophylla (R.Br) F.Muell

Dolichandrone Occidentalis Jackes

Dolichandrone Spathacea (L.F) Seem

III. COMMON NAMES

Tamil - Padhiri

English - Mangrove trumpet tree

Malayalam - Attulottappala

Hindi - Medhshingi

Kannada - Udure Godmu

IV. MORPHOLOGY DESCRIPTION (HABIT)

Falcata DolichandroneA often name for this object is "Medhshing" in Hindi and "Mesasninghi" in Sanskrit (means looks like a sheep horn, as seen in Plate). It is a medium-sized tree from the Bignoniaceae family with abundant flowers and thick leaves.The nocturnal blooming of these strongly perfumed, cream-colored white blooms is followed by their morning wilting (Plate).When the blooms of the following year are in blossom, the ripe fruits of the previous year are still on the tree.[6]

V. ETHNOMEDICINAL USES OF PLANT:

It is recognised that the entire plant and several of its specialised sections, including the leaves, stem, and roots, have therapeutic benefits. Indigenous and tribal people all across the world, including in India, have long used it. Ayurveda also mentions the therapeutic benefits of this plant's leaves and bark. The Bhil tribes of the kota district in Rajasthan administer bark decoction to cure nodules. Neem leaves are combined with paste, which is then applied to reduce edoema. To treat scorpion and snake bites, fruit paste and bark paste are applied three times with water.Tribes in the Kota region use leaf juice taken orally with water as a remedy for snake bites. According to folklore of medicine, Gnanavendhan (1995), this herb has anti-snake venom activity [7]

VI. MEDICINAL USES:[8]

1.The plant has a wide range of medical properties, including anti-parasitic, anti-estrogenic, anti-allergic, anti-inflammatory, and anti-oxidant .

2. The herb is also used as an antiviral, antifungal, anthelmintic, and analgesic agent . It also treats anaemia and bloody diarrhoea.

3. In addition to being used to cure liver disorders, the herb is utilised to treat snake venom.

USES OF LEAVES:

The presence of n-hexadecenoic acid, a substance known to have anti-inflammatory characteristics [4, has been proven to be responsible for the anti-inflammatory activity of the leaves [3]. In the extracts of methanol and chloroform, n-hexadecenoic acid is present in 24% and 9.24%, respectively. This quality is also a result of leaves having naturally occurring vitamin E antioxidants and tocopherol, a tocopherol derivative. Long chain unsaturated fatty acids have a well-known antibacterial effect. Additionally, fatty acids are crucial in antibacterial food additives. [9]

USES OF FRUITS:

The current investigation showed that the pharmacological features of DFFM and DFFEA, namely their anti-inflammatory and antinociceptive effects, were diverse. Following phytochemical analysis, it was discovered that substances such flavonoids, tannins, glycosides, and steroids were present. It has been proposed that these substances work in concert to create the reported activity. Therefore, our research backs up the traditional belief that Dolichandrone falcata fruits may heal a variety of diseases, and the potential pharmacological properties of the plant call for further study. [10]

VII. PHARMACOLOGICAL ACTIONS:

1. Anxiolytic:

Several in vitro antioxidant test methods were used to demonstrate the anti-oxidant and free radical scavenging activities of a methanolic extract of Dolichandrone atrovirens leaf and bark.When the aqueous extract of D. falcata was examined using the DPPH Scavenging test and the reducing Powder method, it appeared to display significant antioxidant activity. An antioxidant property of chyrsin, a plant component, has been proven in laboratory animals

[11]

2. Antioxidant:

The aqueous Dolichandrone falcata extract When tested using the DPPH scavenging test and the reducing powder technique, they appear to have high antioxidant activity. Chrysin from plants has demonstrated antioxidant properties in test animals [12]

3. Anti-inflammatory:

Animal models with carrageenan-induced paw inflammation were utilised to assess the anti-inflammatory properties of Dolichandrone falcata Seem fruit extracts in methanol and ethyl acetate. Formulations including both extracts were created and evaluated in anti-inflammatory tests at dosages of 100, 200, and 400 mg/kg. The results demonstrate that the extracts significantly reduce inflammation.[13]

4. Anti-fertility:

The goal of the current study was to examine how Dolichandrone falcata Seem leaves affected estrous cycle and antifertility. The alcoholic and aqueous leaf extracts, when administered at dosages of 200 mg/kg and 400 mg/kg body weight, respectively, showed a strong abortifacient effect. The estrous cycle, particularly the diestrous stage, was shown to be greatly prolonged by the leaf extract of Dolichandrone falcate Seem.[14]

5. Antimicrobial:

Pseudomonas aeruginosa, Bacillus subtilis, Candida albicans, Vibrio cholerae, and Salmonella typhi were studied in an antibacterial experiment using Dolichandrone falcata seem to be bark, fruits, and leaf extracts. According to the findings, the fruit extract is efficient against Vibrio cholerae, Candida albicans, and Pseudomonas aeruginosa, but not against Salmonella typhi and Bacillus albicans. Salmonella typhi, Vibrio cholera, Candida albicans, and Pseudomonas aeruginosa were all destroyed by the bark extract, however Bacillus subtilis remained. Only Salmonella typhi and Candida albicans are resistant to the leaf extracts. With the exception of Bacillus subtilis, the fruit and bark extract displays a strong zone of inhibition against all test species. [15]

6. Anti-diabetic:

The effectiveness of Dolichandrone falcata as anti-diabetic Rats' blood glucose levels were monitored as part of a pharmacological investigation with seem extracts. Rats were given low doses of 200 mg/kg, medium doses of 400 mg/kg, and high doses of 600 mg/kg to test the extract's anti-diabetic effectiveness. The conventional reference dose for glibenclamide's anti-diabetic efficacy against alloxan-induced diabetes was 10 mg/kg body weight. The aqueous extract dramatically lowered blood glucose levels in diabetic rats. The anti-diabetic action was shown to be significant and dose-dependent.[16]

VIII. CONCLUSION:

This thorough investigation has allowed us to draw the conclusion that Dolichandrone falcate phytochemical extracts from leaves, stems, and fruits are employed as anti-allergic, anti-inflammatory, anti-oxidant, anti-estrogenic, anxiolytic, and anticonvulsant medications. This plant is frequently used to treat anaemia, bloody diarrhoea, and other conditions by acting as an anthelmintic, analgesic, antiviral, and antifungal agent. Leucorrhoea and menorrhagia can both be treated using the juice of this plant. Therefore, in the category of medicinal plants, this plant is considered a useful instrument for treating a variety of diseases and ailments. The potential of the plant for its many medicinal actions.

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