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### Research Article

### Botany

#### A BRIEF STUDY ON MEDICINAL PLANT *Clerodendrum* SPECIES: A REVIEW ARTICLE

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#### ABSTRACT

The present investigation deals with the phytochemical studies of the phytochemical constituents and in-vitro evaluation of anti-inflammatory activity of roots of *Clerodendrum Indicum*. *Clerodendrum indicum* (L.) kuntz. Commonly known as bharangi or chingari, belongs to the family verbenaceae. The plant is expectorant, stomachic, Anti-bronchitis, Anti-nociceptive, Anti-microbial, Anti-diarrheal, anti-oxidant and anti-cancer. Preliminary phytochemical screening revealed the presence of flavonoids, steroids, steroid glycosides, terpenoids etc. This study has taken with the Anti-inflammatory activity and preliminary phytochemical screening on the *Clerodendrum indicum*. *Clerodendrum* is widely distributed plant in India and its medicinal use has been mentioned in traditional Indian systems. In the present study six species of *Clerodendrum* (*C. inerme*, *C. peniculatum*, *C. philippinum*, *C. phlomidis*, *C. serratum* and *C. villosum*) were screened for the presence of phytochemicals and were found positive for Glycosides, Terpenoids, Anthraquinones, Flavonoids, Saponins, Tannins, Lignin, Phenol and Alkaloids. All the species showed Antioxidant potential for all the Antioxidant Assays tested (DPPH Assay, Reducing Power Assay and Total Antioxidant Activity). *Clerodendrum* is an Old-World genus widely distributed within the tropics and subtropics. Previously placed in Verbenaceae, it was later moved to the family Lamiaceae (Labiatae) based on morphological and molecular phylogenetic evidence.

**Keywords:** *Clerodendrum inerme* - Antibacterial, Antioxidant, Phytochemical, RAPD Phytochemical study

#### INTRODUCTION

Nature has provided a complete store house of remedies to cure all ailment of mankind. Use of plants as a source of medicine has been inherited from the onset of human civilization and is an important component of the healthcare system. [1] Many plants are found to contain chemical compounds, which are used as natural medicines to treat common bacterial infections. These medicinal plants have been regularly used in various system of Indian medicine because of minimal side effect and cost effectiveness which provide scientific

support to the therapeutic use of the plants in tribal medicine.[2]

The genus *Clerodendrum* L. is widely distributed in tropical and subtropical regions of the world and is comprised of small trees, shrubs and herbs. A number of species from the genus *Clerodendrum* are documented in ancient texts for their antimicrobial action. *Clerodendrum* species showed antifungal activity and also exhibited antibacterial activity against bacterial pathogens. In the present investigation, an attempt was made by some microchemical tests to study the phytochemicals of this plant.

The genus *Clerodendrum* belongs to the family Lamiaceae, and includes more than 500 plant species found in the tropics and subtropics of the world, among which are several important medicinal plants.[2] These plants are attractive targets for phytomedicinal research to support their traditional uses and discover new pharmacological activities. Some biological activities of *Clerodendrum* species that have anti-asthma, anti-inflammatory and antipyretic, antifungal, antioxidant and wound healing, anti-obesity, antinociception, antimicrobial, inhibition of angiotensin converting enzyme and  $\alpha$ -glucosidase and anti-mutagenicity activities.[3]

#### ABOUT PLANT: [4,5]

It is a tiny shrub that is classified as an "environmental weed," "naturalised," and "weed". It was introduced as an ornamental in temperate and tropical regions and is now established in the neotropics. It is a tiny shrub that can reach a height of 3 metres when developed from an aggressively suckering, stoloniferous root source. Typically, the stem is fairly straight and unbranched. The herb is gathered in the wild for local medicinal purposes. The leaves of *Clerodendrum indicum* are used as a bitter tonic and vermifuge, and the dried leaves are smoked like cigarettes to relieve asthma. In Ayurvedic medicine, the plant juice is applied externally to treat skin problems, asthma, cough, and other pulmonary symptoms can be treated with the roots in combination with ginger. Syphilitic rheumatism is treated using a resin derived from the plant.



Fig: *Clerodendrum indicum*

#### COMMON NAME:[5]

Tube flower, Sky rocket, Bowing Lady, Bharangi, Hunjuki, Bhargi,

#### MORPHOLOGY:

Kingdom: Plantae

Family- Lamiaceae

Subfamily: Teucroioideae

Genus: *Clerodendrum*

Species: *Clerodendrum inerme*,

*Clerodendrum seratum*, *Clerodendrum infortunatum* *Clerodendrum indicum*, *Clerodendrum viscosum*.

#### MEDICINAL USE OF PLANT:[6]

Root— for asthma, cough, scrofulous affections.

Leaf—for vermifuge.

Resin— as antirheumatic

Flowers contain beta-sitosterol and triterpenoids.

The bark yields hexitol and sorbitol.

#### PHYTOCHEMICAL ANALYSIS:

Plant samples such as *C. inerme*, *C. peniculatum*, *C. philippinum*, *C. phlomidis*, *C. serratum* and *C. villosum* were collected. Chemicals extraction was carried out using methanol in soxhlet apparatus.[7] The crushed plant material was kept on rotary shaker along with of different solvents like Chloroform, Ethanol, Methanol, Iso-amyl alcohol and Propanol for 48 hrs. The extract was concentrated by solvent evaporation and used for antibacterial activity. All the prepared plant extracts were subjected to preliminary phytochemical screening for the presence of phenolic content, glycosides, anthraquinones, terpenoids, flavinoids, tannins, lignin and saponins.[8]

#### PHARMACOLOGICAL ACTIVITY:[9]

Anti-nociceptive Activity

Anti-Diarrheal Activity

Anti-Microbial Activity

Anti-Oxidant Activity

Anti-Cancer Activity

Anti-Bronchitis Activity

## II. CONCLUSOIN:

The selected *Clerodendrum* sp. contains phenolic compounds, glycosides, anthraquinones, terpenoids, flavinoids, tannins, lignin and saponins. The potential for developing Antioxidants from *Clerodendrum* plants appear rewarding as it may lead to the development of novel phytomedicine. Also, screening of *Clerodendrum* can make a way for identification of new important antimicrobial components. This evaluation offers a concept that the compound of the plant *clerodendrum* indicum may be used as lead compound for designing mighty pills which may be used for remedy of numerous diseases. With the tremendous expansion in the use of traditional medicine worldwide, safety and efficacy as well as quality control of herbal medicines has become a matter of most importance. World Health Organization, the macroscopic and microscopic description of a medicinal plant is the first step towards establishing the identity and degree of purity and should be carried out before any other tests are undertaken. screening of *Clerodendrum* can make a way for identification of new important antimicrobial components. Further study can be done for determination of toxicity, side effects and pharmaco-kinetic properties of isolated antimicrobial compounds. Molecular characterization by RAPD PCR revealed that *C. inerme* and *C. serratum* are closely related and share more common DNA sequence among all six species. It may be concluded that the above plants are very useful plant. These plants may be used to cure some common and other various diseases. It is necessary of exploration of maximum potential of these plants in medicinal field and pharmaceutical sciences for their appropriate application.

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