Review Article

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A BRIEF REVIEW ON CLERODENDRUM INDICUM

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Abstract

Clerodendrum indicum L. is commonly used in standard drug in India and different spots to bring annoys up in solidness and in the treatment of asthma, hack, scrofulous affection, vermifug, antirheumatic. The plant is likewise utilized in fever, decay, starvation of cachexia and utilization. These sources were researched and evaluated about its regular science, standard jobs, characteristic perspectives, engineered constituents and pharmacological relevance. The in vitro examinations of concentrating from Clerodendrum indicum exhibited Antinociceptive action, Antimicrobial, Antidiarrhea. It contain some manufactured constituents hydroquinone diterpenoid, clerodendrone, alkaloid, steroid, Flavanoid, tannin, lessening sugar, saponin and gum, structure explanation of six new mixes.

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INTRODUCTION

Plants have been utilized as a wellspring of medication since old time [1]. The depiction of the utilization of an assortment of plant derived prescriptions was written in various old writing of India (Veda, Purana and Upanishad) and China [2]. In old Egypt the dead body was safeguarded as "Mummy" by utilizing some plant extricates [3], which is obscure till date. As per the World Health Organization (WHO), an assortment of medications are gotten from various therapeutic plants and about 80% of the world's creating populace relies upon conventional medication for their essential social insurance needs Different plant species are utilized as a primary element for the planning of current phyto medicine, which has detonated over the most recent couple of years, are as yet being gathered from the nature and assume a significant job in tranquilize improvement programs in the pharmaceutical business. Now a days, in expanding populace individuals utilize home grown cures which have gotten progressively well known in the treatment of minor afflictions and are likewise much productive than others [4]. Presently, numerous therapeutic plants are vanishing a direct result of quick urban turn of events, farming, uncontrolled deforestation and unpredictable assortment. Blend of in vitro spread techniques [5] and cryopreservation is a solid strategy for long haul stockpiling of germplasm of jeopardized species and it might help in the protection of biodiversity.

INTRODUCTION TO PLANT CLERODENDRUM INDICUM [6]:

Figure 01: ***Clerodendrum indicum***

TAXONOMY

Family:Lamiaceae

Synonyms: Clerodendrum indicum f. semiserratum (Wall.) Moldenke, Clerodendrum longicolle G.Mey., Clerodendrum mite (L.) Vatke, Clerodendrum semiserratum Wall. , Clerodendrum siphonanthus R.Br. Clerodendrum verticillatum Roxb. ex D.Don , Ovieda mitis L., Ovieda verticillatum Roxb. ex D.Don , Siphonanthus angustifolius Willd., Siphonanthus indicus L.

Common name: Tubeflower, Turk's-Turban, Sky Rocket, Bowing Lady

Chinese: 长管假茉莉 , 长管大青

French: Herbe au long cou

Hindi: Bharangi

Manipuri: Kuthap

Bengali: Bamunhati

Tamil: Kavalai, Narivalai

Kannada: Bharangi,Hunjika

Sanskrit: Bhargi

Kingdom [7]: Plantae (unranked): Angiosperms (unranked): Eudicots (unranked): Asterids Order: Lamiales Family: Lamiaceae Subfamily: Teucrioideae Genus: Clerodendrum

Species:

1) *Clerodendrum inerme*
2) *Clerodendrum seratum*
3) *Clerodendrum infortunatum*
4) *Clerodendrum indicum*
5) *Clerodendrum viscosum*

PORTRAYAL [8]

Erect subshrubs to 2 m tall, stoloniferous; stem for the most part unbranched, heartlessly tetragonous, empty. Leaves in whorls of 3-4, 7-22 x 2-4 cm, straight lanceolate or elliptic-lanceolate, base constrict to intense, edge whole or pretty much toothed, pinnacle intense or taper, sessile or subsessile. Blossoms in terminal panicles. Bracts foliaceous looking like the leaves in all regards however littler; bracteoles 5-12 x 2-3 mm, direct. Calyx 5-partite, red, extensively campanulate; tube 4-6 mm long; projections 5, 6-10 mm long, praise, summit intense. Corolla white, hypocrateriform; tube thin, 8-13 cm since quite a while ago, bended; projections 8-15 mm long, elongated or applaud elliptical, insensitive, reflexed. Stamens 4, exserted; fibers purple, slim; anthers elongated, c. 2.5 mm long, purple. Sytle filiform, purple; disgrace in a matter of seconds bifid. Frit 4-lobed, blue-dark, 1-1.3 cm over; pyrenes 1-4, 1-seeded; fruiting-calyx accrescent, meaty, splendid red.

PARTS USED [9-10]

Root—used for asthma, cough, scrofulous affections. Leaf—vermifuge. Resin—antirheumatic. The plant is also used in fever, atrophy, emaciation of cachexia and consumption.

The leaves contain flavonoids—scutellarein, hispidulin and their 7-O-glucuronides; also sterols. Flowers contain beta-sitosterol and triterpenoids. The bark yields hexitol and sorbitol. The flavone, pectolinarin and a diterpene, oncinotine, exhibit antifeedant activity. [Indian Medicinal Plants An Illustrated Dictionary].

SYNTHETIC CONSTITUENTS

Clerodendrum indicum has been reported to contain Cleroindicin A-Hispidulin, scutellarein, scutellarein-7-O-β-D-glucuronide 3, 4-dihydroxyphenylethanol, hispidulin 7-O-glucuronide, roseoside,scutellarein,eupafolin,clerodendrol,laric iresino,l 9-O-beta-D-glucoside,Clerodendroncleroindicins,17-hydroxyteuvincenone G and 17-hydroxyteuvincen-5(6)-enone G, Hydroquinone diterpenoid, clerodendrone [11], alkaloid, steroid, Flav and, tannin, reducing sugar, saponin and gum [12]. structure elucidation of six new compounds, named cleroindicins A-F(1-6) [13].

PHARMACOLOGICAL EFFECTS

ANTINOCICEPTIVE ACTIVITY [12]

In acidic corrosive instigated squirming model, the unrefined ethanolic concentrate of Clerodendrum indicum leaves demonstrated a noteworthy portion subordinate reduction in the quantity of writhings.

Indeed, even at the most minimal portion of the plant remove tried (250 mg separate kg ' body weight), the concentrate indicated 38.91% restraint of writhings in the exploratory creatures contrasted with the standard medication, Diclofenac sodium at 25 mg kg ' body weight (68.3°% hindrance) and the decrease was amazingly factually noteworthy ($p<0.0001$). In any case, the unrefined ethanolic separate, when managed at a portion of 500 mg remove kg ' body weight, essentially diminished the quantity of writhings (55.24% restraint; $p<0.0001$), which was similar to the hindrance seen with a standard antinociceptive medication, Diclofenac sodium at 25 mg kg ' body weight (68.3°% hindrance).

IN-VITRO ANTIMICROBIAL SCREENING [14]

The in vitro antimicrobial activities of methanolic crude extracts and its different fractions from Clerodendrum indicum leaves were examined by the disc diffusion method. The bacterial and fungal strains used for the experiment were collected as pure culture from the Institute of Nutrition and Food Sciences (INFS), University of Dhaka. A measured amount of each test sample (methanolic crude extract, pet-ether fraction, chloroform fraction and CCl4 fraction) discs and blank discs (impregnated with 10 µl of solvents) were used as positive and negative controls, respectively. These plates were then kept at a low temperature (4 °C) for 24 hours to allow maximum diffusion. During this time dried discs absorbed water from the surrounding media and then the test materials were dissolved and diffused out of the sample disc. The plates were then incubated at 37 °C for 24 hours to allow maximum growth of the organisms. If the test materials have any antimicrobial activity, it will inhibit the growth of the microorganisms and a clear, distinct zone of inhibition will be visualized surrounding the medium. The antimicrobial activity of the test agent was determined by measuring the diameter of zone of inhibition expressed in millimeter. The experiment was carried out in duplicate.

ANTI-DIARRHEA [14]

The impact of the methanolic unrefined concentrate and its distinctive dissolvable solvent divisions on castor oil-instigated looseness of the bowels. In this method castor oil is used to induce diarrhea in all the experimental groups. The defecation is the primer to measure the anti-diarrheal effect. Thirty experimental mice were randomly selected and divided into six groups consisting of 5 mice in each group. Group I received vehicle (1% Tween-80 solution in normal saline, 10 ml/kg, as control group) and Group II received the standard anti-diarrheal agent loperamide groups and received methanolic crude extract and pet ether, CCl4 and chloroform fractions of methanolic extract, respectively at a dose of 400 mg/kg body weight p.o. Prior to any treatment, each mouse was weighed properly and the doses of the test samples and control materials were adjusted accordingly. Each animal was then given 0.5 ml of castor oil orally after 30 min of treatment and placed in transparent cages to observe for consistency of fecal matter and frequency of defecation for 3 h. Feces were collected with an absorbent sheet of paper placed beneath the transparent cages. The wet feces were read at the end of the experiment by lifting up the upper part of the cage containing the sheet of paper and animals. The percent (%) inhibition of defecation was measured using the following formula.

%inhibition of defecation= [(A – B) A] × 100

CONCLUSION

This survey of writing features one of the significance of certain plants of variety Clerodendrum having a place with the family *lamiaceae.* It reports the Phytochemistry, pharmacological exercises and customary employments of five plants for example *C. inerme, C. seratum ,C. Infortunatum, C. indicum, and C. viscosum.* A few reports alluding to their utilization in ailments like Antinociceptive action, Anti looseness of the bowels, In vitro Antimicrobial Screening, anthelmintic, and so forth, are distributed which legitimizes their utilization in the customary medication. The most widely recognized constituents found in this species were Clerodolone, Clerodone, Clerodol Clerosterol alongside certain proteins and sugars. An activity is important to efficiently assess these plants for unexplored exercises and phytoconstituents, so they can be industrially misused.

REFERENCES

1. Plotkin MJ. Traditional knowledge of medicinal plants the search for new jungle medicine. Cambridge: *Cambridge University Press*; 1991. p. 2456.
2. Ahmad I, Aqil F, Owais M. Modern phytomedicine: Turning medicinal plants

into drugs. Weinheim: *WILEY VCH Verlag GmbH and Co*; 2006.

3. Singh MK, Khare G, Iyer SK, Sharwan G, Tripathi DK. Clerodendrum serratum: A clinical approach *J Appl Pharm. Sci* 2012;2:115.
4. Hoareau L, DaSilva EJ. Medicinal plants: A reemerging health aid. *Electron J Biotechnol* 1999;2:34.
5. Fay MF. Conservation of rare and endangered plants using in vitro methods. *In Vitro Cell Devl Biol Plant* 1992;28:14.
6. http://medplants.blogspot.com/2014/11/clerodendrum-indicum-bhargi-bharangi.html
7. Amapollaboratif.cirad.fr/pages_logiciels/Mangrove_web/.../clein.htmlretrieved on 10.11.2014.
8. Manandhar, N.P. and S. Manandhar, 2002. The Useful Plants of Nepal. In: Plants and People of Nepal, Manandhar, N.P. and S. Mariandhar (Eds.). *Timber Press*, London, UK., ISBN-13: 9780881925272,pp: 160.
9. Rahman, M.A., E. Haque, M. Hasanuzzaman and I.Z. Shahid, 201 la. Antinociceptive, antiinflammatory and antibacterial properties of *Tamarix indica* roots. *Int. J. Pharmacol*., 7: 527-531 .
10. Shrivastava, N. and T. Patel, 2007. *Clerodendrum* and heathcare: An overview. Med. Aromat. *Plant Sci. Biotechnol*., I: I 42-150.
11. N.Ramesh, C. Kishore, KH et al., Clerodendrone, a novel hydroquinone diterpenoid from Clerodendrum indicum Ravindranath, *JOURNAL OF CHEMICAL RESEARCH-S* Issue: 7 Pages: 440-441.
12. Phytochemical investigation and in vitro antinociceptive activity of Clerodendrum indicum leaves.Raihan, Sheikh Zahir; Biswas, Pranoyjit; Monir, Md Moniruzzaman; et al.*Pakistan journal of biological sciences: PJBS* Volume: 15 Issue: 3 Pages: 152-5 Published: 2012-Feb-1.
13. New cleroindicins from Clerodendrum indicum Tian, J; Zhao, QS; Zhang, HJ; et al. *Journal Of Natural Products* Volume: 60 Issue: 8 Pages: 766-769 Published: AUG 1997.
14. Evaluation of antinociceptive, antidiarrheal and antimicrobial activities of leaf extracts of Clerodendrum indicum.Arindom Pal; Zobaer Al-mahmud; Nahia Akter; et al. *Pharmacognosy Journal Volume*: 4 Issue: 30 Pages: 41-46 Published: 2012.