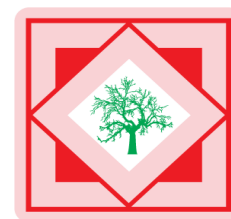




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Pharmacological review of *Tridax procumbens* L.

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ABSTRACT

Herbs are natural remedies for the disease with higher safety profile and efficacy. India is gifted with varieties of large number of medicinal herbs because of variety of climatic conditions and seasons favorable for growth of many species of plants. Amongst the large number of herbal drugs existing in India, very few have been studied systematically so far. *Tridax procumbens* L is a highly valuable drug and is one of the essential ingredients in the most of the compound preparations included in Ayurvedic literature. It is well known for number of pharmacological activities like hepatoprotective activity, antiinflammatory, wound healing, antidiabetic activity, hypotensive effect, immunomodulating property, bronchial catarrh, dysentery, diarrhea and to prevent falling of hair, promotes the growth of hair, and antimicrobial activity against both gram-positive and gram-negative bacteria. The leaf juice shows antiseptic, insecticidal and parasitocidal properties, against conjunctivitis and is used also to check haemorrhage from cuts, bruises and wounds insect repellent. It is also used as bioadsorbent for chromium. Here we try to make attempt for focusing on the wide pharmacological activities of *Tridax procumbens*.

Keywords: Herbs, *Tridax procumbens*, pharmacological activities.

INTRODUCTION

Tridax procumbens Linn. commonly known as 'Ghamra' and in English popularly called 'coat buttons' because of appearance of flowers which has been extensively used in Ayurvedic system of medicine for various ailments and is dispensed for "Bhringraj" by some of the practitioners of Ayurveda which is well known medicine for liver disorders [1]. The plant is native of tropical America and naturalized in tropical Africa, Asia, Australia and India. It is a wild herb distributed throughout India. Coat buttons are found along roadsides, waste grounds, dikes, railroads, riverbanks, meadows, and dunes. Its widespread distribution and importance as a weed are due to

its spreading stems and abundant seed production [2]. *Tridax* is a weak straggling herb about 12-24cm long with few leaves 6-8cm long and very long slender solitary peduncles a foot or more in length. Leaf is simple, opposite, exstipulate, ovate, acute with two types of flowers such as ray-florets and disk-florets [3].

Hepatoprotective Activity

The hepatoprotective activity of aerial parts and chloroform insoluble fraction from ethanolic extract of *Tridax procumbens* Linn. were reported against D-Galactosamine/ Lipopolysaccharide (D-GalN/LPS) induced hepatocellular injury of liver cells. *Tridax procumbens* Linn. shows positive effect and has ability to regenerate liver cells. The multifocal necrosis produced by D-GalN and the lesion of viral hepatitis in humans are generally similar. In this recovery process the amino sugar selectively blocks the transcription. In this process the hepatic protein synthesis is achieved as a consequence of endotoxin toxicity, which leads to hepatic injury within few hrs after administration. This is well reported method for to study Hepatoprotective activity. The levels of marker enzymes like aspartate transaminase, alanine transaminase, alkaline phosphatase, lactate dehydrogenase, gamma glutamyl transferase and bilirubin in serum and blood as well as histopathological examination of liver sections supports the same [4].

Immunomodulatory Activity

Ethanol insoluble fraction of aqueous extract of *Tridax procumbens* has been reported for immunomodulatory activity. It significantly increases the phagocytic index, leukocyte count and splenic antibody secreting cells. The immunomodulatory activity of Ethanolic extracts of leaves of *Tridax procumbens* Linn. have been also studied in Albino rats with *Pseudomonas aeruginosa*, which has ability to inhibit the proliferation of this microorganism [5].

Wound Healing Activity

The process of wound healing is a complex and dynamic which has ability to restore the cellular structures and tissue layers. The Aqueous extract of whole plant of *Tridax procumbens* Linn. has ability to set the normal and immunocompromised wound healing in rats[6]. The wound healing process by application of this plant material involves complex interaction between epidermal and dermal cells, the extra cellular matrix, controlled angiogenesis and plasma-derived proteins all coordinated by an array of cytokines and growth factors[7]. The plant not only increase lysyl oxidase but also, protein and nucleic acid content in the granulation tissue, probably due to increase of glycosamino glycan content[8, 9].

Antidiabetic Activity

The aqueous and alcoholic extract of leaves of *Tridax procumbens* Linn. shows significant decrease in the blood glucose level and it shows antidiabetic activity in the model of alloxan-induced diabetes in rats [1]. The oral administration of acute and sub chronic doses of 50 % methanol extract of *T. procumbens* significantly reduces fasting blood glucose levels in diabetic rats. This plant material does not affects the sugar levels in normal rats [10, 14].

Antimicrobial Activity

The extract of whole plant of *Tridax procumbens* showed antibacterial activity only against *Pseudomonas aeruginosa*. The disk diffusion method was used to test the antibacterial activity

for two-gram positive *Bacillus subtilis*, *Staphylococcus aureus* and two gram negative *Escherichia coli* and *Pseudomonas aeruginosa* [11]. The methanolic extract of whole plant powder of *Tridax procumbens* Linn. shows antibacterial activity with significant MIC value. This property was examined for Soxhelt extracts of chloroform, acetone, ethanol and. water in ascending order of polarity [12]. The n-hexane extract of the flowers showed activity against *Escherichia coli*, ethyl-acetate extract of the flowers shows activity against *Bacillus cereus* and *Klebsiella sp* where as the ethyl acetate extract of aerial parts showed activity only against *Mycobacterium smegmatis* and *Staphylococcus aureus*. The n-hexane extract of the whole aerial parts was reported to be active against *Mycobacterium smegmatis*, *Escherichia coli*, *Salmonella* group C and *Salmonella paratyphi* [13].

Other Pharmacological Properties

The cardiovascular effect of aqueous extract obtained from the leaf of *Tridax procumbens* Linn. was investigated on anaesthetized *Sprague-Dawley* rat. The aqueous extract has ability to cause significant dose dependant decreases in the mean arterial blood pressure. The higher dose leads to significant reduction in heart rate where as lower dose did not cause any changes in the same. The leaves of *Tridax procumbens* Linn. shows hypotensive effect [14].

In other study, essential oils were extracted by steam distillation from leaves *Tridax procumbens* Linn. and they were examined for its topical repellency effects against malarial parasite *Anopheles stephensi* in mosquito cages. All essential oils were exhibits relatively high repellency effect. Thus these plants are promising as repellents [15].

Tridax procumbens Linn. was also reported for its anti inflammatory and anti oxidant activity[6]. Leaves of *Tridax* were good hair growth promoters and has ability to prevent falling of hairs [16, 17]. This plant was also used as a good bioadsorbent for the removal of highly toxic ions of Cr (VI) from industrial wastewater. Hence *Tridax procumbens* Linn. recommended for bioremediation [18]. This plant was also used for bronchial catarrh, dysentery, diarrhoea and in the West Africa and for a remedy against conjunctivitis [17, 19].

CONCLUSION

Tridax procumbens Linn. is widely distributed weed found everywhere in India, America, Tropical Africa, Asia, and Australia. All plant parts have noble pharmacological activities. The reported work includes study of pharmacological activities like hepatoprotective effect, immunomodulating property, promising wound healing activity, antidiabetic, hypotensive effect, antimicrobial, insect repellent activity, anti inflammatory and antioxidant, bronchial catarrh, dysentery, diarrhea. The plant also prevents falling of hairs and used as hair growth promoter. This plant is used as bioadsorbent for removal of harmful Cr(VI) from the industrial wastewater. It is an important component of “Bhringraj” in Ayurveda. In future, there is tremendous scope in research for this plant.

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