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Convolvulus Arvensis: One Plant Many Roles

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ABSTRACT

Herbal medicines are in a great demand for preliminary health care due to their wide medicinal values . Since many species are used in the system of traditional medicine, scientists have great opportunities to develop appropriate packages for their multiplication and conservation. This plant is being used for many purposes in traditional system of medicine especially in Pakistan for inflammatory related disorder. Convolvulus arvensis Linn. is an annual or perennial climber commonly found as a weed throughout Europe and Asia. It belongs to family Convolvulaceae . In this article, an endeavour has been made to explore the therapeutic utilities and an attempt has been made to collect the information related Convolvulus arvensis Linn. From different texts

Keywords: Herbal medicine, Convolvulus arvensis, Traditional.

INTRODUCTION

Since the beginning of human history, many people have relied heavily on wild plants to prevent nutritional and pathogen related illness[1,2] .Plant based products have been used by humans in a variety of contexts from so many years. Plants with medicinal properties have been used for treatment for a long time, and they continue to provide new tools to fight against a wide range of diseases[3]. Convolvulus arvensis Linn. also known as field bindweed and 'hiran khuri' in hindi belongs to convolvulaceae family, extensively found in Europe and asia. It is a climbing or creeping perennial or annual plant. Other common names are ' possession vine ' , creeping jenny , field morning glory , European bindweed , morning glory. The name Convolvulus means to entwine and arvensis means of fields. This species is found in most parts of the world where it has been accidentally introduced as a contaminant of both agricultural and horticultural species. This plant is being used for many purposes . The root and the resin are cholagogue , diuretic , laxative and purgative. The flower is laxative, used as a tea infusion and also in the treatment of wounds and fever , whereas the leaf can be helpful during the menstrual period.

Chemical Compostion

Phytochemical studies showed that Convolvulus arvensis Linn contains alkaloids, phenolic compounds, flavonoids , carbohydrates , sugar, mucilage, sterols, resin, tannins, unsaturated sterols.
An aerial part of the plant contains phenols, terpens, flavonoid.

Ancient Uses:

The plant is reported to have used in traditional medicine system as early as 1730s. Aerial parts of the plant is used as as laxative, wound healing, anti-spasmodic, anti-haemorrhagic, anti-angiogenetic and for the treatment of parasites and jaundice. It is also used as diuretic and in skin disorder such as anti-furunculosis, anti-dandruff and in spider bites. Convolvulus arvensis is also used as decoction in cough and flu, to treat the painful joints, inflammation and swelling in Pakistan.

Other biological effects
Hepatoprotective effect

The hepatoprotective activity of Convolvulus arvensis was studied in paracetamol induced hepatoxicity in mice. The result showed that Ethanolic extract of Convolvulus arvensis(200 and 500mg/kg) produced significant($p<0.05$) decrease in Parcetamol induced increased levels of liver enzymes and total bilirubin. Histopathological investigation supported the hepatoprotective effects of Convolvulus arvensis.

Antibacterial Effect

The aqueous and acetonic extracts of convolvulus arvensis were tested against staphylococcus aureus, streptococcus pyogenes, Escherichia coli and klebsiella pneumonia using five concentrations(500,250,125,0.06and 0.03mg/ml). The

aqueous extract of Convolvulus arvensis showed no anti bacterial activity against all the tested microorganisms in all concentrations. However, ethanolic extract of Convolvulus arvensis L. Showed anti bacterial activity against all the tested microorganism (except klebsiella pneumonia) when used in concentration of 0.06 mg/ml and more.

Immunostimulant Effect

Intraperitoneal injection of 1/10 ld50 of aqueous extract of Convolvulus arvensis to rats significantly increased total leukocutes and percentage lymphocyte , enhanced the phagocytic function of reticular endothelial system and blocked immunosuppressive effect produced by dexamethasone. Furthermore, the aqueous extract significantly increased the concentration of some immunomudulators such as leptin, neopterin, immunoglobulins and lysosmal enzyme activity. These result showed that the Convolvulus arvensis leaves contain water soluble fraction that was immunostimulant.

Diuretic Effect

The diuretic effect of the Convolvulus arvensis root extracts were assesses in rats with the using furosemide as standard diuretic drug. The parameters studied were included body weight before and after test period, total urine volume, urine concentration of na+ , k+, hco3- and cl-. The water and ethanol extracts (50 and 100mg/kg) of the root extract of convolvulus arvensis produced time dependent increase in urine output. Electrolyte excretion was also significantly affected by the extracts.

Toxicity

Horse ingested Convolvulus arvensis in a few localized northen Colorado pastures exhibited weight loss and colic. At post modern investigation showed intestinal fibrosis and vascular sclerosis of the small intestine. Convolvulus arvensis of the pasture was found to contain the tropane alkaloid tropine, pseudotropine, and tropinone. Pseudotropine , the major alkaloid, was known to effect motility and might represent a causative agent for the observed cases of intestinal fibrosis.

CONCLUSIONS

Medicinal plants have been used in the management of diseases for thousands of years and continue to provide an inexhaustible source of natural compounds to serve society. While some people may dismiss herbal remedies as quackery, the use of botanicals is well rooted in medicinal practice. Ancient doctors methodically collected information about herbs and developed well – defined pharmacopieas to treat a variety of ailments. In the recent times more than a quarter of all the drugs of the commercially available synthetic medicines contain active ingredients which are derived from the plants. This review article exposes that Convolvulus arvensis is an exclusive source of many phytochemicals which make this plant very unique and versatile for its properties i.e. anti-inflammatory, anti-diuretic and others. It is high time to exploit the therapeutic utility of Convolvulus arvensis to combat against many diseases. It can be concluded by analyzing above collected literature that Convolvulus arvensis is a promising candidate as a multipurpose medicinal agent.

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