

Evaluation of Phytochemical Screening and Anti Inflammatory Activity of Leaves and Stem of *Mikania scandens* (L.) Wild

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Abstract

Background: The greatest disadvantage in the presently available potent synthetic anti-inflammatory drugs lies in their toxicity and reappearance of symptoms after discontinuation. Hence, people are returning to the natural products with the hope of safety and security. Several species of *Mikania* have been reported to have anti-inflammatory properties. **Aim:** The present study aims to assess the anti-inflammatory activity of the ethanolic extract of the leaves and stem of *Mikania scandens* *in vivo* and *in vitro*. **Materials and Methods:** The *in vitro* bioassay consisted of assaying the effect of the extracts against denaturation of protein (egg albumin) and measuring the absorbance. *In vivo* anti-inflammatory activity was checked by measuring the percentage inhibition of carrageenan-induced rat paw edema after oral administration of the extracts to male Wistar rats. **Results:** The plant extracts revealed the presence of tannins, alkaloids, steroids and flavonoids in both the leaf and stem extracts. The *in vitro* study of leaf extracts of *M. scandens* demonstrated that at 16000 µg/ml concentration a better anti-inflammatory activity was exhibited which is more than the stem extracts. Similarly in the *in vivo* study, carrageenan induced inflammation was significantly antagonized by *M. scandens* leaf extract, with inhibition of 50% at 1000 mg/kg. **Conclusion:** The ethanolic extract of both leaf and stem of *M. scandens* showed potent anti-inflammatory activity. In comparison the leaf extract found to be more potent in both the conditions *in vivo* and *in vitro*, comparing with the standard drug diclofenac sodium and traditional control rumalaya perhaps due to the presence of phytochemicals like alkaloids and flavonoids in the plant.

Keywords: Anti-inflammatory, *Mikania scandens* (L.) wild, Phytochemicals, Protein denaturation assay, Rat paw edema

Introduction

Inflammatory diseases including different types of rheumatic diseases are a major cause of morbidity of the working force throughout world. This has been called the “King of Human Miseries.”^[1] The attention of pharmacologists throughout the world has been focused on finding out safer and potent anti-inflammatory drug. The most commonly used drugs for management of inflammatory conditions are

non-steroidal anti-inflammatory drugs (NSAIDs).^[2,3] The greatest disadvantage in the presently available potent synthetic anti-inflammatory drugs lies in their toxicity and reappearance of symptoms after discontinuation.^[4,5] The natural products today symbolize safer in contrast to the synthetic drugs that are regarded as unsafe to humans and environment. Hence, people are returning to the natural products with the hope of safety and security.

Mikania scandens belongs to the family *Asteraceae* and is a fast growing perennial creeper. *M. scandens* is natively found in the tropical and sub-tropical zones of North, Central and South America. This genus is also found in the tropics of Africa and Asia^[6] and is widely known as Guaco. It comprises about 450 identified species.^[7] There has been several reports on the use of other species of *Mikania* as a folkloric medicine in different therapeutic applications by different groups.^[8,9]

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