

Anti-inflammatory Activity of the Aqueous Leaf Extract of *Ixora coccinea*

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Abstract

The aim of this study was to investigate the anti-inflammatory potential of an aqueous leaf extract (ALE) of *Ixora coccinea* (Rubiaceae) in rats after oral administration (500, 1000 and 1500 mg/kg). This was done using the carrageenan-induced paw edema (acute inflammatory model) and cotton pellet granuloma tests (chronic inflammatory model). In the former test, ALE significantly impaired both early and late phases of the inflammatory response and also the edema maintained between the two phases. In the latter test, it significantly suppressed granuloma formation (only highest dose tested). Collectively, these data show promising anti-inflammatory activity against both acute and chronic inflammation. ALE showed strong antihistamine and antioxidant activities that can account for its anti-inflammatory potential. In addition, inhibition of prostaglandins and bradykinins may play a role.

Keywords: Antihistamine, anti-inflammatory activity, antioxidant, *Ixora coccinea*.

Introduction

The search for new pharmacologically active agents obtained by screening natural sources such as microbial fermentations and plant extracts has led to the discovery of many clinically useful drugs that play a major role in the treatment of human diseases. The ethnopharmacological uses as well as certain biological activities exhibited by *Ixora coccinea* indicate it to be a rich source of phyto-medicine. *Ixora coccinea* Linn. (Rubiaceae) (Sinhala: *mal;* Tamil: *vedchi*) is a shrub (Jayaweera, 1982) with small, obovate to oval-oblong, rounded to subcordate leaves on branched hard heavy twigs (Jayaweera,

1982). It is very common everywhere in the low country of Sri Lanka. The wide distribution in Sri Lanka has led to the extensive use of this species in the traditional system of medicine. A decoction of the roots is given for dysentery and as a sedative for hiccoughs, nausea, loss of appetite, fever, and gonorrhoea. The flowers and bark are used on reddened eyes and eruptions in children (Jayaweera, 1982). Further, a decoction of the flowers is given for hemoptysis, catarrhal bronchitis, and dysmenorrhoea. The leaves of *I. coccinea* are used in the treatment of dermatological disorders in the traditional system of medicine in Sri Lanka (Jayaweera, 1982). A preliminary report (Reena et al., 1993) on the anti-inflammatory effect of ethanol extract of the leaves of *I. coccinea* prompted us to study this effect in detail. We report here our investigation of the anti-inflammatory activity using the rat carrageenan-induced paw edema technique (acute inflammatory model) and cotton pellet test (chronic inflammatory model).

Materials and Methods

Collection of the herb and preparation of aqueous leaf extract (ALE)

Fresh leaves of *I. coccinea* were collected from Keleniya and Mirigama in the Gampaha district of Sri Lanka in August 2001 and were identified and authenticated by Professor B.A. Abeywickrama of the Botany Department of the University of Colombo. A voucher specimen (wdr/sad 1003) was deposited at the museum of the Department of Zoology. The leaves were washed under running water, air-dried, and cut into small pieces. The pieces (234 g) were macerated with water and were then

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