Short communication

Evaluation of anti-inflammatory activity of latex of *Calotropis procera* in different models of inflammation

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Abstract—The anti-inflammatory activity of dry latex (DL) of *Calotropis procera* was evaluated in various acute and chronic models of inflammation, namely, carrageenan-induced oedema, Freund’s adjuvant-induced oedema, cotton pellet granuloma, carrageenan air pouch inflammation, vascular permeability and UV-induced erythema. Oral administration of DL significantly inhibited oedema formation induced by carrageenan and Freund’s Adjuvant. It also inhibited granuloma formation induced by cotton pellet and carrageenan. DL significantly inhibited fluid exudation, possibly due to its effect on vascular permeability. Besides, it also delayed the onset and intensity of UV induced erythema. In all these models, the anti-inflammatory activity of DL was comparable to standard anti-inflammatory drugs.

Key words: *Calotropis procera*; latex; anti-inflammatory activity.

1. INTRODUCTION

*Calotropis procera*, a widely growing tropical plant, has been reported to possess multifarious properties. A potent anti-inflammatory activity is present in extracts prepared from different parts of this plant, namely, ethanolic extract of its flowers (Mascolo *et al.*, 1988), chloroform extract of its roots (Basu and Nag Choudhuri, 1991), aqueous and acetone extracts of its latex (Majumder and Kumar, 1997). Even the crude dry latex (DL) also exhibits anti-inflammatory effect (Kumar and Basu, 1994). In all these preliminary reports, inhibition of carrageenan and/or formalin induced paw oedema has been studied with the extracts prepared from different parts of *C. procera*. In this investigation we have evaluated the anti-inflammatory activity of DL following oral administration in other acute and chronic models of inflammation.

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2. METHODS

2.1. Animals

Male albino rats weighing 120 to 150 g and albino guinea pigs weighing 250 to 350 g procured from the experimental animal facility of All India Institute of Medical Sciences were used for different experiments. The animals had free access to food and water.

2.2. Reagents

Carrageenan, castor oil and Evans Blue were purchased from Spectrochem, Agrawal Pharmaceuticals and Central Drug House respectively. Freund’s complete adjuvant was purchased from Sigma Chemical Co. and prednisolone was a product of Wyeth Laboratories. Phenylbutazone was obtained from SG Pharmaceuticals.

2.3. Latex

The latex was collected from the twigs of plants growing in the wild. The plant was identified by the Raw Materials, Herbarium and Museum Division, National Institute of Science Communication, CSIR, New Delhi where a voucher specimen is preserved (Voucher No. PID 1739). The latex was dried under shade at ambient temperature (DL). The DL was triturated with gum acacia (1:1), filtered and administered orally to rats at a dose of 50 mg, 500 mg and 1 g/kg (DL-5, DL-50 and DL-100 respectively) and to guinea pigs at a dose of 200 mg/kg.

2.4. Carrageenan-induced oedema

Rats were divided into four groups of 6 animals each. Group A: saline control; Group B: 100 mg/kg phenylbutazone (PBZ); Group C: DL-5; Group D: DL-50. One hour after the oral administration of drugs, acute paw oedema was induced by injecting 0.1 ml of 1% carrageenan in 0.9% saline. Paw volume was measured at 0 and 3 hours by recording the volume displacement of a water-mercury column using a plethysmometer (Winter et al., 1962).

2.5. Cotton pellet granuloma

The granulomas were developed by the method described by Naik et al. (1980). Rats were divided into three groups of 8 animals each. Group A: vehicle control; Group B: 100 mg/kg PBZ; Group C: DL-100. Following one hour of oral administration of drugs, sterile cotton pellets weighing 10 mg were implanted subcutaneously in both the axillae of rats under ether anesthesia. Drugs were given daily for 10 days. On the 11th day, rats were sacrificed and the cotton pellets with the surrounding granulomas were resected out and their wet and dry weights were recorded.