

Vitex negundo inhibits cyclooxygenase-2 inflammatory cytokine-mediated inflammation on carrageenan- induced rat hind paw edema

Pronobesh Chattopadhyay, Soilyadhar Hazarika, Sunil Dhiman, Aadesh Upadhyay, Anurag Pandey, Sanjeev Karmakar, Lokendra Singh
Divisions of Pharmaceutical Technology

ABSTRACT

Background *Vitex negundo* L. (Verbenaceae) is a hardy plant widely distributed in the Indian subcontinent and used for treatment of a wide spectrum of health disorders in traditional and folk medicine, some of which have been experimentally validated. In present study, we aimed to investigate the anti-inflammatory effects of *V. negundo* in carrageenan-induced paw edema in rats, and to investigate the probable mechanism of anti-inflammatory action. **Materials and Methods** Paw edema was produced by injecting 1% solution of carrageenan, and the paw volume was measured before and after carrageenan injection up to 5 h. *V. negundo* leaf oil was extracted using a Clevenger apparatus and administered by a trans-dermal route to Wistar rats and the percentage of inhibition of inflammation was observed using a Plethysmometer by comparing a compound aerosol-based formulation with 1 mg diclofinac diethylamine BP and 7 mg methyl salicylate IP/kg body weight served as a standard drug whereas paraffin oil served as the placebo group. After withdrawing of blood, serum was separated and cyclooxygenase (COX)-1 and COX-2 inhibitory activities were measured by the enzyme immuno assay (EIA) method by using a COX inhibitor screening assay kit. **Results and Discussion** *V. negundo* leaf oil significantly ($P < 0.05$) reduced the carrageenan-induced paw edema as compared to the placebo group (paraffin oil) and 1 mg diclofinac diethylamine BP and 7 mg methyl salicylate IP showed the maximum inhibition of paw edema as compared to the *V. negundo* leaf oil treated group and the control group. Also in the present study *V. negundo* leaf oil showed significantly ($P < 0.05$) inhibits COX-1 pathways rather than COX-2 pathways as compared to the *V. negundo* leaf oil treated group. **Conclusion** It is suggested that the *V. negundo* leaf oil is a potent anti-inflammatory agent and acts via inhibition of COX-2 without much interfering COX-1 pathways.

KEYWORDS

Anti-inflammatory . cyclooxygenase-2 inhibitors . *Vitex negundo*

REFERENCES