Suppression of nociception by Solanum incanum (Lin.) Diclomethane root extract is associated anti-inflammatory activity

Mwonjoria J.K. Ngeranwa J.J, Githinji C.G., Kahiga T., Kariuki H.N. Waweru F.N.


ABSTRACT Solanum incanum is an herb that is an important African folklore remedy for several ailments such as inflammation, pain, fever, microbial diseases, and neoplastic disorders. The herb possesses several pharmacological activities that include antinociceptive effect to thermal pain test models, antipyretic, antimicrobial and anticancer activity. However, there are no reported studies on its anti-inflammatory activity and effects on chemical pain test models. The aim of this study was to evaluate the effect of the root extract on inflammation and formalin pain test model. In the anti-inflammatory assay, white Wistar rats were injected intraperitoneally with doses of the herb diclofenac and the vehicle. Thirty minutes later the animals were injected with 50µg of 5% formalin in the sub-plantar region of the left hind paw to induce inflammation and the diameter of the paw measured using a digital caliper. The difference between the initial paw diameter and subsequent readings was quantified as the edema developed in the paw. To assess the effect of the herb on leukocyte migration, carrageenan was injected intraperitoneally into the white albino mice after thirty minutes following subcutaneous administration of the herb extracts and controls. Four hours later, normal saline was injected into the peritoneum and a peritoneal lavage performed and the total number of leukocytes in the fluid determined using a Neubauer chamber. In the antinociceptive assay, white Wistar rats were injected intraperitoneally with doses of the herb extracts. Thirty minutes later the animals were injected with 50µg of 5% formalin in the sub-plantar region of the left hind paw the total time spent in flinching, lifting, biting and licking the hind paw was quantified as the latency of nociception. The dichloromethane extract exhibited significant (p < 0.05) anti-inflammatory and 2nd phase antinociceptive effect, with 50 mg doses inhibiting highly significant (p < 0.001) effect in the early phase. Since the second phase of nociception is both inflammatory and neurogenic these results suggest that the anti-inflammatory activity of S. incanum plays an important role in its antinociception.

Keywords: Solanum incanum, Antinociceptive, Analgesic, Anti-inflammatory, Carrageenan, Leukocyte migration.