

Abstract

Anti-Inflammatory and Anti-Nociceptive Properties of Leaf Fractions of *Sida linifolia* L. (Malvaceae) Possibly Mediated by Peripheral and Central Mechanisms [†]

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Abstract: *Sida linifolia* L., a common weed found in dry forest areas in West Africa and other parts of the world, is associated with several folkloric applications in Africa, including its use in assuaging painful whitlows and in malaria management; however, limited or no scientific studies have validated its bioactivities. Herein, we investigated the anti-nociceptive and anti-inflammatory mechanisms of ethanolic (ELFSL) and ethyl acetate (EALFSL) fractions of *Sida linifolia* leaves. The in vivo anti-inflammatory activities were evaluated by edema induction with an intraperitoneal injection of freshly prepared carrageenan (0.1 mL of 0.01 g/mL) and 0.1 mL of undiluted fresh egg albumin into the mouse's hind paw; additionally, hind paw licking, and writhing were induced in mice using formalin (i.p.) (0.02 mL of 1% v/v) and 0.6% (v/v) (10 mL/kg bw) (i.p.) acetic acid, respectively, to assay for anti-nociceptive potentials. Varying amounts of flavonoids, tannins, and other phenols, terpenoids, saponins, steroids, and alkaloids were detected in the fractions. The LD₅₀ study showed no toxicity up to 5000 mg/kg body weight (per oral) EALFSL and ELFSL. Interestingly, oral administration of various concentrations (200, 400, and 600 mg/kg bw) of the fractions significantly ($p < 0.05$) inhibited all phases of edemogenesis, mice's hind licking, and writhing compared with controls, and were comparable with 100 mg/kg bw (p.o.) aspirin. However, ELFSL showed non-significantly ($p > 0.05$) better anti-nociceptive and anti-inflammatory activities than EALFSL. This suggests that leaf fractions of *Sida linifolia* possess anti-inflammatory and anti-nociceptive potentials, possibly mediated by peripheral and central mechanisms.

Keywords: anti-inflammation; anti-nociceptive; antioxidants; rheumatoid arthritis; malaria; whitlow



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