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Effect of aqueous bark extract of Barringtonia racemosa on nociception in rats

The ethno pharmacological uses as well as certain biological activities exhibited by *Barringtonia racemosa* Linn**.** (Family: Lecythidaceae ; Sinhala: Godamidella, Tamil: Arattam) indicate it to be a rich source of phytomedicine. . The variety of unrelated ailments /diseases for which *B.racemosa* is been used in folkloric medicine suggests that it may be having an analgesic effect. This prompted us to investigate the analgesic activity of this species.
The water extract was obtained by refluxing mascerated bark in water for 2 days. Different doses of extract (E) (500, 750, 1000 or 1500 mg/ kg; n= 8/group) or vehicle (1 mL distilled water) or meparadine (25 mg/ kg , I, M, positive control) were orally administered to male rats and the analgesic potential evaluated using three models of nociception (tail flick, hot plate and formalin tests).

A marked analgesic effect was evident when assessed in the hot plate test but not in tail flick test, indicating that the E is effective against acute phasic pain and the analgesic effect is mediated centrally at the supraspinal level. The E also suppressed the number of paw lickings and the time spent on paw licking in the formalin test at both phases suggesting that the E is effective against tonic pain of both inflammatory and non-inflammatory origins. The E was well tolerated (in terms of overt signs of toxicity, behavioral changes, heamotology, alanine transaminase (ALT) , aspartate transaminase (AST) and serum creatinine levels) and non stressogenic (in terms of fur erection and exopthalmia) .

The analgesia was not mediated via sedation. However, subcutaneous administration of nalaxone significantly impaired the reaction time induced by 1000 mg/ kg of extract in the hot plate technique. This indicates the effect of the extract has been blocked by nalaxon. Hence the mechanism of action of the analgesia may be through opioid receptors.

Phytochemical screening and chemical analysis of the aqueous extract showed the presence of flavonoids, tannins/polyphenols, steroids and/ or triterpenoids and saponins. Such inhibition of pain could arise not only from the presence of opioids and / or opiodiomimetics but could also arise from the presence of phenolic constituents and/or steroidal constituents as was present in this extract. However, greater suppression evident in the second phase of the test suggests that additional mechanisms such as inhibition of prostaglandin synthesis could play an auxiliary role in the extract induced analgesia.