Characterization of the antinociceptive and anti-inflammatory activities of fractions obtained from Copaifera multijuga Hayne.

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Abstract
ETHNOPHARMACOLOGICAL RELEVANCE: Copaifera multijuga Hayne (Leguminosae) is a tree that produces an oleoresin, which is extensively commercialized in Brazil as capsules or crude oil for the treatment of several disorders. Ethnopharmacological studies show a diversity of indications such as anti-inflammatory and epidermal wound cicatrization.

AIM OF THE STUDY: In the present work three fractions obtained from Copaifera multijuga oleoresin (hexane (HF), chloroform (CF), and methanol (MF) from a KOH impregnated silica gel column chromatography, representing the three main classes of compounds in the Copaifera genus (hydrocarbon sesquiterpenes, oxygenated sesquiterpenes and acidic diterpenes), were evaluated using antinociceptive and anti-inflammatory models.

MATERIALS AND METHODS: HF, CF, and MF (doses ranging between 1 and 150 mg/kg, depending on the model used), Copaifera multijuga oleoresin (CMO, 100mg/kg, p.o.) and the reference drug morphine (5mg/kg, p.o.) were evaluated using models for analgesia (acetic acid-induced contortions and tail flick) or inflammation (rat paw oedema and increase in vascular permeability). To elucidate the mechanism of action from the fractions, animals were pre-treated with naloxone (opioid receptor antagonist, 5mg/kg, i.p.).

RESULTS: Fractions significantly inhibited (in a concentration-dependant way) the number of contortions induced by acetic acid and the second phase of formalin-induced licking response. Similar results were observed in the tail flick model. The central antinociceptive effect for HF and CF at the doses of 50 and 100mg/kg was higher than the one observed for morphine (1mg/kg). Administration of naloxone inhibited the antinociceptive effect of fractions indicating that HF, CF, and MF may be acting on opioid receptors. All three fractions also inhibited rat paw oedema and the increase in vascular permeability induced by several phlogistic agents (carrageenan, histamine, and serotonin).

CONCLUSIONS: Our results indicate that fractions obtained from Copaifera multijuga Hayne demonstrate an antinociceptive effect probably mediated by opioid receptors, and anti-inflammatory activity through inhibition of histaminergic and serotoninergic pathways.

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