Evaluation of anti-inflammatory activity of Casearia sylvestris Sw.: bioguided fractionation of ethanolic extract from its leaves

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Introduction: Casearia sylvestris Sw. (Salicaceae) have been used in wound healing and as antulcerogenic and anti-inflammatory. Pharmacological studies supported its anti-inflammatory action (Silva et al., Braz Oral Res, 18, 174, 2004). There is no information about compounds with anti-inflammatory activity in this species. The objective of this work was to evaluate the anti-inflammatory action of its extract and to realize the bioguided fractionation contributing to determine chemical markers for the species.

Experimental: Ethanolic extract from the leaves was submitted to SPE yielding three fractions: SPE1, SPE2 and SPE3 (Santos et al., Chem Biodiversity, 7, 205, 2010). These samples were analyzed by HPLC-DAD and TLC. Ethanolic extract, SPE1 and 2 were evaluated in the rat paw edema model (n=6). Inflammation was induced by injection of carragenin in the right hind paw 60 min after administration of test samples and controls (indomethacin and vehicle). Paw thickness was measured before and after treatment (every hour for 6 h); animals were submitted to euthanasia with CO₂ after 7 h (Winter et al., Proc Soc Exp Biol Med, 111, 144, 1962). Gastric ulcerogenesis was evaluated. Experiments were conducted under authorization of ethics committee.

Results/Discussion: The extract, SPE1 and 2 exhibited anti-inflammatory action. SPE2 (10 mg/Kg) presented greater activity (Fig. 1), similar to indomethacin (100 mg/Kg). Instead indomethacin treatment, samples tested did not produce gastric lesions. Chromatographic analyses demonstrated the presence of clerodane diterpenes in extract and SPE2. Sesquiterpenes were previously identified in SPE1 (Oliveira et al., Mutagenesis, 24, 501, 2009).

Conclusion: Results suggest that diterpenes and sesquiterpenes may be responsible for anti-inflammatory action of ethanolic extract. Bioguided fractionation will be continued.

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Figure 1. Inflammation inhibition percentage versus time (h). Non treated animals = 0% (*p < 0,05 compared to extract, **p < 0,05 compared to SPE1 - ANOVA).