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Polyphenols, flavonoids and anti-inflammatory activity of *Anacyclus clavatus* extracts.

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Abstract

Medicinal plants provide a ready source of anti-inflammatory compounds with minimal side effects. Polyphenols and flavonoids have a potential for new anti-inflammatory agents. The current study aimed to determine the total polyphenol and flavonoid content of the methanolic and aqueous extract from the aerial part of *Anacyclus clavatus* using Folin-Ciocalteu and Aliminium chloride methods, respectively and to evaluate the anti-inflammatory activity of these extracts by using two models of acute inflammation, carrageenan-induced paw edema in rats and croton oil-induced ear edema in mice. Results showed that methanolic extract was rich in polyphenols with 131.30 ± 6.88 µg/mg gallic acid equivalent, while the aqueous extract was rich in flavonoids with 16.39 ± 1.38 µg/mg quercetin equivalent. Oral pretreatment of rats with 200 or 400 mg/kg of methanolic extract prevented significantly the paw edema induced by carrageenan, with a maximal inhibition of 64% and 74% at 6h, respectively. These inhibitions were similar to that of aspirin used as a standard anti-inflammatory agent. At the same doses (200 or 400 mg/kg) and after 6 h of edema induction, the aqueous extract exerted also anti-edematous effect with an inhibition of 80% and 65%, respectively. At 200 mg/kg, the inhibition is better than that obtained with aspirin. On the other hand, the topical application of 2 mg/ear of methanolic or aqueous extract reduced the ear edema induced by croton oil at 6 h by 83%. This inhibition is better than that obtained with indomethacin, used as reference. These results indicate the possibility to use the extracts of *Anacyclus clavatus* to prevent the inflammatory processes.

Keywords: Inflammation, anti-inflammatory activity, *Anacyclus clavatus,* paw edema, ear edema.