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Evaluation of antinociceptive and anti-inflammatory effects of *Oliveria decumbens* by formalin test & carrageenan model in male rat

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Medicinal plants are believed to be an important source of new chemical substances with potential therapeutic effects. The aim of the present study was to evaluate the anti inflammatory effect of oral administration of *Oliveria decumbens* hyroalcholic extract by Carageenan tests in rats. In this research, 60 male Wistar rats weighing about 210±20 grams were divided into ten group (n=6) for evaluation of antinociceptive effects the formalin test induced pain. The nociceptive response develops two phase: First (0-5) min after formalin (first or acute phase) and (16-60) min after formalin injection (second or chronic phase). The animals pre-treated with oral dose of extracts (100, 200, 400 mg/kg), 60 min before administration formalin for anti-inflammatory effects, the carrageenan induced hind paw edema model in rats were used and the animals pre-treated with oral dose of extracts (100, 200, 400 mg/kg), 30 min before administration of carrageenan. The control group is without receiving any drug and the sham group receiving an equal volume from distilled water. Then the paw volume measured in the mercury from 0 to 2 hours and 30 min after carrageenan injection statistical analysis by ANOVA and T-Test used ($p<0/05$). Results shows there is decreased pain and inflammation in formalin and carrageenan tests in the group that received 400 mg/kg dose of extract in comparison with the control and sham groups ($p<0.05$). This results demonstrated extract dose-dependently following the receipt of formalin resulted in a decrease of nociceptive in acute and chronic phase. There is decreased nociception in chronic and acute phase of formalin test in the group that received only 400 (mg/kg) of extract. So, data shows there is decreased inflammation in Carrageenan test in the group that received 400 (mg/kg) dose of extract in comparison with the control and sham groups (P 0.05).

Vitamin-D and innate immunity

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Hormonal 1,25-dihydroxyvitamin D (1,25D) signals through the nuclear vitamin-D receptor (VDR), a ligand-regulated transcription factor. Vitamin-D was discovered as the cure to nutritional rickets and 1,25D is a critical regulator of calcium homeostasis during development and in the adult. However, the VDR is expressed in several tissues not implicated in calcium homeostasis, including throughout the immune system and a wide range of studies over recent years has revealed that hormonal vitamin-D is an important regulator of innate immunity. In humans, the 1,25D-bound VDR directly induces the transcription of genes encoding antimicrobial peptides (AMPs), pattern recognition receptors and key cytokines implicated in innate immune responses. These findings provide a molecular basis for a number of clinical studies providing a correlation between vitamin-D deficiency and an increased risk of infection. Notably, while global mechanisms of innate immune responses to pathogen threat have been conserved during evolution, the details of those responses and their regulation are species-specific. We find that the cognate binding sites for the VDR (vitamin D response elements; VDREs) present in a number of human genes encoding key components of innate immune responses are highly conserved in primates, but not present in rodent genes. Similarly, 1,25D-induced production of AMPs appears to be absent in mice. Given that other work has shown that 1,25D does control innate immune responses in rodent models of disease, the similarities and differences in 1,25D-regulated innate immune responses between species will be discussed.