**TÍTULO**

ANTI-ALLODYNIC AND ANTIDEPRESSIVE ACTIONS OF (R)-(+) - LIMONENE AND ALPHAPHELLANDRENENE IN THE SPARED NERVE INJURY MODEL OF NEUROPATHIC PAIN

**RESUMO**

Introduction: Peripheral nerve injury can result in many changes, including associated cognitive and emotional comorbidities like depression, motor dysfunction, plus mechanical, cold and thermic hypernociception. The potential of oral treatment of (R)-(+) - limonene and alpha-phellandrene to alleviate mechanical hypernociception, cold hypernociception and behavioral alterations induced in rats by SNI are analyzed in this work. Objectives: The present work has investigated the anti-allodynic and antidepressant activities of the (R)-(+) - limonene, and alpha-phellandrene in rats. Methods: Essential oil or control vehicle was administered orally to the animals, after the sciatic nerve injury (SNI). The groups were: the control group treated with vehicle; the SNI group that received phellandrene (10 mg/kg) and the SNI group that received limonene (10 mg/kg). Mechanical and cold sensitivities as well as forced swim behavior were analyzed at the 10th and 15th days after SNI procedures in all animals. Results: Oral administration for up to 15 days of (R)-(+) - limonene (10 mg/kg), and alpha-phellandrene (10 mg/kg) significantly inhibited SNI-induced mechanical allodynia and increased immobility in the forced swim test. On the 15th day of oral treatment, phellandrene, but not limonene, prevented the SNI-induced increase in sensitivity to a cold stimulus. Conclusion: Together, the results of the present work show that (R)-(+) - limonene (10 mg/kg) and alpha-phellandrene, exhibit antiallodynic effects against mechanical and cold stimuli and are antidepressive in SNI rats. The present results may have clinical relevance and may open new possibilities for the development of new anti-allodynic and/or antidepressive drugs.