10th Brazilian Conference on Natural Products
XXXVI RESEM
4-7 November 2025, Belo Horizonte, MG, Brazil

Section: 03

NEUROPROTECTIVE PROPERTIES OF A 20-HYDROXYECDYSONE-RICH EXTRACT FROM PFAFFIA GLOMERATA (SPRENG.) PEDERSEN ROOTS IN A RESERPINE-INDUCED FIBROMYALGIA MODEL

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Fibromyalgia (FM) is the third most common musculoskeletal condition, affecting approximately 3% of the global population. It is characterized by widespread chronic pain and is often associated with comorbidities such as anxiety and depression. Medicinal plants are considered valuable resources for the treatment of chronic diseases due to their bioactive compounds, which may help reduce adverse effects. The roots of *Pfaffia glomerata* (PG) have been traditionally used for their antioxidant properties in the management of chronic conditions. Therefore, the present study aimed to evaluate the therapeutic effects of the dichloromethane fraction obtained from PG roots on pain, anxiety, depression, oxidative stress and inflammatory markers in an experimental model of FM. Male C57BL/6 mice were used and subjected to a reserpine (RE)-induced FM model, administered once daily for three consecutive days. Following the final RE administration, the animals were treated with saline (vehicle), the PG fraction, or pregabalin (positive control). Mechanical nociception and anxiety- and depression-like behaviors were assessed. Treatment with the PG fraction significantly reduced pain from day 1 to day 9 ($p<0.001$) following model induction. Moreover, a 69% protective effect against anxiety-like behavior was observed, along with a 29% reduction in depression-like behavior. These findings indicate that treatment with the PG fraction is effective in reducing pain and exerts a protective effect against anxiety- and depression-like behaviors. Mechanical nociception was assessed using Von Frey filaments, while anxiety- and depression-like behaviors were evaluated through the elevated plus maze, open field, and forced swim test. Treatment with the PG fraction significantly reduced pain in animals from day 1 to day 9 following model induction ($p<0.001$). Additionally, it provided a 69% protective effect against anxiety-like behavior and a 29% reduction in depression-like behavior. Furthermore, the treatment reduced levels of hydrogen peroxide and pro-inflammatory cytokines. These findings demonstrated that the PG root fraction is effective in alleviating pain and exhibits protective effects on anxiety- and depression-related behavioral parameters. The authors thank the support from their institutions and the financial support of FAPEMIG and CAPES.

Keywords: *pain, anxiety, depression, natural products, oxidative stress*