

## ANTIDEPRESSIVE AND ANTI-INFLAMMATORY EFFECT OF *A. citriodora* IN ADULT RATS SUBMITTED TO MATERNAL DEPRIVATION IN CHILDHOOD

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### **INTRODUCTION**

Major Depressive Disorder (MDD) is a very disabling psychopathology and its etiology is multifactorial. Studies show that one of the major factors responsible for MDD is stress in early life, causing damage to brain development and biological dysfunctions, both neural and systemic. Many patients treated with classic antidepressants do not have a good prognosis, so an alternative is the use of medicinal plants. Thus, *A. citriodora* has been studied for its antidepressant, anxiolytic and anti-inflammatory potential.

### **MATERIAL AND METHODS**

The research was approved by the Animal Ethics Committee (AEC) of the UNOCHAPECÓ, SC, under protocol 002/CUS/2021. The animals were divided into four groups (N= 10 each group): No-stress control + vehicle; MD + vehicle; MD + Escitalopram 10 mg/kg; MD extract + *A. citriodora* 30 mg/kg. The animals underwent MD 10 days after the first day of birth. At sixty days of age, the animals were subjected to treatment for 14 (fourteen) days. At the end of the treatment, the animals were subjected to behavioral testing protocols. The animals were euthanized and the hippocampus was removed and stored at a temperature of approximately -70°C for further analysis of inflammatory cytokine activity.

### **RESULTS**

The PM protocol culminated in a significant increase in depressive behaviors in adulthood and promoted an increase in the expression of inflammatory cytokines IL-1  $\beta$  and IL-6 in the hippocampus. Treatment with *A. citriodora* extract reversed depressive behaviors similarly to the escitalopram. In addition, it was observed that the group submitted to treatment with the plant extract showed the lowest expression of inflammatory cytokines.

### **CONCLUSIONS**

The results suggest that substances present in the *A. citriodora* have potential use as antidepressants, because they reduce depressive-like behaviors similarly to classic antidepressants and act strongly in reducing neuroinflammation, which is directly related to the pathophysiology of MDD.

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