



## ANTIDEPRESSIVE-LIKE AND ANTIOXIDANT EFFECT OF *Centella asiatica* IN RATS SUBJECTED TO EARLY LIFE STRESS

Brunna Varela<sup>1\*</sup>, Amanda G. Bertollo<sup>1</sup>, Jesiel de Medeiros<sup>1</sup>, Maiqueli E. D. Mingoti<sup>1</sup>, Giovana T. Capoani<sup>2</sup>, Heloísa Lindemann<sup>2</sup>, Agatha C. L. Galvan<sup>1</sup>, Joana V. Cassol<sup>1</sup>, Gilnei B. da Silva<sup>1</sup>, Daiane Manica<sup>1</sup>, Margarete D. Bagatini<sup>1</sup>, Lilian C. Bohnen<sup>2</sup>, Walter A. Roman Junior<sup>2</sup>, Zuleide M. Ignácio<sup>1</sup>.

<sup>1</sup>Universidade Federal da Fronteira Sul - campus Chapecó, Brazil. <sup>2</sup>Universidade Comunitária da Região de Chapecó - Unochapecó, Brazil. \*brunnavarela1996@gmail.com

### **INTRODUCTION**

Major depressive disorder (MDD) is one of the most prevalent forms of mental illness. Among the most relevant factors underlying MDD is childhood stress. In rodents, maternal deprivation (MD) is a behavioral model that mimics traumas early in people's lives. Changes in oxidative balance, as oxidative stress, are involved in the severity of MDD pathogenesis and in the responsiveness to classical antidepressants. The medicinal species *Centella asiatica* (*C. asiatica*) and its active compound madecassic acid have been studied for their potential antidepressant, antioxidant and neuroprotective effects.

### **MATERIAL AND METHODS**

This research was approved by the Animal Ethics Committee (AEC) from UNOCHAPECÓ, SC, under protocol 002/CEUA/2021. The animals were divided into five groups (N = 10 each group): Control without stress + vehicle; MD + vehicle; MD + Escitalopram 10 mg/kg; MD + *C. asiatica* extract 30 mg/kg; MD + madecassic acid 10 mg/kg, *C. asiatica* active compound. The animals were submitted to MD 10 days after the first day of birth. At sixty days of age, the animals were submitted to chronic treatment for 14 (fourteen) days. At the end of the treatment, the animals were submitted to protocols of behavioral tests. After the last test, the

animals were euthanized, and the blood and hippocampus were removed and stored at a temperature of approximately -70°C for later analysis of the activity of the oxidative substances myeloperoxidase (MPO) and thiobarbituric acid reactive substances (TBARS).

### **RESULTS**

The MD protocol induced depressive-like behaviors and impaired oxidative balance. MPO and TBARS increased in MD serum. MD did not induce oxidative changes in the hippocampus. The *C. asiatica* extract and active compound reversed or reduced depressive-like behaviors and MPO in the serum.

### **CONCLUSIONS**

The results strongly suggest that the medicinal species *C. asiatica* and its active compound have antidepressant potential and that the antioxidant is a mechanism involved in the antidepressant-like effect of the species.

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