EFFECTS OF JAMBOLAN EXTRACT (*Syzygium cumini*) ON LIPID PEROXIDATION IN A MODEL OF PARKINSON'S DISEASE IN RATS INDUCED WITH 6-HYDROXIDOPAMINE

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INTRODUCTION: Parkinson's disease (PD) is caused by several biochemical alterations that include oxidative stress and lipid peroxidation. Jambolan (Syzygium cumini) is rich in anthocyanins and phenolic acids that perform antioxidant and neuroprotective activity in the central nervous system (CNS). OBJECTIVE: To evaluate the effects of jambolan extract on lipid peroxidation levels in a rat model of Parkinson's disease. MATERIALS AND METHODS: The protocol was approved by the Animal Use Ethics Committee (CEUA) Unipampa, under registration 018/2023. 50 male Wistar rats were divided into 5 groups: 1 - Control - without induction and saline gavage; 2 - 6-OHDA - induced and saline gavage; 6-OHDA + EXT 500 mg/kg - induced and extract gavage; 6-OHDA + EXT 750 mg/kg - induced and gavage extract; 6-OHDA + LEVODOPA – induced and gavage levodopa 6mg/kg. PD was induced by stereotaxic surgery, with unilateral intrastriatal injection of 6-OHDA (20 µg/3 µl) in saline solution and treatments performed for 30 days. Subsequently, the animals were euthanized and the striatum, hippocampus, prefrontal cortex, cerebellum and gastrocnemius muscle tissue were collected. The thio barbituric acid reactive substances (TBARS) technique was performed, which, through the quantification of Malondialdehyde (MDA) determines a measure of lipid peroxidation.
RESULTS AND CONCLUSION: In the tissues tested, there was a significantly increased lipid peroxidation process in the 6-OHDA group compared to the control, but these parameters were modulated by the treatments. In the striatum, prefrontal cortex and gastrocnemius tissues, the extract was able to significantly reduce MDA levels when compared to the 6-OHDA group, evidencing the antioxidant activity of the extract in the

CNS. This result was also evident in the Levodopa group. In the hippocampus and cerebellum, Levodopa was not able to reduce lipid peroxidation when compared to the 6-OHDA group, while the groups that received the extract showed a significant reduction in this parameter, demonstrating that the extract was superior in combating lipid peroxidation in these tissues than the drug. The jambolan extract showed antioxidant and neuroprotective activity by combating lipid peroxidation in the tissues tested, having a more efficient effect than levodopa in the hippocampus and cerebellum.

Keywords: Neuroprotection; Wistar rats; 6-Hydroxydopamine.