**TÍTULO**

ACETYLCHOLINESTERASE INHIBITORY ACTIVITY WITH METHANOLIC EXTRACT FROM PSYCHOTRIA CAPILLACEA (RUBIACEAE)

**AUTORES**

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**RESUMO**

**Introduction:** Alzheimer's is a neurodegenerative disease characterized by loss of memory and cognitive impairment, which is associated with the cholinergic deficiency, and a form of treatment is to restore acetylcholine neurotransmitters. Published reports show promising results with acetylcholinesterase (AChE) inhibitors considerably increasing the concentration of Ach neurotransmitter in the brain of patients diagnosed with the disease. *Psychotria capillacea* (Rubiaceae) popularly known as "coffee", is a woody shrub native of forests in southern Brazil. *Psychotria* genus plants have been the target of several pharmacological studies to evaluate the acetylcholinesterase activity due to the presence of alkaloids and iridoids. The aim of this study was to evaluate the acetylcholinesterase activity of the methanol extract from *P. capillacea* of the leaves.

**Methods:** *P. capillacea* leaves were collected in Dourados – MS. The methanol extract was obtained by cold maceration with methanol and subsequent evaporation of the solvent. For the evaluation of acetylcholinesterase activity *in vitro*, the euthanasia of male *Wistar* rats was performed to the removal of the brain (cortex, cerebellum, hippocampus and striatum), and homogenized separately in buffer Tris-HCl 10 mmol, pH 7.2 with saccharose 160 mmol (1:10, p/v). The AChE activity in the homogenized was determined by the method of Ellman et al. (1961). The assay medium containing DTNB 1.04 mmol and potassium phosphate buffer 24 mmol pH 7.2 was incubated for 2 minutes at 30°C with 25 mL of sample (methanol extract 0.5 mg/mL) and the reaction started by the addition of acetylthiocholine (Ach) 0.83 mmol.L⁻¹. The reaction product was determined at 412 nm with 2 min, and the specific activity (SA) was expressed in μmol by hydrolyzed acetylcholine (μmol AchH.h⁻¹.mg de proteína⁻¹). The protein concentration from the homogenized samples was determined by Coomamine Blue method (Bradford, 1976) using bovine serum albumin as standard. **Results:** The methanol extract of *P. capillacea* tended to change the AChE in the brain cortex (SA= 3.11 μmol AchH.h⁻¹.mg de proteína⁻¹), hippocampus (SA= 3.11 μmol AchH.h⁻¹.mg de protein⁻¹) and striatum (SA= 1.16 μmol AchH.h⁻¹.mg de proteína⁻¹). The sample not showed alteration in AChE activity in brain structures of the cerebellum. **Discussion and Conclusion:** *P. capillacea* demonstrated inhibitory effect on acetylcholinesterase, being responsible for degrading the neurotransmitter Ach. However, it is necessary to keep studying ex vivo model to be able to characterize it as an inhibitor of AChE.

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**References**

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