NEUROPROTECTIVE EFFECTS OF SECONDARY METABOLITES OF NATIVE POTATO IN A MODEL IN VITRO AND IN VIVO IN RAT BRAIN

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Peru has over 3000 varieties of native potatoes, several scientific studies show its potential uses as part of alternative medicine. **The aim** was to demonstrate that antioxidant secondary metabolites present in the native potato “Puca Simi” exert in vitro and in vivo neuroprotection.

**Methodology:** It was used a native potato aqueous extract. The total antioxidant capacity (TAC) by ABTS and DPPH techniques was determined. Total phenols was also determined. For in vitro assay, a rat brain homogenate was prepared at 5% and oxidative stress was induced by using hydrogen peroxide 2.4 mM: a) homogenized b) homogenized with H2O2 c) homogenized, H2O2 and native potato extract. For the in vivo test, 4 groups: I) control group II) group with phenylhydrazine, III) Puca Simi extract group and IV) phenylhydrazine and Puca Simi group. The phenylhydrazine produces hyperbilirubinemia, the only dose used was intraperitoneally 60 mg/kg of body weight. The potato extract given to the animals was 665 mg/kg of body weight. TBARS assay by Buege and Aust was performed in both models. In addition, in vivo model were determined the activity of SOD by Marklund & Marklund and catalase by Aebi.

**Results:** ABTS-TEAC was 0.215 mmol/g soluble matter and DPPH-TEAC was 14.60 µmol/g soluble matter. The total phenol was 591.6 µg EAG/mL extract + 11.9. TBARS in the in vitro model: a) 68.4 b) 136.5 c) 20.6 nmol/g tissue. TBARS produced in the in vivo model: I) 129 ± 16.6, II) 170 ± 23.3, III) 134 ± 9.2 and IV) 143 ± 11.5 nmol/g tissue with p < 0.01 between I and II, and p <0.05 between II and IV. The results of SOD and catalase did not produce significant differences.

**Conclusion:** The secondary metabolites including polyphenols have antioxidant activity and exerted neuroprotection in vitro and in vivo. Mechanism is still unknown.

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