SCNS.05. Effect of compounds isolated from plants on 6-OHDA-induced cytotoxicity in cell culture model.

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Introduction: Parkinson's disease (PD) is the second more common neurodegenerative disorder affecting approximately 1 % of the world population and is mainly characterized by progressive and selective depletion of dopamine neurons in the *substantia nigra*. The 6-hydroxydopamine (6-OHDA) is a neurotoxin that acts on catecholaminergic neurons, through the formation of reactive oxygen species (ROS) and inhibition of the complex I of the electron transport chains. Excessive production of ROS may lead to oxidative stress with loss of cellular functions and finally leading to cell death. The aim of this study was to investigate the cytoprotective activity of 18 substances of various chemical classes, isolated from plants, on 6-OHDA-induced cytotoxicity in PC12 cells. **Methods:** The compounds were obtained from Padetec and the Chemistry laboratory of natural products (LQPN) of the State University of Ceará. PC12 cells (2×10^5cells/mL) were treated with compounds at a concentration of 100µg/mL, 15 minutes before 6-OHDA (100µM) exposure. After 24 hours, tests were done to assess cell viability (MTT) and oxidative stress (nitrite and malondialdehyde). The data was analyzed by ANOVA (one-way) followed by Dunnet test. Results have been expressed as means ± S.E.M. from at least three experiments. **Results**: The 6-OHDA significantly reduced cell viability and increased nitrites levels. None of the compounds tested proved to be toxic at the dose studied. However, among the 18 compounds studied, only gallic acid (GA) and troxerrutin significantly protected cells from 6-OHDA-induced damage ($p < 0.05$), increasing cell viability (MTT: GA 50 + 6-OHDA= 85.3%; troxerrutin 100 + 6-OHDA= 72.3%). Treatment with GA and troxerrutin decreased the nitrite and malondialdehyde levels. **Conclusions:** These results showed a cytoprotective effect of gallic acid and troxerutin, probably explained by the antioxidant activity of these compounds.

Funding: CAPES

RODRIGUES, P.A.; MORAIS, S.M.; VIEIRA, I.G.P.; ANDRADE, G.M. 2013. Effect of compounds isolated from plants on 6-OHDA-induced cytotoxicity in cell culture model, p.15. In: Oriá, Reinaldo Barreto; Andrade, Geanne Matos de; Bruin, Veralice Meireles S. de. **I International Symposium in Neuroscience Meeting** [Blucher Neuroscience Proceedings n.1 v.1]. São Paulo: Blucher, 2014, http://dx.doi.org/10.5151/isnm-sine10