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Oligopeptidases B and C from trypanosomatids as therapeutic targets for natural products

Ivan de Oliveira Pereira[1,2*]; José Roberto de Sousa Filho[1,3]; Thamyris Reis Moraes[2]; Diego Magno Assis[4]; Alexandre Tourino Mendonça[1]; Luis Vitor Silva do Sacramento[2]; Marcos José Marques[3]

[1]Universidade Vale do Rio Verde; [2]Universidade Estadual Paulista Júlio de Mesquita Filho, Faculdade de Ciências Farmacêuticas; [3]Universidade Federal de Alfenas; [4]Universidade Federal do Estado de São Paulo. *ivan.farma@yahoo.com.br

Introduction: Infections caused for trypanosomatids represent one of the biggest problems of world-wide public health, with high endemicit over all in developing countries. The drugs of choice for the treatment of these parasitisms, general way, cause well-known renal and cardiac toxicity, beyond inducing resistance in the parasite and many times to present insufficient effectiveness. **Objective:** As part of our research aiming at the development of new drugs with trypanocidal activity, crude extract and fractions from *Arrabidaea brachypoda*, one typical plant, native from Brazilian Cerrado had been evaluated, in vitro, how much to the inhibition activity on Oligopeptidases B and C, that are specific enzymes involved in the attack of trypanosomatids to the cells of its hosts. **Methods:** For evaluation of the inhibitory activity on the Oligopeptidases, it used the fluorogenic substrate Z-FR-AMC and dissolved in DMSO extracts. The solutions are incubated for 30 minutes after the addition of substances to be tested. Then, the substrate was added, followed by espectrofluorometric analysis every 0.5 seconds, with a wavelength from 380 nm excitation and emission of 460 nm. Each experiment was performed in different three occasions, and the percentage of inhibition calculated in relation to the control only with DMSO. **Results:** In relation to Oligopeptidase B the crude extract and fractions, hexanic, butanolic, ethyl acetate and aqueous showed IC_{50} values of 95.3 ± 8.1, 98.8 ± 8.1, 50.8 ± 3.5, 26.5 ± 2.7 and 115.9 ± 7.7 µg/mL, respectively. In relation to Oligopeptidase C, the same extract and fractions showed the IC_{50} values of: 64.1 ± 5.2, 51.7 ± 4.7, 51.6 ± 1.3, 46.7 ± 2.3 and 78.1 ± 1.7 µg/mL, respectively. **Conclusion:** These results suggest that the butanolic fraction is the most efficient and a potent enzyme inhibitor, providing new perspectives for the development of more effective and less toxic drugs with tripanocidal activity from the Brazilian Cerrado, targeting Oligopeptidases.

Keywords: *Arrabidaea*, Oligopeptidases, Trypanosomatids.