Comparative evaluation of the antioxidant potential of extracts from *Pityrocarpa moniliformis* leaves

Tiago Fonseca Silva¹, Barbara de Azevedo Ramos², Luiza Lins de Sá Moraes³, Bárbara Gabriela Galdino dos Santos⁴, Natalia Medeiros dos Santos⁵, José Matias Anselmo⁶, José Robson Neves Cavalcanti Filho⁷, Márcia Vanusa da Silva⁸, Luís Cláudio Nascimento da Silva⁹, Maria Tereza dos Santos Correia¹⁰.

Arguably, the pathogenesis of degenerative diseases and aging are associated with the unbalanced presence of free radicals and other oxidants which damage cellular macromolecules (proteins, lipids, DNA and carbohydrates) leading to cell dysfunction and death. In this context, it is always relevant the search of new antioxidant substances from underexploited habitats such as Caatinga, an exclusively biome from Brazil. *Pityrocarpa moniliformis* is an arboreal species which occurs mainly in the Caatinga biome present in the Brazilian states of Maranhão, Pernambuco, Piauí and Ceará. Our group has been the first to show the biotechnological potential of this plant, especially as antimicrobial agent. Thus, the aim of this study is to evaluate the antioxidant activity of methanolic and ethyl acetate extracts from leaves of *P. moniliformis*.

After collecting at National Catimbau Park (Buíque, PE), leaves were dried and the powder was processed to extraction using hexane, ethyl acetate and methanol, sequentially. The antioxidant activity of ethyl acetate (PMEE) and methanolic (PMME) extracts were performed by ABTS and DPPH assays. The total phenolic content of both extract was also determined using Gallic Acid equivalence (GAE) method.

Both extracts showed antioxidant properties with IC50 (concentration able to inhibit 50% of the radical) in DPPH assay of 90.48 μg/mL for PMEE and 201.32 μg/mL for PMME (Trolox IC50: 57.81 μg/mL). In ABTS assay, IT50 values (time need to inhibit 50% of ABTS radical) at 500 μg/mL were 23.55 min and 116.23 min, for PMEE and PMME, respectively. PMEE showed a phenolic content somewhat higher than PMME (67.58 ± 3.94 mg/mL GAE and 64.29 ± 1.48 mg/mL GAE, respectively) which may explain its best antioxidant action.

Given these results, new *in vivo* and *in vitro* methodologies should be applied to confirm the antioxidant potential of *P. moniliformis*, especially the ethyl acetate extract. The isolation and identification of active compound(s) are also target of our research group.

**Keywords:** Pityrocarpa moniliformis; Caatinga; free radicals.

