Comparative Evaluation of the Antioxidant Activity of Roots, Leaves and Flowers Extracts of Brazilian Ginseng

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Studies involving trials of plant-derived antioxidants have increased in the last years, since oxidative stress conditions involving mitochondrial dysfunctions are related with human diseases. Many health benefits of *Pfaffia glomerata* are attributed to the oral intake of powdered roots. In this study, we evaluated the antioxidant activity of hydroalcoholic extract of roots and glycolic extracts of flowers and leaves of *P. glomerata* against the Fe(II)-induced oxidative stress in isolated mitochondria. The root extract was obtained by maceration followed by lyophilization and the leaves and flowers extracts were obtained by fractionated percolation (Brazilian Pharmacopoeia) and considered as 100%. Our results showed that leaves and flowers extracts inhibited significantly the lipid oxidation (LPO) of the mitochondrial membranes induced by Fe(II) and roots extract had no inhibitory action, even at high concentration tested. At the same concentrations, flowers extract was the most potent in reducing the DPPH radical followed by leaves and roots extracts, respectively. Also, in a competitive assay, the flowers and leaves extracts presented important iron chelating activity. The quantification of total phenols and flavonoids showed the presence of these well-known scavengers in leaves and flowers extracts. These results demonstrate that leaves extract presented antioxidant action in isolated mitochondria demonstrated by LPO inhibition due to a free radical scavenger activity. Since Fe(II) was used as inducer of oxidative stress in this study, the chelating iron activity may also contribute to the antioxidant effect observed.
Keywords: *Pffafia glomerata*, antioxidants, oxidative stress, mitochondria.
Supported by FAPESP, CNPq, FAEP-UMC.