Determination of in vitro antioxidant activity and total phenolic content from Sida tuberculata R.E.Fries (Malvaceae) extracts.

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Sida species are used in folk medicine around the world for several diseases. In Pampa Biome region, they are known popularly as "guanxuma", and survey literature indicated few studies about them. The present work aimed to determine the in vitro antioxidant potential and the total phenolic content of extracts from leaf and roots of Sida tuberculata, collected in Pampa Biome region (Uruguaiana-RS, Brazil). The hydroethanolic and aqueous extracts of leaves and roots were obtained by percolation and infusion, respectively. The total phenolic content was determined by UV-Vis spectrophotometry using the Folin-Ciocalteu method, with modifications. The in vitro antioxidant activity was evaluated using the α,α-Diphenyl-β-Picrylhydrazyl (DPPH) and Thiobarbituric Acid Reactive Substances (TBARS) based on egg yolk assay system. The antioxidant potential was compared to ascorbic acid. The total phenolic content varied from 1.206 (± 0.03) to 0.213 (± 0.01) mg EAG/mL and from 0.428 (± 0.004) to 0.212 (± 0.009) mg EAG/mL for leaf and root extracts, respectively. Antioxidant assays showed that the extracts have a good potential to neutralize free radicals. The results demonstrated that the smallest significant concentrations for the DPPH radical assay were, in the following order: 0.033, 0.04, 0.06 and 0.24 mg/mL for hydroethanolic leaf, aqueous root, aqueous leaf and hydroethanolic root respectively. The egg yolk TBARS assay showed that hydroethanolic leaf, hydroethanolic root are the most effective in the inhibition of malondialdehyde formation and lipid peroxidation. Thus, Sida tuberculata extracts demonstrated to have great antioxidant activity, which can be related to the total phenolic content presented.

Keywords: Sida tuberculata, antioxidant activity, phenolic content, Pampa Biome.

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