HPLC-ANALYSIS AND ANTIOXIDANT ACTIVITY BY ABTS AND FRAP ASSAYS FROM SIDA TUBERCULATA EXTRACTS

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Introduction - Considering the role of free radicals and reactive oxygen species in lipid peroxidation, DNA damage and protein breakdown along with involvement in the pathogenesis of many clinical disorders, there is growing evidence for a importance of dietary phytochemicals with antioxidant properties. Sida tuberculata (Malvaceae), popularly known as “guanxuma”, is an herbaceous plant species present in southern Brazil. In folk medicine it is used for the treatment of several diseases such as glycemic, lipidemic and inflammatory disorders.

Objectives – This study proposed an investigation about the main chemical composition of Sida tuberculata extracts and its in vitro antioxidant activity.

Materials and methods - The leaves and roots were reduced to powder and submitted to extraction by percolation and infusion using hydroethanolic solution and water as solvents (drug:solvent, 1:10), respectively. The analysis by HPLC were performed using a reverse-phase system, following the established conditions: C18 column (250 x 4.6 mm); 0.8 ml min⁻¹ flow rate; detection by DAD system, 340 nm; gradient elution performed using a mobile phase composed by acetonitrile and phosphoric acid 0.05%, pH 3.0. The in vitro antioxidant activity was performed using the radical scavenger ability of ABTS (2,2 Azino Bis diammonium salt) and FRAP (Ferric Reducing Antioxidant Power) assay.

Results - The chromatographic assay showed the major compounds belong to phytoecdysteroids class. Furthermore, all the extracts exhibited a significant antioxidant activity (p≤0.05). However, the hydroethanolic and aqueous extracts of leaves were the most effective than roots in scavenging potential. The leaves aqueous showed a significant activity from 0.003 and 0.03 mg/ml for ABTS and FRAP assays, respectively.

Discussion - The results in our study are according the literature, where the hydroethanolic and he aqueous extracts of the leaves are the most effective against the oxidative stress.

Conclusions – The present investigation indicates that S. tuberculata possessed significant antioxidant activity. Also, phytosterols compounds are present in S. tuberculata which along with other compounds may be responsible for its antioxidant property.

Key Words: Sida tuberculata, antioxidant, ecdysteroids