In Vitro Evaluation of the Antioxidant Activity of Protein from *Indigofera suffruticosa* Leaves

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INTRODUCTION: *Indigofera suffruticosa* is a medicinal plant found in the Semi-Arid region of northeastern Brazil. Its leaves are used as antispasmodic, sedative, and diuretic. Plants are important sources of bioactive molecules with antioxidant potential, which are important for reducing free radicals and the risk of chronic diseases, including cardiovascular and Alzheimer. **OBJECTIVES:** The aim of this study was to evaluate the antioxidant potential of a protein isolated from leaves of *I. suffruticosa*. **MATERIALS AND METHODS:** Aqueous extract was obtained by homogenization of the leaf powder, at 4°C for 16 h, then it was filtered and freeze dried. Samples of the dried extract were subjected to chromatography on a chitin column. The adsorbed protein was eluted with 1 M acetic acid, dialyzed in distil water and analyzed by two-dimensional electrophoresis. Fluorescence measurements of protein (0.2 mg/mL in 10 mM phosphate buffer, pH 7.0) were performed in a spectrofluorimeter (Jasco, Japan), at 25ºC. The hydrophobic surface of protein was evaluated with addition of 5 µM bis-ANS. The antioxidant activity was determined by 1,1-Diphenyl-2-picryl-hydrazyl (DPPH) and 2,2'-azino-bis(3-ethylbenzothiazoline-6-sulphonic acid (ABTS) free radical scavenging assays. **RESULTS AND DISCUSSION**: A single protein peak was eluted from chitin column, and the two-dimensional electrophoresis revealed a spot with approximately 32 kDa and pI 7.09 and 7.94. Intrinsic fluorescence analyses indicated tryptophan and tyrosine residues exposed to solvent in the native state. The protein exhibited moderate antioxidant activity (52% at 1.0 mg/mL) in comparison to quercetin (71%), as indicated by the DPPH method. Whist by the ABTS assay, 1 mg/mL of protein showed to be equivalent to 0.698 µmol Trolox antioxidant capacity. **CONCLUSION:** The results indicate that leaves of *I. suffruticosa* contain a protein with antioxidant activity.

Keywords: protein purification, DPPH, ABTS.

Supported by: FACEPE, CNPq and CAPES.