

Extraction of bioactive compounds from macaúba peel (*Acrocomia aculeata*) with different solvents

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The exocarp/shell of the *Acrocomia aculeata*, fruit popularly known as macaúba or bocaiúva, are rich in fibers, it is commonly destined to the steel industry due to their high calorific value or to the replacement of crushed stone used in civil construction concrete. However, this residue is rich in nutrients and compounds that could help in the prevention of chronic diseases. The present work aims to evaluate the extraction of bioactive compounds from the macaúba shell with different solvents and also evaluate the influence of different times of extraction. To obtain the extracts, the macaúba shells were sanitized and placed in trays in an air circulation oven for 12 h at 45 °C, afterwards the dried peels were ground and standardized in mesh 42. The extracts were prepared in the proportion of 1:20 (m:v) for each solvent, as water (W), Ethanol (E) and mixture of solvents (1:1) water:ethanol (WE). The erleyneymeyers containing the dried peels and the solvents were placed in an orbital shaker (Tecnal, TE-420) at 25 °C and 150 rpm for 1 h and 24 h. Subsequently, the solutions were centrifuged at 9000 g for 10 min and filtered under vacuum. In the extracts were evaluated the total phenolics compounds (TPC) and the antioxidant activities using DPPH and ABTS^{•+} methods, obtained from the Trolox (ET) calibration curve (0 to 120 µg mL⁻¹). It was observed that the mixture of solvents showed a greater extraction WE (116.14 mg ET g⁻¹), followed by W (74.86 mg ET g⁻¹) and E (66.29 mg ET g⁻¹). The radical scavenging activity showed better results for ABTS^{•+} using solvent WE (11.20 mg ET g⁻¹). For DPPH the highest values obtained were WE (9.10 mg ET g⁻¹), W (7.07 mg ET g⁻¹) and E (6.94 mg ET g⁻¹), respectively. Significant differences were observed for all extracts for all parameters measured. The solvent WE showed a better performance in the extraction of bioactive compounds from macaúba shells. In the evaluation of the influence of extraction time, a decrease in the concentration was observed for TPC, since it showed 116.11 and 64.11 mg ET g⁻¹ for 1 h and 24 h, respectively. The same behavior was observed in radical scavenging, where ABTS^{•+} showed 8.33 and 7.06 mg ET g⁻¹ for 1 h and 24 h, respectively and DPPH 9.10 and 6.79 mg ET g⁻¹ for 1 h and 24 h, respectively. The results showed that the macaúba shell has an interesting concentration of bioactive compounds. The best conditions for compounds extraction were the time of 1 hour and the solvent WE. This study showed that the use of macaúba shell is an alternative for the obtaining of active compounds and possible application as a natural preservative.

Keywords: phenolics compounds, radical scavenging activity, extraction time.

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