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OPTIMIZATION OF THE EXTRACTION PROCESS OF ERYTHRINA MULUNGU PEELS RICH WITH PHENOLIC COMPOUNDS

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This study aimed to optimize the extraction process from the powder of the bark of the species *Erythrina mulungu* for the production of extracts rich in phenolic compounds.The selected extraction processes were ultrasound-assisted extraction, maceration in electromagnetic agitation, and continuous extraction in a reflux system. The extracting solvents used were: ethanol 96GL; methanol; ethanol:water (8:2); ethanol:water (7:3); ethyl acetate; ethanol: ethyl acetate (1:1). In 10.0 g of the acquired plant material, 100 mL of the extracting solvent was added and the extraction was carried out at room temperature for 40 minutes. Afterwards, the extracts were centrifuged, filtered, evaporated in a rotary evaporator at 40°C and finally placed in an oven at 40°C for complete drying. To determine the content of total phenolic compounds, the Folin-Ciocalteu method was used , in which gallic acid at 1 mg/ mL in methanol was used as a standard at concentrations of 300, 150, 75, 37.5, 18.75, 9.375, 4.69 µg/ mL and the extracts were tested at a concentration of 2 mg/ mL in methanol, of which 150 µL aliquots were transferred to a 96-well plate and 40 µL of a 4% sodium carbonate solution and 10 µL of a Folin reagent solution were added. Ciocalteu 10%. Afterwards, the plate was incubated in the dark for 1 hour and the absorbance was read in a microplate reader at 650 nm. All analyses were performed in quadruplicate and the results were expressed in EAG (gallic acid equivalents) per gram of sample and submitted to analysis of variance (ANOVA- One way) followed by the Tukey test , with p value <0.5. The correlation coefficient presented a value of 0.995 and the equation of the straight line of x = (y-0.6537)/ (0.0036). The extracts that presented the highest content of phenolic compounds were the one in ethanol:water (8:2) by the extractive method of maceration in electromagnetic agitation with 314.81 ± 0.107 EAG/g; the extract in ethanol:water (8:2) by the extraction method in a reflux system with 262.79 ± 0.208 EAG/g and the ethanolic extract obtained by maceration in an ultrasound bath with 252.44 ± 0.259 EAG/g. The extracts that presented the greatest statistical significance when compared to each other were Ethanol: Ethyl Acetate (1:1) by the extractive method in a reflux system with Ethanol : Water (7:3) obtained by maceration in electromagnetic agitation.

Keywords: *compounds , bark , mulungu , phenolics*

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