



PULP EXTRACTS OF PIQUIÁ (*Caryocar villosum*) ARE HIGHLY EFFECTIVE IN SCAVENGING HIPOCHLOROUS ACID AND SINGLET OXYGEN

Chisté, RC^{1,*}; Freitas, M²; Mercadante, AZ¹; Fernandes, E²

¹Faculty of Food Engineering, Department of Food Science, University of Campinas (UNICAMP). Postal code: 13083-862, Campinas, São Paulo, Brazil. *Email: renanchiste@gmail.com

²REQUIMTE, Department of Chemical Sciences, Faculty of Pharmacy, University of Porto, Postal code: 4099-030, Porto, Portugal.

Caryocar villosum (piquiá) is a native fruit from the Amazonia region, considered to be an interesting source of bioactive compounds, such as carotenoids and phenolic compounds. Owing to the antioxidant potential of these chemical constituents, the objective of this study is to evaluate the scavenging capacity of piquiá pulp extracts against reactive oxygen species (ROS), namely superoxide radical ($O_2^{\bullet-}$), hydrogen peroxide (H_2O_2), hypochlorous acid (HOCl) and singlet oxygen (1O_2). Extracts of piquiá pulp were obtained using solvents with different polarities (water, ethanol/water (1:1, v/v), ethanol, ethanol/ethyl acetate (1:1, v/v) and ethyl acetate), followed by freeze drying. The *in vitro* scavenging capacity against ROS was determined using *in vitro* non-cellular systems. Additionally, the phenolic compounds were identified and quantified by HPLC-DAD-MS/MS. The major phenolic compounds found in piquiá extracts were ellagic acid (water and ethanol/water extracts with 376.1 and 2021.1 $\mu\text{g/g}$, respectively) and gallic acid (ethanol, ethanol/ethyl acetate and ethyl acetate extracts with 132.9, 52.81 and 26.49 $\mu\text{g/g}$, respectively). The ethanol/water and water extracts, which presented the highest phenolic contents (5163 and 1745 $\mu\text{g/g}$ extract, respectively) showed the highest scavenging potential among the studied ROS, mainly against HOCl ($IC_{50} = 3.6$ and 6.3 $\mu\text{g/mL}$, respectively) and 1O_2 ($IC_{50} = 74$ and 156 $\mu\text{g/mL}$, respectively). However, none of the extracts were good scavengers of $O_2^{\bullet-}$ and H_2O_2 , since the IC_{50} values were not achieved even at the highest tested concentrations (833 $\mu\text{g/mL}$ for $O_2^{\bullet-}$ and 1000 $\mu\text{g/mL}$ for H_2O_2). In addition, the ethanol, ethanol/ethyl acetate and ethyl acetate extracts, which exhibited the lowest phenolic amounts, did not achieve the IC_{50} value for 1O_2 quenching, even at the highest tested concentration (600 $\mu\text{g/mL}$). Based on these results, the extracts obtained with ethanol/water and water were the most promising solvents to obtain piquiá extracts with scavenging capacity against HOCl and 1O_2 .

Acknowledgements: FAPESP.