

## Pharmacokinetics of Anthocyanins and Antioxidant Effects after the Consumption of Anthocyanin-Rich Açai Juice and Pulp (*Euterpe oleracea* Mart.) in Human Healthy Volunteers

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The açai berry is the fruit of the açai palm and is traditionally consumed in Brazil but has gained popularity abroad as a food and functional ingredient, yet little information exists on its health effect in humans. This study was performed as an acute four-way crossover clinical trial with açai pulp and clarified açai juice compared to applesauce and a non-antioxidant beverage as controls. Healthy volunteers (12) were dosed at 7 mL/kg of body weight after a washout phase and overnight fast, and plasma was repeatedly sampled over 12 h and urine over 24 h after consumption. Noncompartmental pharmacokinetic analysis of total anthocyanins quantified as cyanidin-3-*O*-glucoside showed  $C_{\max}$  values of 2321 and 1138 ng/L at  $t_{\max}$  times of 2.2 and 2.0 h, and  $AUC_{\text{last}}$  values of 8568 and 3314 ng h L<sup>-1</sup> for pulp and juice, respectively. Nonlinear mixed effect modeling identified dose volume as a significant predictor of relative oral bioavailability in a negative nonlinear relationship for açai pulp and juice. Plasma antioxidant capacity was significantly increased by the açai pulp and applesauce. Individual increases in plasma antioxidant capacity of up to 2.3- and 3-fold for açai juice and pulp, respectively were observed. The antioxidant capacity in urine, generation of reactive oxygen species, and uric acid concentrations in plasma were not significantly altered by the treatments. Results demonstrate the absorption and antioxidant effects of anthocyanins in açai in plasma in an acute human consumption trial.

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**KEYWORDS:** Anthocyanins; açai berry; *Euterpe oleracea*; antioxidant properties; pharmacokinetics

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