

378/137. EFFECT OF JUÇARA POWDER ON COLONIC BACTERIA AFTER STATIC IN VITRO GASTROINTESTINAL DIGESTION

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Introduction

Juçara is a Brazilian native fruit with high nutritional content and bioactive compounds such as polyphenols and anthocyanins. Several works demonstrated the health benefits of juçara fruit and its derivatives.

Objective

This work aimed to study the polyphenols bioaccessibility of juçara powder and their effects on the intestinal microbiota.

Methodology

Juçara pulp powder was obtained by spray drying. The effect of juçara polyphenols on fecal Bifidobacterium, Lactobacillus, Clostridium and Escherichia coli was evaluated after 24 h of colonic fermentation. Phenolic compounds, antioxidant capacity and ion ammonia production were also evaluated. The product was subjected to a model digestive system comprising sequential incubation in gastric and duodenal juices, simulating the human upper gastrointestinal tract. After that, the digested was placed in sterile reactors containing human feces diluted in phosphate buffered saline and basal nutrient broth. Reactors were incubated at 37 °C in a water bath under anaerobic conditions for a period of 24 h.

Main findings

Microbial fermentation of juçara pulp resulted in an increase on Bifidobacterium bacteria count of 1 log cycle and reduced 1 Log in E. coli ($p < 0.05$), compared to a negative control. After the digestion, 21% (787.21 mg/100g) of total phenolic content reached the colon. An increase of more than 100% on the antioxidant capacity (average 8,713.71 μmol of Trolox/g) was observed. Approximately 40% (2,829.17 mg cyanidin-3- glucoside/100g) of anthocyanins remained accessible after 24 h of fermentation. No ammonia production was observed in the reactors containing juçara, while the negative control increased 88%. This suggests that the deamination and decarboxylation of the proteins by microorganisms in the gastrointestinal tract are altered by the supplementation with juçara.

Conclusion

Juçara powder presented high bioactive properties, even after food digestion, and ability to modulate the intestinal microbiota.

Key words

Ammonia production, bioaccessibility, colonic fermentation, Euterpe edulis, microbial modulation, powdered juçara