
Antioxidant and Antimicrobial Properties of Spray-Dried and Freeze-Dried Powders of Camu-Camu (*Myrciaria dubia* Mc. Vaugh)

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Resumo

Bioactive compounds such as phenolics and ascorbic acid are abundant in camu-camu (*Myrciaria dubia* Mc. Vaugh) and display both antioxidant and antimicrobial activities. This study aimed to evaluate the effect of the spray-drying process, using maltodextrin or arabic gum as carrier agents, in relation to the content of bioactive compounds and, antioxidant and antimicrobial capacities of two different commercial camu-camu pulps. One sample was from São Paulo and the other from Amazonas. A 32 design of response surface methodology (RSM) was used to evaluate the impact of carrier agent on total phenolics, ascorbic acid and proanthocyanidins contents, in vitro antioxidant capacity and antimicrobial activity. The use of the lowest concentration of carrier agents (6%) in spray-drying resulted in the lowest losses of bioactive compounds and, consequently, the highest antioxidant and antimicrobial activities than the use of higher concentrations (12 and 18%). Overall, the inlet air temperature range investigated had a lower impact on the variables studied than the concentration of the carrier agent. Lyophilization highly impacted bioactive-compound-related antioxidant and antimicrobial activities. On the other hand, spray-drying led to over 50% reduction in total phenolics and ascorbic acid contents when compared to that of fresh pulp. Despite this, the

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content of bioactive compounds in camu-camu powders was still much higher than that of others fruits. Freeze-dried and spray-dried powders produced with 6% of arabic gum at 120 °C and 150 °C were more effective *Staphylococcus aureus* ATCC 2913 inhibitors than ampicillin. In conclusion, camu-camu spray-dried powders could represent excellent food bioactive ingredients with antioxidant and antimicrobial properties and also, could be used as an alternative for designing functional food.

Palavras-Chave: antimicrobiano, antioxidantes, compostos fenolicos

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