Antioxidant capacity in microencapsulated dehydrated Amazonian fruits

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Abstract

Amazonian fruits exhibit a very remarkable functional capacity due to its organic acid, pigments and polyphenol composition conferring an insuperable antioxidant capacity. Camu-camu (*Myrciaria dubia*) is a small wild berry from the floodable Amazonian river region and of which the high ascorbic acid content (around 1648 mg/100 g fresh fruit in green mature stage which increased up to 1974 mg/100 g during ripening) overcomes any other fruit in the world. Asai is a native palm from tropical South America, which fruit posed extraordinary antioxidant content, particularly conferred by anthocyanins. In eastern Amazonian condition *Eutherpe precatoria*, is the most abundant asai species which is poorly studied but with similar or even highest antioxidant capacity compared to *Euterpe oleraceae*. Both, camu camu and asai, as wild forest species, have a seasonal production around the year that imposes special requirements to make a sustainable advantage of this resource. Spray drying is an innovative technology that preserves the bioactive fruit compounds through time. Camu camu and asai pulp were dried by spray drying in laboratory scale equipment LabPlant® SS-07A using an air inlet temperature of 200°C, air outlet temperature of 190°C, a flow power of 200 ml h^{-1} and a sprinkler nozzle of 1 mm. Maltodextrin was also added in 33% of the total mixture which allows the encapsulation of the bioactive compounds and leads to a homogeny powder with a reduced particle size and a high antioxidant capacity. Total antioxidant capacity showed minimal reduction (-10%) in microencapsulated camu camu and asai powders, particularly ascorbic acid and total poyphenol contents. Microencapsulated Amazonian fruits powders offer new opportunities for food and nutraceutical industries.