

Abstract

Yacon Prebiotic Functional Drinks, the Sensory and Antioxidant Profiles: Dietotherapy Applications of Yacon Concentrate [†]

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Abstract: The increasing awareness of the overall health consumers, in particular young people, has driven a shift from fruit juices and carbonated drinks to functional beverages. Functional drinks utilising new ingredients (e.g., prebiotics and probiotics) have now created a niche in the food industry. Yacon (*Smallanthus sonchifolius*), a perennial plant of the family Asteraceae native to the Andean regions in South America, is an abundant source of prebiotic fructo-oligosaccharides (FOS). Yacon was introduced into New Zealand in the 1980s. Yacon fruits are harvested and made into juice concentrate with high-pressure low-temperature processes to reserve the bioactive components. Recently, yacon concentrate (NZFOS+) was awarded Nutra Ingredients Asia Awards. This research aimed to incorporate yacon concentrate to the formulation of functional drinks to improve the health-related properties. By using yacon concentrate as the main ingredients, three prototypes of functional drinks have been developed: yacon with collagen, yacon with blackcurrant, and yacon with vitamin(c). Sensory evaluation for yacon collagen and yacon blackcurrant drinks was conducted by a nine-point hedonic scale from one (very slight perception) to nine (very intense perception). The antioxidant activities of three yacon drinks were evaluated using the cupric ion reducing antioxidant capacity (CUPRAC) assay and ferric ion reducing antioxidant power (FRAP) assay. Yacon collagen and yacon blackcurrant drinks were sensorily acceptable, with ratings above the middle point of the scores (all ratings > 5, *n* = 50) for four sensory attributes (appearance, sweetness, flavour, and overall liking). The antioxidant capacity of yacon collagen, yacon blackcurrant, and yacon vitamin(c) drinks were 317 mg/368 mg/482 mg TE/100 g (CUPRAC assay) and 163 mg/258 mg/427 mg TE/100 g (FRAP assay), respectively. The antioxidant capacities of yacon blackcurrant and yacon vitamin(c) were much higher than that of yacon-collagen because of the blackcurrant and vitamin c additions that enhanced the antioxidant capacity. The development of yacon functional drinks, as new dietotherapy applications of yacon concentrate (NZFOS+), could provide healthier food products for our consumers to exercise healthier food choices.

Keywords: yacon concentrate; NZFOS+; prebiotics; functional drinks; consumers; antioxidant

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