

CHEMICAL PROPERTIES AND CHEMICAL COMPOSITION OF ORANGE FLESHED SWEET POTATO SYRUP

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Orange fleshed Sweet Potato (OFSP) has the potential of solving vitamin A deficiency, very often conducted to develop OFSP-based products that are appealing to consumers [1]. Sweet potatoes, can be processed into a wide range of value added products such as beverages, soups, baby foods, ice cream, restructured fries, breakfast cereals, and dessert items [2]. OFSP can equally be processed into syrup [1] which has application in pharmaceutical industries. Therefore, this study was carried out to investigate the process in the production of syrup and compare characteristics of OFSP syrup with known

Methods

Sweet potatoes were obtained from a local farm in Agbamu area of Irepodun metropolis, Kwara State. Sugar syrup (Hulets golden syrup) and packaging material were purchased from Ilorin, Kwara State. The method of sweet potato syrup production as described by [3] to produce OFSP syrup with few modifications. The physicochemical and chemical properties of the syrup were determined following standard methods.

Results and Discussion

The physical and chemical properties of OFSP syrup and sugar syrup are shown in Table 1. The pH and viscosity of OFSP syrup were significantly lower than those of sugar syrup. However, the density and refractive indices of the two syrups were quite similar. The acidic nature of syrups can be due to the presence of a complex mixture of sugars and organic acids [3]. Total soluble solids (TSS) utilized as sweeteners or preservatives in food products such as juices, drinks, dairy, and confectionery products.

Sugar syrup also showed no significant variation in moisture and ash contents. The results of the study reflect the fluidity, storability, processing behavior, quality and appearance of syrups. The presence of high mineral content in a food product is an indication of high mineral content. The Beta-carotene content (0.02 mg/100 ml) of OFSP syrup was significantly higher than that (0.02 mg/100 ml) of sugar syrup. This is due to the significantly high Beta-carotene in OFSP [5].

The OFSP syrup developed in this study exhibited good physicochemical properties when compared to that of sugar syrup. Development of OFSP-based syrup products should be encouraged both at the industrial and domestic levels. This could lead to increased consumption and utilization of OFSP, which could help to reduce a decline in vitamin A deficiency where the syndrome is endemic.

Table 1: Physicochemical and Chemical Properties of Syrup Samples

Physicochemical Properties

Syrup type	pH	Soluble solids (°Brix)	Viscosity (cm ² /s)	Density (g/cm ³)	TDS (ppm)	TTA (g/ml)
FSP Syrup	3.56±0.05	76.96±1.35	67.58±2.25	1.59±0.09	133.3±5.77	2.44±0.33
Sugar Syrup	4.20±0.00	77.01±1.62	77.7±0.59	1.30±0.07	376±5.77	3.33±0.19

Chemical Properties

	Moisture Content (%)	Ash Content (%)	Beta-carotene (mg/100l)
FSP Syrup	19.06 ±0.91	0.44 ±0.70	2.29 ±0.11
Sugar Syrup	18.90 ±0.54	0.40 ±0.71	0.02 ±0.08

Values are mean ± SD of triplicates.

FSP: Orange fleshed sweet potato; TDS: Total dissolvable solids; TTA: Total titratable acidity

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