

Development and Assessment of Sensory, Physicochemical and Phytochemical Properties of a Soursop (*Annona muricata* L.) Jam

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There is a great potential for soursop (*Annona muricata* L.) value-added products due to its proven influence on human health. Fruit jam is a preservation technique with a mixture of fruit pulp, sugar, pectin and citric acid. This study was focused to develop a soursop jam and assess its sensory, physicochemical and phytochemical properties. Soursop jam was prepared according to Sri Lankan standard specification for jams, jellies and marmalades by using a general recipe for fruit jam. Proximate composition of the final product was determined. Microbiological analysis including total plate count and yeast and mold count were done up to two months of storage at room temperature. Sensory evaluation was done using nine point hedonic scale. Physicochemical properties including total soluble solids, titratable acidity, pH and ascorbic acid content were determined during the storage period. Total polyphenol content was determined by Folin-Ciocalteu method and antioxidant activity of soursop jam was assessed using DPPH assay and ABTS assay. Sensory data were analyzed using MINITAB 17 statistical software by Kruskal-Wallis test and physicochemical and phytochemical data were analyzed by one way ANOVA test with 95% confidence level. Soursop jam contained 69.58% carbohydrate, 29.46% moisture, 0.4% ash, 0.29% crude protein and 0.27% fat. Microbial counts were less than the standard maximum limits. Total soluble solids, titratable acidity and pH were not significantly changed ($P > 0.05$) during the storage period. Ascorbic acid content, total polyphenol content and antioxidant activity were significantly decreased ($P < 0.05$) during the storage period. Sensory evaluation revealed that only texture of soursop jam was significantly changed ($P < 0.05$) during the storage period. In conclusion, soursop jam is an ideal way of adding value to the underutilized soursop fruit with retained antioxidant properties.

Keywords: Fruit jam, Quality parameters, Soursop, Value-added product