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Studies on the biochemical and sensory qualities of enzymatic clarified carbonated sapota beverages

M. ILAMARAN AND S. AMUTHA

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See end of the article for authors' affiliations

Correspondence to:
M. ILAMARAN
Department of Food Science and Nutrition, Home Science College and Research Institute, Tamil Nadu Agricultural University, MADURAI (T.N.) INDIA

ABSTRACT

Sapota fruits were pulped and treated with pectinase enzyme at 0.5 % concentration (w/v) incubated for 2-3 h at AT (32 - 37 ° C). The clarified juices were used to prepare carbonated beverages by adjusting the total soluble solids. (9, 12 and 15 ° B) keeping the acidity constant at 0.25 % and varying the carbonating pressure as 0 (non-carbonated), 80, 100 and 120 psi. The carbonated sapota beverage could be stored for 6 months at ambient (AT - 32-37°C) and low temperatures (LT - 3-5 DC) and was found acceptable with respect to colour, flavour, taste and overall acceptability. Heat processing and carbonation improved the colour, flavour and taste of the carbonated sapota beverage.

Key words : Sapota juice, Clarified juice, Chemical and sensory characteristics.

Beverages are consumed by all age groups to quench the thirst, as social drinks and for health conscious and medicinal values. Non-alcoholic beverages are of various types such as fruit based drinks, synthetic drinks, sweetened aerated water or carbonated drinks and some times non-alcoholic beer, wine etc. In India, cold drinks are in demand for the greater part of the year. Carbonated drinks like cola type, lemon, lime, orange flavour etc. have become popular. The production centres of these products are located mostly in cities catering largely to the urban as well as rural populations. Carbonated beverages are popular among people of all age groups and are consumed for varied reasons including taste, refreshment, relaxation, pressure, sociability and more commonly to quench the thirst (Phillips, 1992). Most of the carbonated drinks contain synthetic colouring and flavouring components, which are suspected to be allergenic (Taylor, 1982). Inclusion of concentrated fruit juices in the soft drinks not only imparts characteristic colour and flavour but also provides some nutrients (EI-Wakeli *et al.*, 1974). Since the demand for soft drinks is increasing every year, we can exploit this trend by developing nutrient enriched carbonated fruit juice beverages, as the consumers are becoming increasing conscious of the ways in which diet is linked to a healthy life style (Euromonitor Market Direction, 1999). The production of fruit based syrups, nectars and squashes have indicated a declining trend. Aseptically processed and packaged retail packs of ready-to-serve fruit beverages are emerging in the market. If the fruit juices are added to sweetened aerated waters, they provide nutrients and also some more diversification to the soft drinks. Coupled with increasing demand for soft drinks, there is considerable scope for developing naturally existing nutrient rich carbonated fruit juice beverage. Total soluble solids (TSS) and CO_2 gas pressure for carbonation are key parameters that affect the sensory quality of the carbonated beverages. Based on these facts, the present investigation was conducted to study the effect of TSS and CO_2 pressure on physico-chemical and sensory quality of carbonated sapota beverages.

METHODOLOGY

Fully ripened sapota (var. 'PKM 4') was procured from the College of Horticulture, Periyakulam, Tamil Nadu. The fruits were washed thoroughly with clean water and peeled fruits were crushed in a fruit mill with addition of 20 % water. The pulp was heated to 65° C for 10 min. The pulp was treated with 0.5 % pectinase enzyme at AT (32-37° C) for 2-3 h. with intermittent stirring. Juice was strained and filtered through three fold muslin cloth. The enzyme clarified juice was filled in clean pre-sterilized bottles (650 ml cap.) upto the brim and sealed with crown cork. The carbonated beverages were prepared by pre-mix method using clarified sapota juices by adjusting total soluble solids (TSS) at 9, 12, 15° B (with fixed acidity of 0.25 %). The desired amount of sugar and citric acid was dissolved in water by gentle heating, strained through muslin cloth and mixed thoroughly with concentrated fruit juices. The beverages were carbonated with carbonating machine at different CO_2 pressure (0,