EFFECT OF PRESERVATIVES ON THE NUTRITIONAL AND SENSORY QUALITIES OF PAPAYA FRUIT BAR

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ABSTRACT

A research was conducted to evaluate the effect of different food preservatives on the nutritional and sensory qualities and the shelf life of papaya fruit bar.

Ripened papaya fruits were taken and pulp beat well into a thick paste. Ground sugar, corn flour, citric acid were added to the paste. The mixture was heated with continuous stirring till it reaches 50°Brix. The mixture was cooled and three different preservatives such as sodium benzoate, ascorbic acid and potassium metabisulphite were added separately. This blend was spread in the form of thin layer for the thickener of a tray smear with refined oil and dried in the oven at 50°C for 20 hours. The dried layer was cut in to rectangular bars and placed into separate plastic boxes and stored at room temperature. Corn flour was used in the two different concentrations of 2% and 5% as binding agent. Three replicates were tested for each experiment. The papaya fruit bars under these treatments were assessed for nutritional quality, sensory characters and shelf life.

Nutritional analysis was carried out for, titrable acidity, ascorbic acid content, total soluble solids, total sugars and crude fibre for one week interval throughout the experimental period. The declining trend with storage period was observed in ascorbic acid, total soluble solids, total sugars and crude fibre. The titrable acidity was increased with storage period for all the treatments. Among the samples the potassium metasulphite treated samples had slow rate of decline in total soluble solids, total sugars and crude fibre but the ascorbic acid treated sample had an initial increment of ascorbic acid and a slow rate of decline in ascorbic acid content than other treatments were observed. This was due to the supplement of ascorbic acid as a preservative.

The results of chemical analysis revealed that there were significant ($p<0.05$) differences between the treatments and weeks of storage for acidity, ascorbic acid, total soluble solids, total sugars and crude fibre.

Organoleptic assessment was conducted for papaw flavour, taste, colour, texture, absence of off-flavour, absence of browning and overall acceptance during this study. Nine-point hedonic scale ranking method was used to evaluate the organoleptic properties. According to the organoleptic assessment the potassium metasulphite treated fruit bar with 5% corrn flour was preffered for the best combination by most of the panelists. The results revealed that, there were significant differences among the treatments for papaw flavour, taste, colour, texture, absence of off-flavour, absence of browning and overall acceptability at 5% significant level.

The study also focused on the suitability of treatments in terms of storage life. Among the treatment potassium metasulphite treated fruit bar with 2% and 5% had the maximum shelf life of 12 weeks followed by ascorbic acid treated fruit bar that was 10 weeks.

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