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Development of bitter gourd based value added low-fat bread spread

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The main objective of the research was to develop a value added, low-fat bread spread using bitter gourd as the main ingredient. The main ingredients of the spread were bitter gourd pods of Matale variety, and gram flour. Deseeded bitter gourd pods were blanched with hot water at 70 and 90 °C, and steamed at different time periods (5 & 10 min). Six samples were prepared. The best two samples were selected by the sensory panel. They were treated with 50 % and 33 % of raw and steamed flour and 12 % and 16 % of sorbitol. The best selected sample was mixed with four different spicy mixtures, and the best selected. The selected sample was mixed with different proportions of fat spread (4, 6, 8 & 10%) and the best final sample was selected by using the sensory panel. Proximate analysis (crude protein, crude fiber, total fat, free fat & ash) was done for the selected final sample according to the AOAC (2000) methods. Mineral content analysis was done by using Atomic Absorption Spectroscopy. Microbiological analysis (coliform, yeast and moulds, Total Plate Count) was done according to the SLS 516 (1991) standards. Sensory attributes and pH variation were also analysed.

Based on the results of sensory evaluation, the samples steam blanched for 10 min and hot blanched at 90 °C for 10 min were selected as the best two bitter gourd pulp samples. According to the second sensory evaluation, the sample with 33 % steamed flour and 16 % sorbitol was selected as the best. Samples which contained the second spicy mixture and 8 % fat spread were selected as the best from third and fourth sensory evaluation respectively. The final product formula contained 51.2 % moisture, 8.1 % crude protein, 8.8 % total fat, 3.9 % ash, 5.5 % crude fibre and 46 % carbohydrate. It also contained (mg in 100 g of product) Ca 0.01, Mg 0.031, Na 0.178, K 0.135, Fe 0.004 and Zn 0.001. Shelf life analysis revealed that the pH variation and the sensory attributes had not deviated from the initial status (pH 5.46). Total Plate Counts were less than 1.0×10^4 , coliforms, yeast and moulds were less than 1.0×10^2 during the first month. The developed spread contained low-fat, good protein, and good fiber content. Thus it is a value added low-fat spread. This spread is safe to consume within the first month from the date of manufacture if kept under refrigerated conditions.



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