THE UTILIZATION OF SEAWEED (Eucheuma denticulatum) AS PECTIN REPLACEMENT IN FRUIT JAM PRODUCTION

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ABSTRACT

Seaweed farming is a common practice among the coastal communities at the South coast of Kenya. The full potential of the cultured species is yet to be realized with farmers heavily depending on selling their produce to processing companies for extraction of carrageenan. There have been efforts to develop value-added products such as seaweed soap, shampoo and cakes to avoid overdependence on the processing companies as the sole market and improve household income. Commercial pectin is currently used as the gelling agent in fruit jam processing but there are a number of uncertainties associated with it such as the farming of citrus fruits which are the source. The fact that farming involves a lot of grafting and genetic modification is a concern amongst consumers who now prefer to organic products. The present study involved extraction of gel from Eucheuma denticulatum seaweed and subsequently using it in mango jam production. Physicochemical parameters of the final product were assessed before it was subjected to sensory evaluation by a group of panellists. This was done concurrently with mango jam produced using commercial pectin. Jam produced using seaweed gel had a slightly low temperature, 25.43±0.14°C, compared to that produced using commercial pectin, 25.54±0.1°C, although this was not significant at 95% confidence level, \(p<0.05\). There was no significant difference in water activity, pH and moisture content between the two products despite seaweed jam recording slightly higher values for these parameters. The overall acceptability and spreading ability was rated significantly higher (\(p<0.05\)) for jam produced using seaweed gel compared to that produced using commercial pectin. Scores for appearance, aroma and texture for the seaweed jam was comparable to that of pectin jam (\(p>0.05\)) with a bigger proportion of assessors scoring highly for these sensory attributes. Efforts to develop quality control standards for fruit jam
produced using *E. denticulatum* as the gelling agent should be developed and certification of the products done. This could help in commercializing the product thus helping in diversifying market for raw seaweeds and at the same time marketing of organic fruit jam with nutritional and health benefits. This study has demonstrated that gel extracted from *E. denticulatum* seaweed can be used as an alternative to pectin for production of fruit jam. The gel was successfully extracted from the seaweeds and used in the production of mango jam with physicochemical and sensory evaluations comparable to those of jam produced using the traditional gelling compound. Higher scores on texture and overall acceptability revealed that the readily available, cheap and natural seaweeds could be used as an alternative to pectin in the production of fruit jam.