

OSMO-AIR DRYING OF JACKFRUIT

(*Artocarpus heterophyllus* Lam.)



BY

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ABSTRACT

Osmotic dehydration is a useful food preservation technique for the production of safe, stable, nutritious, tasty and concentrated food. The present study was conducted to develop the osmo-air dried jackfruit. The fruit slices (2.5×2.5) cm² were obtained from partially ripe soft fleshed jackfruit (vela). The slices were immersed in 0.03% of potassium metabisulphate solution for 5 min and later in different concentration of hypertonic solutions such as 60%, 70% and 80% sugar with 1% and 2% salt solution for 24 hours followed by oven drying at 50°C and 60°C for 20 hours.

Weight reduction of jackfruit slices was measured at 2 hours interval during the direct osmosis and these treated fruit slices were analyzed for nutritional quality at the end of the osmosis and after the oven drying and also during the storage period. Further, the treatments were assessed for sensory characters using nine-point hedonic test. Based on the quality assessment, the best treatment of osmo-air dried jackfruit was selected and subjected to shelf life evaluation.

The results of moisture reduction study revealed that the jackfruit osmosed in 70% sugar with 1% salt solution showed the highest weight reduction after the osmosis and next rank was given to 70% sugar with 2% salt solution. After the air drying, jackfruit slices osmosed in 70% sugar with 2% salt solution and oven dried at 60°C possessed the lowest moisture content and the second best treatment was the samples osmosed in 70% sugar with 2% salt solution and oven dried at 50°C. According to the nutritional analysis, at the end of the osmosis, there was a decrease in ascorbic acid and titrable acidity and an increase in total soluble solids, total sugar and crude fibre of the jackfruit samples. After the oven drying, all the nutritional qualities retained better at 50°C than drying at 60°C. The sensory analysis revealed that there

were significant ($p < 0.05$) differences for organoleptic characters between the treatments. According to DMRT, the highest overall acceptability was observed in the jackfruit osmosed in 70% sugar with 2% salt solution and oven dried at 50°C.

Based on the results of moisture reduction study, nutritional and sensory analyses, jackfruit slices osmosed in 70% sugar with 2% salt solution and oven dried at 50°C was selected as the best treatment. During the room and refrigeration storages of the best treated samples, there were significant ($p < 0.05$) reductions between the weeks of storage for ascorbic acid and total sugar, but an increase for titrable acidity. The shelf life was evaluated for the best treatment at these two storage conditions based on the nutritional analysis and the sensory characteristics. The osmo-air dried jackfruit could be stored for 8 weeks at room temperature and for 12 weeks at refrigeration temperature.

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