

Title Optimization of a multitarget preservation technique for jackfruit (*Artocarpus heterophyllus* L.) bulbs

Author Alok Saxena, A.S. Bawa and P.S. Raju

Citation Journal of Food Engineering, Volume 91, Issue 1, March 2009, Pages 18-28

Keywords Jackfruit; Bulbs; Osmotic dewatering; Response surface methodology; Multitarget preservation

Abstract

Jackfruit (*Artocarpus heterophyllus* L.) bulbs in pitted and pre-cut form were subjected to a multitarget preservation technique involving water activity (a_w) regulation, acidification, and in-pack pasteurization as the hurdles. The osmotic dewatering process was optimized using response surface methodology with osmotic concentration, temperature, and duration of immersion as the process variables. Optimized conditions were found to be 65.9 °Brix, 68.5 °C temperature, and 180.6 minutes of immersion respectively for maximizing water loss, and overall acceptability while minimizing solid gain. Microstructural observations highlighted the maintenance of tissue integrity under the optimized process conditions. Total carotenoids retention in the product was found to be 64.2%, 46.2% and 35.7% under 6 °C, ambient (22–32 °C) and 37 °C temperature conditions respectively during storage. The overall shelf-life of multitarget preserved high moisture jackfruit bulbs was found to be 8, 6 and 4 months under the respective storage temperatures of 6 °C, ambient, and 37 °C.