

Optimization of osmotic dehydration of yellow carrot slices using response surface methodology

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SUMMARY :

Response surface methodology is typically used for mapping a response surface over a particular region of interest, optimizing the response or for selecting operating conditions to achieve target specifications. The present investigation aimed to optimize the time, temperature and sucrose concentration for osmo-dehydration of carrots slices to maximize water loss, solute gain, dehydration efficiency, minimum water activity and texture values. The experimental design was found to be significant in terms of p-values less than 0.0500. Numerical optimization showed that 37.53°C temperature, 6.9 hours time, 61.6 °B sucrose concentration gives the best responses as 66 per cent water loss, 16.8 per cent solute gain, 3.8 DE, 0.49 aW and 44.40 N texture.

KEY WORDS : RSM, Yellow carrots slices, Water loss, Solute gain, Water activity, Texture

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