

## **Osmo-dehydration pretreatment for drying of pumpkin slice**

### **Abstract**

This study was designed to elucidate the effects of osmotic dehydration of pumpkin slice prior to hot-air drying. Response Surface Methodology (RSM) with Central Composite Design was used to investigate the influence of three variables, namely sucrose concentration (30-60°Brix), immersion temperature (35-65°C) and immersion time (90-120 min). These factors increased the solid gains and decreased the water activity ( $a_w$ ) of the sample; while the temperature and sucrose solution concentration increased the water loss ( $p < 0.05$ ). These changes affected the  $L^*$  and  $b^*$  values of the final product ( $p < 0.05$ ). The process temperature also affected the sensorial properties by increasing the sweetness, dryness, hardness and overall acceptance of the dried pumpkin slice ( $p < 0.05$ ). However, increasing temperature caused the deterioration of colour and aroma. Longer immersion time was found to increase shrinkage, sweetness and overall acceptability of the final product. The optimum osmotic dehydration pretreatment was predicted as immersion using 57.8°Brix sucrose solution at 58.3°C for 146.7 minutes.