



## **Osmotic Pre-treatment of Kinnow Peel Slices**

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**Abstract:** The objective of the present work was to study the effect of osmotic process temperature, concentration and immersion time of osmotic sugar solution on the water loss, solute gain and water loss to solute gain ratio during osmotic pre-treatment of kinnow peel slices. Osmotic pre-treatment was carried out using sugar as osmotic agent, varying the concentration of the osmotic solution (55-75°Bx), temperature (35-75°C) and immersion time (30, 60, 90 and 120 min), keeping solution to peel ratio constant 4:1 (v/w) in a water bath with controlled temperature. Water loss and solute gain were positively influenced by osmotic process temperature concentration and immersion time. Water loss and solute gain showed an increasing trend with an increase in a concentration and immersion time. Water loss initially increased followed by a decrease with an increase in osmotic process temperature. Solute gain decreased with increase in osmotic process temperature. Maximum water loss and solute gain was recorded at osmotic process temperature 55°C, concentration 75°Bx and immersion time of 120 min. The optimized process variables i.e. solution temperature, concentration and immersion time for osmotic pre-treatment were 74.9°C, 75°Bx and 60 min., respectively optimized by response surface methodology.

**Keywords:** Kinnow peel, Osmotic pre-treatment, Water loss, Solute gain, Water loss to solute gain ratio

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