

1. Title of Experiment Standardization of suitable treatments for preparation of osmo-air dehydrated mango (*Mangifera indica* L.) slices (14.4.3.44)

2. Location and Agro-climatic sub region : Department of Post Harvest Technology
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3. Principal Investigator: **PI:** Dr. Dev Raj, **Co-PI:** Dr. Y. N. Tandel and Dr. J. M. Patel

4. Background Information:

Mango (*Mangifera indica* L.) is an important tropical fruit and also known as ‘the king of fruits’. Mango is a seasonal fruit and is highly perishable. Due to its short shelf life, mango fruits possess limited strategic selling. In India, mango slices are being preferred over pulp on various occasions for table purpose. However, the slices of the mango possess very short shelf life. Alternate method to preserve the slices for longer time can be achieved by osmotic dehydration technique. Therefore, the present experiment is planned to prepare osmo-air dehydrated mango slices with following objectives.

5. Objectives:

1. To study the effect of different treatments for preparation of osmo-air dehydrated mango slices
2. To study the sensory and nutritional quality of osmo-air dehydrated mango slices

TECHNICAL PROGRAMME OF THE RESEARCH WORK:

Treatment details

Factor 1 (D)		Factor 2 (S) Osmotic solution concentration	
D ₁	Initial days of harvesting	S ₁	50°Brix Sugar syrup
D ₂	3 days after harvesting	S ₂	60°Brix Sugar syrup
D ₃	6 days after harvesting	S ₃	70°Brix Sugar syrup
D ₄	9 days after harvesting		

Drying temperature: 65°C/60°C

Stage of maturity: Fully mature but unripe

Temperature of Osmotic solution during dipping = 40°C

Dipping Duration= 24 hours

Size of slices = 15±2mm thick

Design	FCRD (With factorial concept)
Treatment Combinations	3 x 3 = 9
Repetition	3
Sample size and Packaging	50 g (PP Pouch)
Year of commencement	2017-18
Crop and varieties	Mango cvs Kesar

Observations to be recorded: 0, 2, 4 and 6 Months

Physico-chemical parameter	Sensory parameters
✓ Yield (%)	

✓ Mass flow / transfer in and out (%)	✓ TSS (⁰ B)	Colour
✓ Drying rate (g/min)	✓ Moisture (%)	Taste
✓ Acidity (%)	✓ Ash (%)	Flavour
✓ Ascorbic Acid (mg/100g)	✓ Water activity	Texture
✓ Total sugars (%)	✓ β-carotene (μg/g)	Overall acceptability
✓ Reducing sugars (%)	✓ NEB (OD440nm)	Microbial parameters
✓ Non-reducing sugars (%)		Total plate count (cfu/g)