Effect of packaging film of different thicknesses on shelf life and quality of minimally processed onion

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INTRODUCTION

- Fruits and vegetables consumption plays a key role in healthy diet
  A daily intake of 400g of fruits and vegetables by a normal adult.(WHO)

- In urbanized living, where time is a limiting factor, this minimally processed products is available in easy to use form with minimal waste.

- Minimally processed onion is a ready- to- use product which offers consumer a 100 percent **usable product** with **increased shelf life** and without much change in its freshness.

- Packaging film thickness plays an important role in the shelf life of minimally processed products.

- Hence, an investigation was undertaken to study the effect of packaging film thickness on the shelf life and quality of minimally processed onion

MATERIALS AND METHODS

RAW MATERIAL

Onion Cv. Arka Sona

CUTTING

Plain sharp knife

DIP TREATMENT

Calcium lactate (2%)

PACKAGE

- Polypropylene (PP) bags
- Size: 250 x 125mm
- Thickness: 25µm & 50µm

STORAGE CONDITION

10±1°C, 83 % Relative Humidity (RH)

OBSERVATIONS RECORDED

Shelf life

Weight loss

Firmness

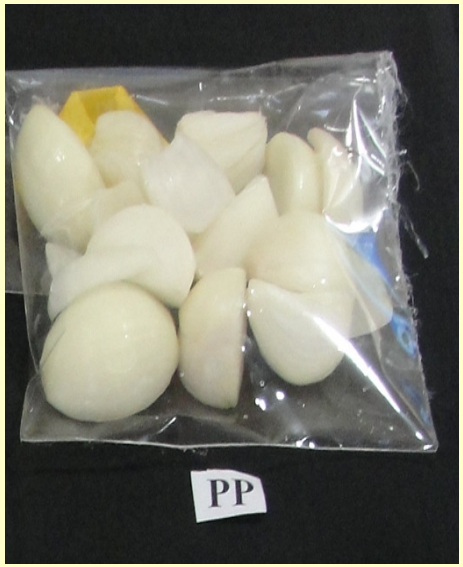
Bio chemical parameters

WHOLE ONION

PEELED AND CUT ONION

ONION DIP TREATMENT

SURFACE DRYING



POUCH PACKAGING

RESULTS

Samples packed in 50 µm was found better than 25µm in terms of

Shelf life of the sample - 12 days

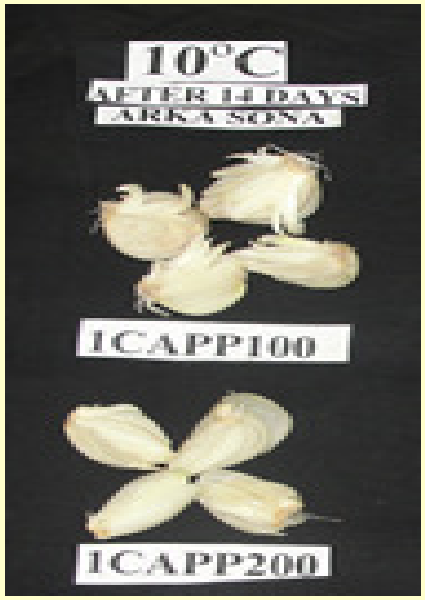
Intact rings and less dryness

Lesser weight loss (3.99%)

Higher firmness (1.42 kg_f/cm^2)

Lower respiration rate

Higher pyruvic acid content (6.48 µmol/g)



Effect of packaging and storage on the physico chemical qualities minimally processed onion at the end of the storage period.

Parameters	PP 25 μm	PP 50 μm
Weight loss (%)	3.99	3.44
Firmness (kg_f/cm^2)	1.47	1.42
TSS (^oBrix)	7.0	7.67
Acidity (%)	0.042	0.044
Pyruvic acid (μmol/g)	5.49	6.48
Reducing Sugars (%)	3.76	3.92
Total Sugars (%)	5.14	5.45

CONCLUSION

Onion cultivar Arka Sona sliced with plain sharp knife, pre-treated with 2% calcium lactate, surface dried and packaged in polypropylene bag of size 250 x 125 mm of 50 µm thickness and stored at 10±^{o}C with 83% RH retained better quality, freshness and nutritive value upto 12 days.

THANK YOU