

EFFECT OF RADIATION IN COMBINED METHOD AS A HURDLE IN DEVELOPMENT OF SHELF STABLE INTERMEDIATE MOISTURE PINEAPPLE (*ANANAS COMOSUS*)

SUJATHA. V¹, MANJULA. K² & ANURAG CHATURVEDI³

¹Ph.D Scholar & Teaching Associate, Department of Foods & Nutrition, College of Home Science,
Professor Jayashanker Telengana State, Agriculture University, Hyderabad, India

²Assistant Professor, Department of Home Science, Srivenkateswara University, Tirupati, India

³Dean and Professor, College of Home Science, Professor Jayashanker Telengana State, Agriculture
University, Hyderabad, India

ABSTRACT

Development of safe, shelf stable foods are necessary to reduce dependence on refrigeration during their storage and distribution. Studies were conducted to develop Shelf stable intermediate moisture (IM) Pineapple (*Ananas comosus*) based on 'hurdle technology', (HT) using gamma irradiation. Processing conditions were established to observe the effect of radiation on development of shelf stable IM pineapple. The most important hurdles used were reduction of water activity (a_w) by osmosis, infrared drying (IR), 400 gauge polyethylene bags along with mild dose of irradiation(R) (1kGy).

IM pineapple subjected to Infrared drying and radiation (IRR) and non radiated (IR) were evaluated for shelf life at ambient (34 ± 2 °C and 65% RH) temperature. The shelf life of the IRR was found to be 4 months where as IR spoiled within 3 months at ambient temperature.

On storage, IRR showed no significant ($p > 0.05$) changes in a_w , moisture and reducing sugars. Total sugars, total soluble solids and acidity increased in both the treatments significantly ($p > 0.05$). pH, ascorbic acid decreased significantly as storage period increased. Vitamin 'C' retention was up to 65.3% in IRR treatment.

The combination of hurdles including osmotic dehydration, infrared drying and gamma radiation dose of 1 kGy, successfully reduced the microbial load and showed high product quality. This treatment can be considered the most adequate for obtaining high quality IM pineapple with optimum sensory, microbial nutritional quality and storability. These IM pineapples are energy efficient, satisfactory and give great prospects to commercial application opening new possibilities for processed food markets.

KEYWORDS: Shelf Stable, Intermediate Moisture, Hurdle Technology, Infrared Drying, Gamma Radiation, Sensory Quality, Nutritional Quality