

Influence of Sealing Film Lid on the Quality of Packaged Fresh-cut Mangosteen

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ABSTRACT

Three types of film lid (OPP/LLDPE, PET and LDPE) were used to seal rigid trays containing fresh-cut mangosteen to examine the influence of the films on the gas composition of the headspace and the quality of the product during storage. LDPE film, which has the highest OTR and CTR (2,795 and 10,500 cm³/m² day, respectively) (analyzed by the Department of Science Service), showed the highest O₂, C₂H₄, ethanol and acetaldehyde accumulation and lowest residual CO₂ in the package. Furthermore, firmness and weight losses were higher than those of OPP/LLDPE and PET films. Film type did not affect the microbial growth of fresh-cut mangosteen during storage. Overall visual quality (OVQ) was influenced by type of films. Samples packed in PP trays sealed with OPP/LLDPE and PET films maintained higher sensory quality than those packaged in LDPE film under the same storage conditions.

Keywords: Fresh-cut mangosteen, Sealing film, Quality changes, In-package atmospheric changes

INTRODUCTION

Mangosteen is considered one of the finest tasting tropical fruits and generally known as “the queen of fruit”. It has a relatively short shelf life, limited to 5-7 days at 25-35°C. The rapid loss in quality (hardening of the rind and white flesh becoming light brown) occurs during storage at high temperature and low relative humidity (Diczbalis, 2009). Hence, to facilitate distribution in markets with strong demand, the producer may prepare in fresh-cut form and pack in modified atmosphere packaging (MAP). MAP of fresh produce relies on the modification of the atmosphere inside the package achieved by the natural interplay between two processes, the respiration of the commodity and the permeability of the sealing films (Mangaraj et al., 2009). The right package with sealing film