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Effects of Storage Conditions on Quality and Shelf-life of Fresh-cut Melon (*Cucumis melo* L.) and Papaya (*Carica papaya* L.)

Mohammad Affan Fajar Falah^{a*}, Meydi Dima Nadine^b and Ag.Suryandono^{a*}

^aDepartment of Agroindustrial Technology, Gadjahmada University, Jl. Flora No 1 Bulaksumur Yogyakarta, Indonesia, 55281,

^bStudent of Department of Agroindustrial Technology, Gadjahmada University, Yogyakarta, Indonesia

Abstract

This research were study physical and chemical changes of fresh-cut melon and papaya on different storage and shelf-life evaluation of products. Fresh-cut melon and papaya was kept at the different storage temperature conditions with observed on physical characteristics of texture and color of their flesh and measured of chemical characteristics on water content, sucrose content, acidity, vitamin C, and total carotene. Physical and chemical changes were observed on fresh-cut melon and papaya under different storage conditions. Fresh-cut products stored in lower temperature on $\pm 14-15$ °C had optimum shelf-life of 4 days for melon and 3 days for papaya.

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Keywords: Fresh-cut, Melon, Papaya, Shelf-life, Storage conditions and Temperature

INTRODUCTION

Fruits in Indonesia are potential commodity that have economical value and high demand in the market. Since 2006, Indonesia Ministry of Agriculture through Horticultural Directorate have focus on 60 potential fruits, include melon and papaya. Production of melon and papaya were increased gradually through increasing area to support high demand from the consumer [1]. However, fruits as agricultural products have a special characteristic of perishable and short shelf life. Furthermore, producer have to know several factors that influence quality,

* Corresponding author. telp/fax : 62-274-523660.

E-mail address: affan_tip@ugm.ac.id,

distribution and supply chain of these products.

On the other hand, growth of supermarket that sell fresh fruit give an opportunity and challenge to supply high quality fruits in supermarket. Also, practical lifestyle of the consumer and their considering with healthy food from the fresh fruits increasing fruit consumption. Consumption of fresh fruit can be supplied by minimally processed food and this product was growth and more popular and increasing in demand. Fresh-cut fruit was one of the popular product from minimally processed that applied through peeling, cutting and shredding where these product was stored in controlled room temperature in the supermarket and no-controlled temperature in the street fruit seller [2]. Fresh –cut products has several advantages, such as easy and ready to eat and their nutritional was relatively not significantly different with fresh product.

Storage conditions in tropics for fresh-cut products are important and essential for quality and shelf-life of the products. Main objectives for storage of fresh-cut products are to control transpiration rate and respiration rate, protect from disease, loss of nutrition, minimize contact with pathogen and other unfavorable change in chemical and microbiological aspects. These changes of the products relatively affected structure, composition, biochemical and physiological of their products and good management in temperature during storage conditions will decrease and minimize mechanical damage or physiological malfunctions to maintain optimal conditions of fresh-cut fruit which choose by the consumer [3].

Objectives of the study were to determine physical and chemical change of fresh-cut melon and papaya during storage under different temperature conditions in tropics and also shelf-life of these products based their changes on their data above and using visual evaluation.

MATERIALS AND METHODS

Plant Materials and Storage Conditions

Melon fruit (*Cucumis melo*, L) var. Glamour Sakata and Papaya (*Carica Papaya* L.) var. Bangkok were collected from centre of fruit in traditional market Gamping Sleman Yogyakarta. For fresh-cut melon and papaya fruits, all fruits were pre-washed for 1 min with tap water to remove traces of soil and organic matter. Using sharp sterile knives, melons and papaya were cut into two sections with longitudinal axis then cut into 8 trapezoidal-shaped sections with slices skin were peeled. The pieces of melon and papaya were placed into a mesh container and packaged with polyethylene plastics which thickness of 0.02 mm.

Storage conditions were divide into three categories, first, storage at ambient temperature in non-controlled temperature with various air temperature between 27-30 °C. Second condition, products were storage at controlled room temperature in a showcase with air temperature varied in the range of 20-22 °C and third condition products were storage at controlled room temperature in a showcase with air temperature varied in the range of 14-16 °C. Figure 1 show the picture of the fresh-cut under different storage temperature conditions.

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