Morphological Characteristic, Chemical Composition and Sensory Quality of Pineapple Fruit in Different Seasons

Adisak Joomwong[1*] and Jinda Sornsrivichai[2]

[1]*Department of Biology, Faculty of Science, Maejo University, Chiang Mai 50290, Thailand*
[2]*Department of Biology, Faculty of Science, Chiang Mai University, Chiang Mai 50200, Thailand*

**Corresponding author. E-mail: joomwong@mju.ac.th*

ABSTRACT

Pineapple fruits were harvested at 110, 120, 130, 140, 150 and 160 days after full bloom from summer, rainy season and winter crops of 2002/2003. Crops from different seasons were evaluated for their physical characteristics, chemical compositions and sensorial attributes. A relationship between eating quality and different crop season was examined in terms of appearance, color and firmness of rainy season, summer and winter crop. Significant differences (P≤0.05) were found between fruit weight, size, shape and shell color, flesh color, total acidity and pH among three crops. For sensory evaluation, there were significant differences in flesh color, flavor, odor and acceptability. Taste panelists preferred the appearance, color and firmness of rainy season and summer crop more than winter crop.

Key words: Pineapple, *Ananas comosus,* Crop season, Quality

INTRODUCTION

Statistics on world pineapple production are collected by the Food and Agriculture Organization of the United Nations (FAO). According to FAO statistics (Baker, 1990; Anon, 2002), the leading pineapple-producing countries are Thailand, the Philippines and Brazil. The pineapple industry is the largest fruit industry in Thailand. The variety of pineapple used in commercial cultivation for fresh fruits as well as for the processing industry is Smooth Cayenne or Pattawia. Pineapple fruits are consumed locally and exported especially to Europe, Singapore, Japan and the Middle East but the economic production of pineapple from Thailand for export has been limited by quality factor. There were few definitive data on the effects of climatic factors on inflorescence or fruit development of pineapple (Bartholomew et al., 1977). The rate of fruit growth over time apparently was determined primarily by temperature. After flowering, fruit size may increase somewhat with increasing sunlight (Monselise, 1986). In two studies where pineapple was planted at different times of the year and fruit development was forced with a growth regulator, fruit development was slower during seasons with cool temperature (Moreau and Moreuil, 1976; Smith, 1977). In South Africa, it was shown that fruits which developed during cooler months were smaller than fruits on plants of comparable size which developed during warmer months (Smith, 1977).

In Hawaii, for the fresh fruit market, the summer crop is harvested when the eyes have light-pale green color. At this season, sugar content and volatile flavors develop early and steadily over several weeks. The winter crop is about 30 days slower to mature and the fruits are picked when there is a slight yellowing around the base (Morton, 1987). In Taiwan, which is located in the sub-tropic, results have shown a fairly-clear temperature difference between