

Chapter I

INTRODUCTION

In 1975, the committee of the Research Division, academic section Faculty of Science, at Chulalongkorn University has approved a research project concerning a preservation of lime fruit either in the form of fresh lime fruit or in the form of fresh lime juice. The purpose of this project, expected by the Research Division, is to get more information about the preservation which it can apply the results to the other fruits of the same type, in preventing the shortage of the citrus fruits and its products also helping the citrus industries and agriculture as well.

The Lime (*Citrus aurantifolia* (christm.) Swingle) grown in Thailand is Rangpur Type and classified as Mandarin species. These fruits are very acid and contain from 5 to 8 percent of citric acid and a low sugar content (0.3%). The essential oil of the peel as well as the juice has a strong specific odour. Due to less development in Fruit-Industries in Thailand, lime juice just used as fresh drink and sour taste ingredient for improving flavour of food. Ready-to-drink lime juice and concentrated are less present in the market because of lacking some processing methods for preserving its qualities. Loss of fresh lime fruits always occurs during the months of June to February in which time the large amount of this crop is harvested. Besides this period of the year, fresh lime fruit was very

expensive and rarely found in the market. Therefore, preserving of lime juice and fresh lime fruit for using throughout the year is interesting and should be considered.

The aim of this work is concerned with the study the effects of some food additives on the storage time and conditions. Additives used in this experiment were potassium meta-bisulfite, potassium sorbate, ascorbic acid and butylated hydroxy anisole. Therefore this work can be classed into three mains topics. Firstly the experiment on the single effect of the various concentrations of potassium metabisulfite and potassium sorbate were done. The data obtained from the change of qualities during storage test at room and refrigerator temperature were used as a guide for subsequent experiment. Then the study on the combined effect of the additives were done in order to obtain a better preserving action than the single effect. Finally the various combination of potassium meta-bisulfite and potassium sorbate at the level of 200-300 ppm, BHA 2 ppm, and 30 mg ascorbic acid per 100 ml of sample were studied. The effects of incorporating air and changing temperature during storage were also preliminary investigated.