

CHAPTER I

INTRODUCTION

Fresh lime fruits (Citrus aurantifolia) in Thailand are used as a beverage and an important cooking ingredient for improving flavor of foods. Lime can be planted easily. It will give more fruits if it was planted near by river or any water resources (1). There are three varieties of lime fruits namely (Citrus aurantifolia). Maxican group, Tahiti or Persian group and sweet lime group. Most lime fruits in Thailand are Maxican group which are very popular. They are called garden-lime and egg-lime. Garden-lime is round with thin and oily skin. The other is egged shape, thick skin, looked bigger than garden-lime. Nowadays the demand of lime fruits is very high. However, the lime fruit production is seasonal, peak production period normally lasts from May to November and there will be a shortage during February to April each year. During the shortage period fresh lime fruits are very expensive and not readily available in the market. Sometimes the price of lime during off season can be ten times higher than the ordinary price at the peak of the season. Therefore, preservation of lime in the form of whole fruit, juice and powder during the peak production will be very useful, as this will ensure that a constant supply of lime fruits and products is available at reasonable price throughout the year. Furthermore this will benefit the citrus industry as well as the

lime growers.

Much experimental work has been done on the storage of fresh lime fruit and lime juice. Anusornpanich (2) reported that optimum temperature for keeping fresh lime fruits is 10°C-15°C. Higher temperature will cause deterioration and lower temperature will cause chilling injury. Lime fruit kept for 5 months at 10°C with controlled atmosphere of 10% O₂, 5% CO₂, 89% relative humidity still gave acceptable quality but its color was changed from green to completely yellow. However, the stored lime samples showed a considerable loss due to fungi even if treated by Benlate solution. For concentrated lime juice, Anusornpanich (2) reported that potassium metabisulfite appeared to be a good preservative in retarding discoloration and off flavor, especially when kept at 10°C. However, domestic use of lime fruits and lime juice is mainly as flavoring additives, and as such they are consumed in small quantities. Under these circumstances they can be conveniently and economically replaced by a dehydrated product. While extensive research has been devoted to preservation of orange and grapefruit juice (3,4,5), there is no information of dehydrated lime juice. Consequently, the present study was undertaken on dehydration of lime juice, with and without concentration before dehydration by spray drying.