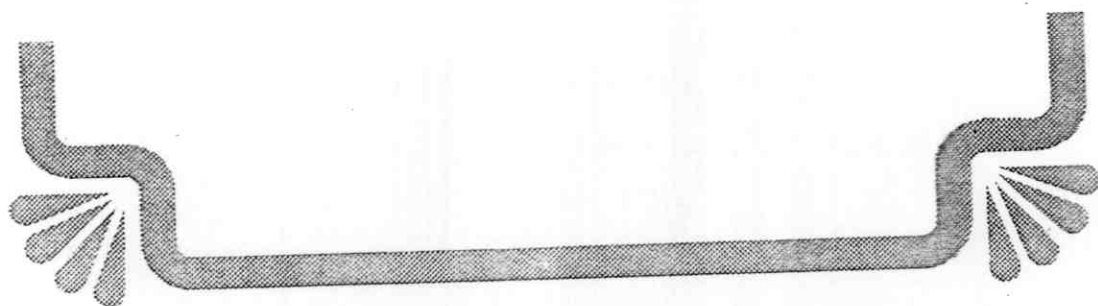


# INTRODUCTION



## 1- INTRODUCTION

Citrus fruits are widely needed for its high nutritive and economical values. Lime [*Citrus aurantifolia* (christm) Swing] is the most important member of citrus acid group due to its medical and commercial uses. Lime juice is a popular fresh healthy drink and it has a good effect in the protection from many diseases. Lime fruits have different nutrient components i.e. Citric acid which is valuable in processing and pectin is used in pharmaceuticals, as well as gelatinization in gelly and confectionery. Also, a volatile oil with a golden yellow colour can be extracted from the fruit peel.

The area under lime production in Egypt has continued to expand largely due to the horizontal expansion in new reclaimed dessert lands where lime is well suited to this environment. Besides, net return from lime planting is very high compared with other citrus fruits. The area planted by lime trees amount to 36383 feddans, while the productive area is about 33250 feddans producing nearly 274484 tons\*.

Lime production meets some difficulties in marketing, where the peak supply of lime fruits in the markets occur in autumn (mainly August, September, October and November). Consequently, the prices usually drop during this period which causes a lot of economical troubles for the producers. However,

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\* Arab Republic of Egypt Ministry of Agriculture and Land Reclamation  
Economic Affairs Sector. July 2001

lime fruits supply is very low during the rest of the year and in turn the prices are very high. Thus, irregular market supply of lime fruits on the year round harm both producers and consumers.

Many trials were carried out for controlling cropping of lime trees and producing fruits of high quality at times of scarce supply to the market. Tree fasting for short or long periods and growth regulators spraying are the most common tools performed by lime growers for providing fresh fruits during most months of the year. However, fasting process for lime cannot be done in all locations and not on yearly basis for the same tree because of its harmful effects on tree growth and productivity. In addition, the use of growth regulators spraying induces residual effects which upset exportation and local uses. Growth regulators may cause many harmful effects on the behaviour of tree vegetative and reproduction growth. These effects may appear as promotion, retardation or inhibition of some growth phases depending upon kind, concentration, method and time of application of such growth regulators. A suitable alternative to reduce losses of lime fruits and regulating lime supply in the markets around the year as well as maximizing profitability for the producers and consumers is the development of efficient methodology for storing lime fruits for long period without sharp effect on fruit quality. Thus, different storage methods and treatments were studied as well as package types were evaluated for achieving this goal.

Irradiation treatment is very effective in eradicating insect infestation in packed citrus fruits, reducing of microbial contamination, and prolonging the shelf life of fresh citrus fruits.

## **INTRODUCTION**

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Different United Nations Agencies mainly World Health Organization (WHO), Food and Agriculture Organization (FAO) and International Atomic Energy Agency (IAEA) have Jointly confirmed that irradiation is unconditionally safe for a wide range of foods when the absorbed dose do not exceed 10 kGy.

Thus, the ultimate goal of this study is to develop favorable postharvest fruit treatments with suitable packing and storage conditions that prolong storage period and maintain fruit quality during several months of marketing and exportation processes.