INTRODUCTION

I. INTRODU CTION

The genus citrus belongs to subfamily Aurantiodeae which is the most important subdivision in the family Rutaceae. Cirus fruit rank third after grapes and apples. as for as world production is considered. In Egypt, citrus trees are the backbone of fruit culture. It occupies about 60% of the total cultivated area of fruits, its acreage reached 344.789 Feddans with total production of 2.594, 853 tones per year (Minestry of Agriculture, 2004)

The use of plant growth regulators to control fruit set, size, shape and maturation has become important in agriculture today because they have the ability to increase fruit size, color, and shape, thereby increasing marketability. In addition, by hastening or delaying maturation the grower can utilize peak demands, avoid unfavorable environmental conditions and extend the market period.

Gibberellins are a class of plant growth substances having an ent-gibberel lane skeleton and stimulating cell division and br cell elongation and other regulatory function in the same manner as gibberellic acid GA_3.

Fruit size and shape is closely correlated with many factors: seed number, seed distribution in many fruits, the number of cells present at fruit set, number of cells division that

occur subsequently, and the extent which these cells expand. Cell division during the early stage of fruit development has a major influence on final fruit size **Richard (1992)**. Early fruit cell divison is normally influcnced by the natural growth hormoncs especially cytokinin **(Looney, 1993).** Studies on the synthetic cytokinin CPPU { (N- (2- chloro-1- pyridinyl) N-phenylurea)} has indicated that, in many fruit crops, it is one of the main factor affecting fruit growth and fruit size. CPPU gave promising results in controlling fruit growth and cropping of kiwi fruit **(Biasl et al., 1991),** and persimmon **(Ital et al., 1995).** In the latter years a tangible deterioration in citrus orchards took place, hence it brought out lower number of fruits tree which was paralleled by an increase of fruit size.

Due to the little information currently available about the effect of CPPU on citrus fruit, this study was carried out to explore the effects of concentration and application time of CPPU on citrus, fruit set, dropping and fruit quality.

The main target of this investigation to study the pollen grains viability, chromosomes number & chromosomal behavior in addition to study the effect of dipping flowers in soloution of Gibbrellic acid (GA_3) and / or sitofex (CPPU) which is a plant growth regulator with the ability to inhance plant cell division and cell elongation.

In this work study, the effect of GA_3 or CPPU on regetative growth, leaf mineral content, fruit set, yield and fruit characteroistics i.e. physical or chemical was investigated.