



# INTRODUCTION

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Papaya " (*Carica papaya* L.) is classified under the family Caricaceae and widely cultivated throughout the tropical and sub tropic regions for its ripe fruits .

Papaya fruit is a tropical melon fruit which grows on trees and the natives call it the " fruit of the angels " (Merory, 1960 ) .

Moreover , both **Bailey (1933)** and **Wolfe and Lynch (1942)** mentioned that, the papaya is native of tropical America where it is widely known . The seeds were introduced by the early Spanish and Portugese sailors to the old world where papaya is now flourishing in the tropical and warm regions and in 1596, the papaya was cultivated in India . Then, it had been grown in the pacific islands in the middle of the 18<sup>th</sup> century . After that , it was distributed over most of the Caribbean area within a short time . It became well known in the orient by the end of 18<sup>th</sup> century, while it is till predominantly a door yard fruit crop .

Papaya tree is a fast growing, short lined, single stemmed or sometimes branched arberescent herb, 2-10 m in height , with a straight , usually cylindrical , soft , loosely spongy fibrous , juicy , hollow , gray or grayish – brown trunk , 10 – 30 cm in diameter and roughened by the presence of large , prominent leaf and the leaves are alternate crowded at the apex of the trunk as well as branches .

All the parts of papaya tree are very useful , for that it planted for its ripe fruits which are favoured by tropical people

as breakfast meal fruit and used as an ingredient in jellies , preserves or cooked in different ways . Also, both young fruits and leaves cooked as a vegetable , papaya fruit juice makes a widely used as beverage drink in tropical area . Moreover, fruit and latex leaf used as Jrecks removal , while bark used for making rope, however , leaves used a soap substitute and supposed remove stains. In addition to that, the unripe papaya fruit is of even greater value as the source of papain which considered as the proteolytic enzyme a wide which act range of pH and its action closed to pepsin and trypsin enzymes . Papain is useful in medicine as a drug for digestive ailments and it has been used for reducing enlarged tonsils . About 80% of it American beer is treated with papain which digests the beer and remains clear on cooling . Papain is also used for deguming natural silk and used in some dentifrices , shampoos and face lifting preparations. It is used also to clean silks and wools before dying and to remove hairs from hides during tanning (Duke, 1989) .

Furthermore, papain is used in the manufacture of rubber from hevea. Fruit and seed extracts have pronounced bactericidal activity against *Staphylococcus aureus* , *Bacillus cereus*, *Escherichia coli*, *Pseudomonas aeruginosa* and *shigella flexneri* ( Emeruwa , 1982 ) . It is well known that , the juice from green fruit or leaves are used for warts , cancers , tumors and indurations of the skin Sinapisms prepared from the roots are also said to help tumor of the uterus . Green fruit said to be eccholic. Leaves poulticed onto nervous pains and elephantiasis growths.

The papaya was brought to Egypt during the reign of Khedive Ismail in the nineteenth century . It had been first planted in the garden of an English man named " Griffith " at Zamalek Cairo then, it was planted at the Basatin island at Aswan .

In Egypt, it is grown in a few scattered areas such as El-Kanater Horticultural Research Station , Ministry of Agriculture, Anshas, the Basatin island in Aswan and at the farms of the Faculties of Agriculture . It is also planted in many private gardens .

The present investigation was planned and carried out to study the influence of some chemical substances i.e., (gibberellic acid , naphthalene acetic acid , yeast extract , colchicine , ethyl methane sulphonate) at different concentrations and gamma irradiation at various doses on some seed germination parameters, some vegetative growth measurements and leaf & root mineral composition, as well as to study the transplants chromosome behaviour of two papaya cultivars i.e., " Solo " and " Betty" through. the cytological examination.