

I- INTRODUCTION

Mango (*Mangifera indica* L.) and pecan (*Carya illinoensis* wang. K. Koch) are tropical and temperate species that belong to the plant families, Anacardiaceae and Juglandaceae, respectively.

In Egypt, mango is considered as the third major crop after citrus and grapes, since its acreage in 1994 may about 53673 feddans produced about 17882 tons in the same year. Mango exportation is still low, but its future prospects is high.

The area in 1992 under culturing with pecan is very limited, (534 feddans produced about 1912 tons). However, there is a great demand of pecan fruits for Egyptian consumer. Accordingly ministry of Agriculture looks for increasing the acreage and production of this fruit species.

The most majority of cultivated mango and pecan trees in Egypt are raised by seeds. As a result, trees vary greatly in both fruiting and fruit characteristics. The use of seed for mango and pecan propagation are commonly used due to the difficulty of its propagating vegetatively (grafting, layering or even cuttings).

Depending on the cultivar, mango seeds are either polyembryonic or monoembryonic. Mono and polyembryonic mangoes are usually propagated by inarching or by grafting onto seedling rootstocks. Polyembryonic cultivar are sometimes seed propagated. The juvenile

period for mango is about 7-10 years. Grafted trees can bear after 3-4 years (*Evans et al., 1986*).

Moreover, the pecan is asexually propagated by budding or grafting desired cultivars on seedling rootstocks. Nurserymen use open – pollinated seeds of named cultivars and native seedlings for rootstock purposes (*Adriance, 1960*). The seedlings, however require long time to reach the suitable size for buddings, since pecan rootstock seedlings must be not less than 2-3 year old to be used (*Khalil et al., 1983*). Therefore, great efforts were carried out to minimize as possible the period required for pecan transplants by budding or grafting (*Khalil, 1978 and Yutang et al., 1984*).

In addition, vegetative propagation of fruit trees are preferred as it involves no changes in genetic information of the new plant, since exact duplication of the chromosomes takes place during cell division (*Ranberger, 1963*). There are many problems in mango and pecan vegetative propagation including low percent of success when budded or grafted, (*Hartmann and Kester, 1978*). Such variances in seedlings of pecan trees due to the great degree of segregation is considered the main real factor that limit the extension of mango and pecan plantation. *Wally et al. (1981-b)* found that anatomical as well as biochemical factors are responsible for difficulty in rooting in mango and pecan cuttings. There are many factors such as auxins, wounding, time of year preparing cuttings and treated mother trees with special chemicals, especially in species which are hard to root, such as mango and pecan and many other plants.

Therefore, this work was carried out to study the best time of year to make cuttings, best concentration of chemical treatment (IBA) to

promote rooting, shade twigs before preparing cuttings and wounding the basal portion for two fruit species (mango and pecan). Moreover, anatomical examinations were also done with the aim of clearing the different reasons may be found and representative as real factors that preventing either origination of root primordia or their penetration through the different tissues of cuttings.

The second objective of this work was to study the different steps in the establishment, multiplication and rooting of micropropagated plantlets of mango and pecan. Thus, with efficient *In vitro* production, it is possible to supply the growers mainly in the new reclaimed lands with large number of uniform plants.