5-SUMMARY

This investigation was conducted in the tissue culture laboratory, Horticulture Departments, Faculty of Agriculture, Moshtohor, Zagazig University during the period from 1999 to 2001 to study the possibility to use tissue culture techniques to produce colonal propagation of date palm (cv. Sewi) and pineapple (cv. Smooth Cayenne). Sewi date palm cv. offshoots planted in the nursery of Tissue Culture Unit, were used as a source of plant material. The mother palms of Sewi were obtained from Badrashin, Giza Governorat, while, pineapple offshoots were obtained from El-Sharkia Governorate.

Mother trees were selected, divided into small parts and immersed in an anti-oxidant solution containing 150 mg/L ascorbic acid, 100 mg/L citric acid) for 120 minutes. The treated parts were sterilized for 30 minutes using 30% Clorox (commercial bleach) plus two drops of Tween-20, then transferred to sterilized water 3-times for 5 minutes each. Shoot tips (0.5 mm. thick) were excised from the terminal parts, while the rest of these parts were divided into leaf primordia, axillary bud and leaf base with meristemic portion as explants under aseptic conditions. The prepared explants were cultured on different media *i.e.* Murashige and Skoog, Murashige and Tucker and modified Murashige and Skoog media, cold temperature pre-treatment, medium strength, additives, different BAP and NAA concentrations were carried out during the establishment stage of date palm and pineapple. In addition, different cytokinin types and different concentrations of BAP were only studied during proliferation stage of pineapple. Besides, medium strength, GA_3 concentrations, medium state and auxin type with different

concentrations were evaluated during rooting stage of pineapple. Furthermore, different agricultural media (peat- moss and sand either alone or in combination) were considered in acclimatization stage.

The obtained results could be summarized as follows:

5.1. Date palm: -

5.1.A: Establishment stage:

1- Modified Murashige and Skoog medium was more preferable than both Murashige and Skoog and Murashige and Tucker media in shoot tip development and direct regeneration while both Modified Murashige and Skoog and Murashige and Skoog media were suitable for reducing necrosis .

2- Shoot tip explant surpassed axillary bud, leaf primordia explants in explant development and direct regeneration. However, leaf primordia was more suitable for callus production.

3- Storing explants in the refrigerator (5°C) for 10 days before culturing as well as culturing on basal medium succeeded in reducing necrosis and browning and increasing explant development as compared with room temperature.

4- The higher concentrations of BAP (2.0 and 3.0 mg/L) increased explant development and direct regeneration, while lower concentrations of BAP (0.0 and 1.5 mg/L) improved callus production .

5- The lower concentration of NAA (0.0 and 0.5 mg/L) increased direct regeneration while, higher concentration of NAA (1.0 mg/L) was suitable for callus production.

6- Full and one-half medium strengths succeeded in reducing necrosis while increased shoot development. However, one-half medium strength was more promising than other medium strengths used in increasing direct regeneration

7- Supplementing the culture medium with glutamine and asparagine encouraged maximum explant development and direct regeneration.

5.2. Pineapple:-

5.2.A. Establishment stage: -

1- Modified Murashige and Skoog medium succeeded in reducing necrosis while increased explant development and direct regeneration .

2- Shoot tip and leaf base with meristemic portion explants surpassed leaf primordia and sub-shoot tip in all parameters under study (necrosis, explant development, direct regeneration and greening) while leaf primordial explant was suitable for callus production.

3- Full medium strength succeeded in reducing necrosis while increased both direct regeneration and greening parameters.

4- Supplementation of the culture medium with glutamine and asparagine alone or in combination encouraged maximum explant development, direct regeneration and greening.

5- Lower concentration of BAP (1.0 mg/L) increased direct regeneration and greening, while, higher concentration of NAA (2.0 mg/L) increased callus production.

5.2.B. Proliferation stage: -

1- Kinetin surpassed BAP and 2ip in improving greening as well as reducing necrosis while, BAP maximized proliferation.

2- The lower BAP concentration (1.0 mg/L) induced low necrosis and higher growth while, the higher BAP concentration (2.0 mg/L) encouraged proliferation .

5.2.C. Rooting stage: -

1- One-half and one fourth medium strengths succeeded in reducing necrosis while increased shoot elongation and root primordia.

2- The higher concentration of GA_3 (3.0 mg/L) encouraged shoot elongation and number of leaves and induced necrosis. However, using (1.0 and 2.0 mg/L) GA_3 improved greening.

3- Liquid medium state surpassed other medium states in increasing rooting and greening and reducing necrosis while, solid medium promoted growth .

4- Naphthalene acetic acid was the most effective auxin in inducing the best root formation .

5- Supplementation of the medium with (1.0 mg/L) NAA encouraged growth. However, using (3.0 mg/L) enhanced root length.

5.2.D. Acclimatization stage: -

The combination treatment of (3 peat moss + 1 sand) induced the highest percentage of survival, shoot length, number of leaves and greening.