SUMMARY

Summary

Two expriments were carried out in the exprimental station of Botany Department At Faculty of Agric. Benha Univ. Moshtohor and this was in 2003-20004 season by Using ***Pinus*** seeds of the 2 cultivators ***Pinea*** and ***Brutia*** which were imported from Syria. And Those seeds were treated by growth regulators for improving the seedlings emergence percentage & the growth of those plants.

The results of the used treatments were as following :

1- control (without a comparison treatment)

2-Cytokinin treat. (Benzyle Adenine) BA by conc. Of 10-20 ppm.

3-Auxin treat. (Nephthalyne Aceti Acid) by 2 conc. 25-125 ppm.

4-Gibberellin treat. (Gibberellic Acid) by 2 conc. 50-250 ppm.

5-Cytokinin high conc. and Auxin high conc. Interaction treatment
(BA at 50 ppm + GA3 at 125ppm)

6-Cytokinin high conc. And Gibberellin high conc. Interactiontreatment
(BA at 50 ppm + GA at 250 ppm)

7-Cytokinin high conc. , Gibberellin high conc. and Auxin high copnc. Interaction treatment
(BA at 50 ppm + NAA at 125 ppm + GA at 250 ppm)

So, Total treatments are 10 treatments for each planted type , and each treatment was divided into 5 replicates, each containing 10 bags So total number of plants for each type is 500 plant.

First expriment :

Using Pinus seeds of the 2 cultivates ***Pinea*** and ***Brutea*** and planting them after treatment by growth regulators in the previus treatments by soaking for 24 hrs , then planting in polyethylene bags 1Kg (sand and

clay mixture by 1:1).treatments were divided into replicates each containing 10 bags in 5 replicates ,So totol bags will be 500 bags.

For measuring the seedlings emergence percentage and estimating the hormonal content of resulting plants roots and making anatomical sections for each of roots & stems after stabilization of seedlings emergence percentage.

Second Expriment :

500 plants were used each of 6 M age and were managed for another 6 M till the age of 1 y , then using same previous trearments for 5 M spraying on the plant starting from 13 M age until 17 M age for observing plants successive growth measurements from 1Y till 2Y age , which were as following :

Firstly: Growth measurements from 13-24 M :

- Plant Height

-Stem Diameter

-Nunber of lateral branches

-Number of leaves

Secondly: Growth measurements at 30M:

1-stem measurements:

-Stem Height -Stem Diameter

-Number of lateral branches-Length of lateral branches- Fresh and Dry weights.

2-Leaves measurements:

-Number of leaves -Average length of 4 leaves

-Fresh &Dry weights.

3- Root measurements:

Root diameter (1 cm from the base) –number of lateral roots –root size –fresh and dry weights.

Also, dry matter distribution into different plant organs was estimated.

Obtained Results can be summarized as following :

Firstly: Percentage of seedling emergence and germination rate.

The interaction treatment of the applied three growth regulators gave the highest % of seedling emergence that reached 80 % meanwhile it was only 50 % in control.

Secondly : Endogenous phytohormones in roots (at 6 months of plant age).

* In both cvs.; the treatment of GA3 increased the endogenous IAA in roots of treated plants.

*The endogenous gibberellin only increased with GA3 treatment meanwhile, other treatments decreased its level.

* Also, BAtreatment increased the endogenous levels of auxin and gibberellin.

* On the other hand , different applied treatments decreased the endogenous level of abscisic acid in roots.

Thirdly: **growth measurements at the age of 13 months upto 2 years:**

1- Pinus Pinea

different applied treatments increased plant height to reach its maximum (63 cm) meanwhile, it was only 74cm in case of control- the same was obtained for stem diameter.

* The interaction treatment of BA+GA3 gave the highest number of lateral branches (22 in comparison with branches in control)

*Also, for leaves number; the interaction treatment of the three growth regulators gave its maximum followed by GA3 treatment.

2- Pinus brutia :

* All applied treatments increased each of plant height and stem diameter as well

* For branches number it showed its maximum with interaction treatment of the three applied growth regulators meanwhile, maximum leaves number was obtained with BA+GA3 treatment.

Fourthly: Growth measurements at 30 months of plant age.

1-Pinus Pinea :

* For each of plant height and stem diameter were obviously increased with different combinations applied to reach its maximum with the three growth regulators combination.

* For branches number it reached its maximum that reached 28 branches in comparison with only 19 branches in case of control treatment . The same trend was also obtained in case of leaves number as well as each of root diameter and root dry weight as well.

2-Pinus Brutia:

* nearly the same positive effect of different applied treatments upon measured growth aspects in Pinus Pinea was also obtained in case of brutia cultivars.

Fifthly: Dry matter distribution among plant organs:

1- Pinus Pinea:

* the treatments of GA3 at 250 and 50 ppm gave the highest dry matter accumulation in treated plants that reached 36-65 and 32-65 gms, respectively.

In comparison with only 10.76 gms for control treatment.

2- Pinus brutia:

*different applied treatments increased the accumulation of dry matter specially the combination treatments.