Physiological studies on nutrition and propagation of some woody trees

Mohamed El-Sayed Eid El-Sayed

The ornamental woody trees are very important. In addition to their use in landscape or as wind breaks, some of them are considered as timber trees and utilized mainly in industries like furniture, fuel and other uses.Some of the trees were chosen to study the effect of nutrion with potassium nitrate (KNO3) during germination stage compared with soaking the seeds in different solutions (thiourea and yeast extract) as well as the effect of seed collection date on the germination and seedling growth.The experiments were carried out at the Experimental Station of Horticulture Recearch Institute in Giza during 1999-2000 and 2000-2001 seasons. A. The first part:-- Effect of putassium nitrate (KNO3) as nutrition, thiourea (thiocarbamide CH4N2S) and yeast extract on germination and seedlings growth:-The trees chosen were Albizzia lebbeck Banth. and Taxodium distichum (L.) Rech. The seeds were soaked in 1000, 5000 or 10000 p.p.m. potassium nitrate (KNO3) for 24 hrs., 1000, 3000 or 5000 p.p.m. thiourea (Thiocabamide CH4N2S) for 24 hrs., 1000, 3000, 5000 or 7000 p.p.m. yeast extract for 24hrs. in addition to the control (soaking in tap- water for 24 hrs). The seeds of Albizzia lebbeck Banth. were collected on the 15th of March and planted in the 15th of July in the same season while, Taxodium distichum (L.) Rich. seed were collected on the 15th of November and planted on 15th of December in the same season.The treated seeds were planted in pots of 30 cms diameter and 20 ems depth, filled with a mixture of sand and clay (1:1 v/v) underthe normal nursery conditions. Twenty seeds were planted in each pot. The following results were obtained:-A- Albizzia lebbeck Benth.:-1-The highest germination percentage and rate resulted from soaking the seeds in potassium nitrate (KNO3) at 1000 p.p.m..2-The fastest germination periodicity resulted from soaking the seeds in thiourea at 1000 p.p.m..3-The tallest seedlings and the highest number of leaves resultedfrom soaking the seeds in potassium nitrate (KNO3) at 1000 p.p.m..4-The thickest seedlings were produced from soaking the seeds in potassium nitrate (KNO3) at 1000 or 5000 p.p.m..5-The tallest roots resulted from soaking the seeds in eitherpotassium nitrate (KNO3) at 5000 p.p.m. or soaking the seeds in thiourea at 3000 p.p.m..6-The heaviest fresh weight of stem, leaves and roots resulted from soaking the seeds in thiourea at 3000 p.p.m..7-The heaviest dry weight of stem resulted from soaking the seeds in either thiourea at 3000 or 5000 p.p.m..8-The heaviest dry weight of leaves was obtained from soakingthe seeds in either thiourea at 3000 p.p.m. or yeast extract at 5000 p.p.m..9-The heaviest dry weight of roots resulted from soaking the seeds in thiourea at 3000 and 5000 p.p.m..B- Taxodium distichunt (L.) Rich.:-1-The highest germination percentage resulted from soaking the seeds in yeast extract at 7000 p.p.m..2-The highest germination rate was obtained from soaking the seeds in potassium nitrate (KNO3) at 1000 p.p.m..3-The fastest germination periodicity resulted from soaking the seeds in potassium nitrate (KNO3) at 5000 p.p.m..4-The tallest and thickest seedlings with the highest number of leaves resulted from soaking the seeds in thiourea at 5000 p.p.m..5-The tallest roots resulted from soaking the seeds in yeast extract at 1000 p.p.m..6-The heaviest fresh and dry weights of the stern, leaves and roots resulted from soaking the seeds in thiourea at 5000 p.p.m.. B. The second part:-- Effect of date of seed collection on germination and seedlings growth:-The trees chosen were Albizzia lebbeck Benth., Taxodiwn distichum (L.) Rich. and Cupressus sempervirens L.The seeds of Albizzia lebbeck Benth. were collected in November 15th , December 15th, January 15th, February 15th and March 15th from El Ismailia during the two seasonsThe seeds of Taxodium distichum (L.) Rich. were

collected in September 15th, October 15th, November 15th, and December 15th from El Fayom during the two seasons.The seeds of Cupressus sempervirens L. were collected in September 15th, October 15th, November 15th, December 15th and January 15th from El Kassasin during the two seasons.The seeds were planted directly in pots 30 cms. diameter and 20 ems depth, filled with a mixture of sand and clay (1:1 v/v) under the normal nursery conditions as 25 seeds were planted in each pot and each replicate contained 4 pots (100 seeds) in each date four replicats from each plant. The following results were obtained:-A. Albizzia lebbeck Benth.:-1-The highest seed content of total phenols resulted from the seeds collected in the third date (15th Jan.).2-The highest seed content of total amino acids and total carbohydrates resulted from the seeds collected in the second date (15th Dec.).3-The highest seed content of total indoles were obtained from the seeds collected in the first date (15th Nov.).4-The heaviest weight of 100 seeds and moisture (%) resulted from the seeds collected in the first date (15th Nov.).5-The highest germination percentage, rate and periodicity were obtained from the seeds collected in the fifth date (15th Mar.).6-The tallest seedlings were obtained from the seeds collected in the second date (15th Dec.)