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التوثيق الالكتروني والميكروفيلم

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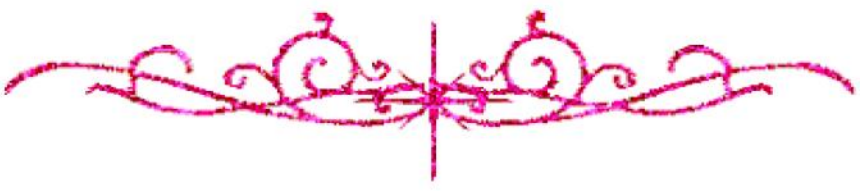

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بالرسالة صفحات لم ترد بالأصل

EFFECT OF SOME TREATMENTS ON VEGETATIVE PROPAGATION OF SOME POPLAR SPECIES

By

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B.Sc. (Agric. Horticulture), Fac. of Agric.,

Cairo University, 1997

Thesis

Submitted in Partial Fulfillment of the Requirements

For the Degree of

Master of Sciences

In

Ornamental Horticulture (Timber Trees)

Department of Ornamental Horticulture

Faculty of Agriculture

Cairo University

2003

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Approval Sheet

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Date : 1 / 9 / 2003

ACKNOWLEDGMENT

First of all thanks to "God"

The author wishes to express his sincere gratitude and appreciation to ***Prof. Dr. Atef Zakaria Sarhan****, Head of Department of Ornamental Horticulture, Faculty of Agriculture, Cairo University for giving the honour of working under his supervision and his valuable guidance and encouragement during study and preparation of this thesis.*

Deep thanks and debtness are extended to ***Prof. Dr. Ahmed Mahmoud Abd El-Dayem****, Director of Forestry Department, Horticulture Research Institute for suggesting the problem, his supervision and assistance in preparing this thesis.*

My thanks are directed to ***Dr. Mona Ahmed Darwesh****, assistant professor of Ornamental Horticulture, Faculty of Agriculture, Cairo University, for her supervision guidance and continuous encouragement during study and preparation of this thesis.*

Great thanks are sincerely directed to ***Dr. Faten Mohamed Reda****, Researcher of Forestry, Horticulture Research Institute for helping me during the study.*

I would like to express my deepest gratitude to my father, mother and my brothers for their unlimited helps.

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Title of Thesis: Effect of some treatments on vegetative propagation of some poplar species.
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Approval: 1 / 9 /2003

ABSTRACT

The present study was carried out at the nursery of Forestry Department. Horticulture Research Institute, Giza in two successive seasons 2000 and 2001, aimed to define the optimal date for taking stem cutting, effect of cold storage and the effect of growth regulator at different concentrations on rooting of three poplar species *Populus nigra*, *P. alba* and *P. euramericana*. The studied three populus species differ in response to investigated treatments, that *populus nigra* consider easy to root, stem cuttings had extended time for planting from 15th Feb. to 8th March, also the interaction between 250 ppm of IBA concentration with 1st March planting date maximizing rooted stem cutting % while *P. euramericana* taken the second order that, IBA at the lowest concentration (250 ppm) was effective in improving rooted cutting, had definite time for stem cutting plantation (22nd Feb.)and the interaction between 500 ppm IBA with 15th Feb. planting date and 250 ppm IBA with 22nd Feb. planting date treatments, respectively were more effective in rooting ability, P. alba which difficult to root, the best planting dates was 15th to 22nd Feb., but the effect of root promoters differ during the two planting season.

The studied three populus species differ in response to cold storage and investigated treatments. Cold storage decreased rooted cutting of *Populus nigra* and *P. euramericana*, while all cuttings of *P. alba* failed to emerged. *P. nigra* IBA at the lowest concentration(250ppm) was effective in improving rooted cutting. 21 days storage period gave the best result. While *P. euramericana* taken the second order that. 250 to 1000 ppm IBA improved rooting % and 14 days storage period gave the best results . Nitrogen % decreased due the treatments as compared to control for *P. nigra* and *P. euramericana*, while, *P. alba* all treatments increased it as compared with control. As for endogenous hormone the lowest values of IAA were found in *P. nigra* followed by *P. alba* and the maximum values was found in *P. euramericana*. On the other hand ABA was in the maximum values in *P. alba* followed by *P. nigra* and then *P. euramericana*.

As for total soluble sugars of three Populus species indicated that, *P. nigra* stem cutting maintained the highest values of total soluble sugar, followed by *P. euramericana* and the lowest one was in *P. alba*.

Anatomical structure: *P. nigra*: root primordia from different regions (pranchymatus cells of callus as well as secondary phloem, cambium zone and pranchymatus area of the outer part of the pith). *P. alba*: root primordia from cambium zone and pranchymatus area of the outer part of the pith. *P. euramericana:* root primordia from the outer part of the pith only.

Contents

Introduction

The need for timber remains as indispensable in the twenty-one century as it did in the early history of civilization. Although other materials tend to replace timber in many industries such as building industry, there are still areas of the world where its use has not changed. Modern techniques have now been devised for the transformation of timber and new uses for it have been developed for example, play wood and fiber broad are being for construction purposes and for furniture and wood has actually become a raw material for the chemical industry itself, one of the most important sources for timber now is poplar (**FAO, 1958**).

Populus the common name from the early Roman expression arbor Populi, meaning "the people's tree" because poplars were frequently planted in public places and meetings were held beneath them (**Rupp, 1990**). In fact, the Latin word *Populus* is defined as "a multitude, host, crowd, throng, a great number of persons or things; the people".

General characteristics of poplars:

Poplars are all deciduous or (rarely) semi-evergreen forest trees with wide distribution in the northern hemisphere, from the tropics to the northern latitudinal limits of tree growth. Poplars are short-lived compared to other trees such as white pine, oaks or douglas fir, nonetheless, the fast growth rate of poplar often enables the to reach large size. The characteristic cotton wood of eastern North America (***P. deltoides***) and the pacific North West (***P. trrichocarpa***) for example can become enormous trees.

Vegetative propagation of poplar:

Most important for silvicultural and horticultural applications is the establishment of clonal poplar plants with hardwood stem cuttings. Employs 20-30 cm. long (sometimes shorter or longer) section of dormant, one year old woody shoots as planting stock. Amazingly, if this "sticks" are planted in the

spring they will quickly produce roots from existing primordia in the inner bark and new shoots from the buds the resultant clonal plants often grow several meters tall in the first growing season. This trait alone allowed the wide spread and successful planting of cotton wood and balsam poplars. Unfortunately, the aspens cannot be reproduced from hard wood stem cuttings, although they will propagate-albeit with difficulty-from root cuttings. Leafy "soft wood" cuttings from aspen shoots also will root, an expensive process that requires greenhouse misting facilities. Thus, aspen plantations are relatively rare (**Dickmann *et al.*, 2001**).

Populus nigra L

Populus nigra L
Stem and leaves