بسم الله الرحمن الرحيم

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بقسم التوثيق الإلكتروني بمركز الشبكات وتكنولوجيا المعلومات دون أدنى مسئولية عن محتوى هذه الرسالة.

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PHYSIOLOGICAL GENETIC STUDIES ON SOME CHARACTERISTICS OF *TRIFOLIUM ALEXANDRINUM L.*

BY

WAFAA MOHAMED SHARAWY ABDEL FATTAH

B.Sc. Agric. Sci. (Animal Production), Cairo Univ.,1982
M.Sc. Agric. Sci. (Genetics), Ain Shams Univ., 1990

Thesis submitted in partial fulfillment
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the requirements for the degree of

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Department of Genetics
Faculty of Agriculture
Ain Shams University

1997

APPROVAL SHEET

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This thesis for Ph. D. degree has been approved by :

Prof. Dr. M. A. Ismail
Prof. of Genetics, Fac. of Agric.
Zagazig Univ.

M. A. Ismail

Prof. Dr. M. A. Rashed
Prof. of Genetics, Fac. of Agric.,
Ain Shams Univ.

M. A. Rashed

Prof. Dr. F. M. Abdel-Tawab
Prof. of Molecular Genetics, Fac. of Agric.,
Ain Shams Univ., (Supervisor)

F. M. Abdel-Tawab

Date of examination 22 / 3 / 1997

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Under the Supervision of

Prof. Dr. F. M. Abdel - Tawab
Prof. of Molecular Genetics, Fac. of Agric.,
Ain Shams University.

Dr. Eman Mahmoud Fahmy
Assoc. Prof. of Genetics, Fac. of Agric.,
Ain Shams University.

Dr. Abd El- Fattah H. Belal
Assoc. Prof. of Plant Production and Protection,
Fac. of Agric.,Suez Canal University.

Dedication

To the soule of my father

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ABSTRACT

Wafaa Mohamed Sharawy Abdel-Fattah, physiological genetic studies on some characteristics of *Trifolium alexandrinum L.*, unpublished Doctor of Philosophy, Genetics, Fac. of Agric., Ain Shams Univ., 1997.

Eleven accessions of berseem clover *(Trifolium alexandrinum L.)* were grown in the field with sufficient irrigation (every 15 days) and two drought stress irrigations (every 21 and 30 days). The results indicated that morphological parameters, photosynthetic rate, stomatal conductance, intercellular CO_2 concentration and osmotic potential were higher in irrigation every 15 days than irrigation every 21 and 30 days. Water stress caused a reduction in fresh and dry yield. Subsequently, accessions 1, 11 and 26 were selected as drought tolerant while accessions 6, 27 and 66 were drought sensitive.

Marked association was observed between proline content and ion ratios and drought tolerance. This study also showed a reduction in callus growth at higher levels of water stress.

SDS-protein, isozyme electrophoretic patterns for esterase, acid phosphatase and peroxidase and molecular markers (RAPD) were effectively discriminated between the tolerant and sensitive genotypes

Key words : *Trifolium alexandrinum*, drought, photosynthesis, stomatal conductance, osmotic potential, SDS-protein, isozymes, electrophoresis and RAPD-PCR.

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