



شبكة المعلومات الجامعية

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ





شبكة المعلومات الجامعية



شبكة المعلومات الجامعية

التوثيق الالكتروني والميكرو فيلم

جامعة عين شمس

التوثيق الالكتروني والميكرو فيلم

قسم

نقسم بالله العظيم أن المادة التي تم توثيقها وتسجيلها
علي هذه الأفلام قد اعدت دون أية تغيرات



يجب أن

تحفظ هذه الأفلام بعيداً عن الغبار

في درجة حرارة من 15 – 20 مئوية ورطوبة نسبية من 20-40 %

To be kept away from dust in dry cool place of
15 – 25c and relative humidity 20-40 %



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بعض الوثائق الأصلية تالفة



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بالرسالة صفحات
لم ترد بالأصل

**ENHANCEMENT OF WHEAT (*Triticum aestivum* L.)
TOLERANCE TO ENVIRONMENTAL STRESS BY
GENETIC ENGINEERING**

BY

HALA FAWZY EL-SAKKA EISSA

B.Sc., Fac. of Science (Plant-Chemistry), El-Mansoura Univ., 1990
M.Sc. Agric. Sci. (Genetics), Ain Shams Univ., 1997

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Faculty of Agriculture
Ain Shams University**

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APPROVAL SHEET

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

Prof. Dr. Effat A. Badr

Professor of Genetics

Dept. of Genetics, Fac. of Agric.,
Alexandria Univ.

Prof. Dr. El-Sayed H. Hassanien

Professor of Genetics

Dept. of Genetics, Fac. of Agric.
Ain Shams Univ.

Prof. Dr. A. Bahieldin

Professor of Genetics

Dept. of Genetics, Fac. of Agric.
Ain Shams Univ.

Prof. Dr. F.M. Abdel-Tawab

Professor of Genetics

Dept. of Genetics, Fac. of Agric.
Ain Shams Univ.

Date of examination 24/11/ 2001

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M.Sc. Agric. Sci. (Genetics), Ain Shams Univ., 1997

Under the Supervision of

Prof. Dr. F.M. Abdel-Tawab

Prof. of Molecular Genetics,
Dept. of Genetics, Fac. of Agric.,
Ain Shams University.

Prof. Dr. Eman M. Fahmy

Prof. of Molecular Genetics,
Dept. of Genetics, Fac. of Agric.,
Ain Shams University.

Prof. Dr. A. Bahieldin

Prof. of Molecular Genetics,
Dept. of Genetics, Fac. of Agric.,
Ain Shams University.

DEDICATION

TO MY SMALL FAMILY

AMR & ISMAIL

also
offer
not

into the other. The effort to make the world as a whole more just and more peaceful is the only way to ensure the survival of the human race.

ABSTRACT

Hala Fawzy El-Sakka Eissa, Enhancement of wheat (*Triticum aestivum* L.) tolerance to environmental stress by genetic engineering, Unpublished Doctor of Philosophy Dissertation, Genetics Dept., Fac. of Agric., Ain Shams Univ., 2001.

This study aimed to improve drought tolerance of Egyptian wheat cultivar Giza 164 by transforming it with the chimeric fructan-accumulating gene (*cpy/sacB*). Plant transformation was done in the immature embryo-derived calli using the biolistic bombardment. Tissue culture and transformation protocols were performed using *bar* gene as a selectable marker against the herbicide bialaphos. One putative transgenic plant was successfully detected by leaf painting with the herbicide. Molecular analyses were done on the structural and functional levels for both genes. PCR and Southern blotting indicated the presence and integration of both genes in the genomic background of T₀ plant. PCR was then done to ensure the inheritance of genes of interest. At the functional level, RT-PCR confirmed the expression of *bar* as well as *sacB* gene. Drought stress experiment was conducted in the greenhouse on T₁ plants to evaluate ten yield-related traits. The statistical analysis indicated that the transgenic T₁ plants had better overall performance under control and treatment. In conclusion, the results revealed that the expression of fructan-accumulating gene into wheat conferred tolerance to drought stress.

Key words: *Triticum aestivum*, immature embryos, transformation, biolistic bombardment, drought tolerance, fructan, leaf-painting, bialaphos, PCR, genomic Southern, RT-PCR.

