بسم الله الرحمن الرحيم

شبكة المعلومـــــات الجامعية

التوثيق الالكتروني والميكروفيلم

شبكة المعلومات الجامعية

جامعة عين شمس

التوثيق الالكتروني والميكروفيلم

﴿ قـــسـم ﴾

نقسم بالله العظيم أن المادة التي تم توثيقها وتسجيلها
علي هذه الأفلام قد اعدت دون آية 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 %

بعض الوثائق الأصلية تالفة

بالرسالة صفحات

لم ترد بالأصـــل

Genetical and Biochemical Studies on some Sunflower Varieties under some Abiotic Stresses

By

RASHA YOUSSEF SAYED
B.Sc., Agric. Sci. (Genetics), Ain Shams Univ., 1997

A thesis submitted in partial fulfillment

of

The requirements for the degree of
Master of Science

in

AGRICULTURAL SCIENCE
(GENETICS)

Department of Genetics
Faculty of Agriculture
Ain Shams University

2001

APPROVAL SHEET

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ABSTRACT

RASHA YOUSSEF SAYED, Genetical and Biochemical Studies on some Sunflower Varieties under some Abiotic Stresses, Unpublished Master of Science thesis, Genetics Dept. Fac., of Agric, Ain Shams Univ., 2001.

The goal of the study was to detect physiological, biochemical and molecular genetic markers for salt tolerance in sunflower. Fourteen cultivars were screened for their tolerance against salt stress (0, 10, 15 and 20 g/l, 3 NaCl : 1 $CaCl_2$). Six yield and its attributes were scored to detect the most four salt-tolerant and the most four salt-sensitive cultivars for subsequent physiological, biochemical and molecular genetic studies. Correlation between proline accumulation and salt stress was observed regardless of degree of tolerance of the genotypes under study. SDS protein profiles indicated the occurrence of some unique bands in which some of them were positively associated with salt tolerance, while the others were negatively associated. Isozyme analysis of four enzymes, i.e., peroxidase, malate dehydrogenase, esterase and alcohol dehydrogenase showed differential responses with respect to salt tolerance and resulted in the production of some biochemical genetic markers for salt tolerance. On the molecular level, RAPD analysis was done utilizing fourteen 10-mer random primers and resulted in the occurrence of some molecular genetic markers associated with salt tolerance. Besides, PCR analysis of the LEA gene family for selected cultivars by their performances under salt stress indicated the presence of one unique band associated with salt tolerance in sunflower. In conclusion, these different markers would be useful in screening different genotypes for their tolerance against salt stress during breeding programs of sunflower.

Keywords: Sunflower, Salt Tolerance, Yield-Related Traits, Proline, SDS-PAGE, RAPD, LEA, Isozyme, Peroxidase, Malate Dehydrogenase, Alcohol Dehydrogenase, Esterase.

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