شبكة المعلومات الجامعية

بسم الله الرحمن الرحيم

شبكة المعلومات الجامعية

جامعة عين شمس

التوثيق الالكتروني والميكروفيلم

قسم

نقسم بالله العظيم أن المادة التي تم توثيقها وتسجيلها

علي هذه الأفلام قد أعدت دون أية تغيرات

يجب أن

تحفظ هذه الأفلام بعيدا عن الغبار

في درجة حرارة من ١٥-٢٥ مئوية ورطوبة نسبية من ٢٠-٤٠%

To be Kept away from Dust in Dry Cool place of 15-25- c and relative humidity 20-40%

شبكة المعلومات الجامعية

التوثيق الالكتروني والميكروفيلم

وثائق لم ترد بلاصل

يصعب قراءة بعض الوثائق

TANTA UNIVERSITY
FACULTY OF AGRICULTURE
KAFR EL-SHEIKH
Agronomy of Department

STUDIES ON DIHAPLOID PRODUCTION AND ITS UTILIZATION IN SELECTION FOR SALINITY TOLERANCE IN BREAD WHEAT

BY
Thanaa Hamad Abd El-Salam Abd El-Kreem
B. Sc. Agric. Tanta University, 1992

THESIS
Submitted in partial fulfillment of
The requirements for the degree

of
MASTER OF SCIENCE

IN
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TO THE SPIRIT

OF

MY FATHER

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INTRODUCTION

1- INTRODUCTION

Wheat is the most important cereal crop behind rice and corn allover the world. In Egypt, it is used for making bread and other food stuffs, animal feeding as well as other industrial purposes and covers around 2.5 million feddan area with a national average of about 16.63 ardab/feddan. However, the total production of wheat is not enough to meet the requirements of human consumption. Wheat genetic improvement is an important aim for increasing yield through breeding programs.

Wheat production is confronted by many problems. Diseases such as rusts, smuts and root rots as well as abiotic stresses as drought, heat and salinity stresses etc. are serious problems in Egypt. Breeding of new cultivars is the lonely safety and most effective way to raise and sustain the wheat productivity in our country.

The application of more developed biotechniques in plant breeding is starting to take place everywhere. The production of dihaploids offers great possibilities in shortening the breeding cycle, increasing the selection efficiency, creating variability for selection and solving problems arising in wide crosses. The method enables to produce the homozygous plant in one step, to identify the recessive traits directly on the haploid plants, to accumulate the important traits in easier way, to eliminate the weak or not survivable plants at early times (in petri dish), it needs less number of plants to select plants having valuable characters (easy selection) and needs shorter times and lower costs for the breeding.

The pure lines could be established from anther culture of F_1 hybrid plants, F_2 or F_3 generations. (Schmid *et al.*, 1985). Meanwhile, in the conventional wheat breeding, the F_1 is not segregating in the different traits, the segregations (in the microspores in the anthers) of the F_1 plants in the different F_2 gametes can be used. The breeder must know, if the variability in the gametes on the F_1-plants are enough or the anther culture should use the recombinations of the F_2 or F_3 generations.

Nowadays, anther culture has been most efficient mean of production of haploids an homozygous dihaploids in wheat. Potentially, productivity of wheat anther culture can be manifold than have been achieved so far (Hu, 1986). Furthermore, new wheat varieties has been released in China by anther culture; Hape 1, Jingknano-1 and An cul. 28 (Hu *et al.*, 1983; Zhou *et al.* 1991; and DeBuyser *et al.* (1986).

Screening for salt tolerance has been successfully started in barley; Ye *et al.* (1987). Rice tolerant lines were selected from anther culture; Reddy and Vaidyanath (1986), Zapata *et al.* (1991) and Draz *et al.* (1994). In wheat El-Hennawy (1996b) tried to select salt tolerant lines in Egypt.

Therefore, the purpose of this study was to establish the anther culture technique in our laboratory and (1) to define the most suitable medium as direct or two-step culture (2), to study the genotypic response of some wheat cultivars to *in vitro* haploid induction, (3) to study the effect of carbon source on haploid induction and (4) to select for salt tolerant dihaploid bread wheat through anther culture.