



شبكة المعلومات الجامعية

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ





شبكة المعلومات الجامعية



شبكة المعلومات الجامعية

التوثيق الالكتروني والميكروفيلم



شبكة المعلومات الجامعية

# جامعة عين شمس

التوثيق الالكتروني والميكروفيلم

## 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

**APPROVAL SHEET**

**EFFECT OF SOME GROWTH RETARDANTS  
ON THE PHYSIOLOGICAL AND GROWTH  
BEHAVIOR OF RICE PLANTS**

BY

**Abd El-Fattah Gaber Abd El-Fattah**

for the Degree of  
**MASTER OF SCIENCE**  
In  
**AGRICULTURAL BOTANY**

**Approved by:**

- 1- A. I. Shaarami
- 2- H. Wahdan
- 3- M. A. Mawani
- 4- A. A. Gendy

(Committee in Charge)

Date: 26/6/1996

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# INTRODUCTION

## **Introduction**

Rice is one of the main cereal crops in Egypt. Recently, it became the second exported crop after cotton. Rice covers about 16.9% of the cultivated area in the northern part of the Nile Delta. This area represents 95% of the rice cultivated in Egypt ( Gendy 1985 ). The policy of the country aims to improve rice production of excellent quality to meet the local consumption as well as the export demand. On the other side, several problems often cause a drop in the yield and productivity of rice; lodging is one of these problems appears in the intensive rice cropping with high N-application rates because it greatly influences the time of harvest and reduces the yield. The reduction of rice yield, caused by lodging may reach to about 30 and 40% of the total yield (Basak 1962).

Lodging is one of the principal problems in intensive rice cultivation that has an unfavourable effect, particularly when it occurs in the early reproductive stage of development. On the basis of fundamental investigations carried out by Gendy (1985) on the action of various plant growth retardants on the growth of rice, it was possible to develop chlormequat (CCC) into a very effective anti-lodging agent and to introduce it to large areas of rice growing all over the world (Schilling, 1985).

Application of some naturally occurring or synthetic chemical growth regulators have been extensively used because of their beneficial effects upon the growth and development of plants. Within the last decade, a number of synthetic growth retardants have been discovered and proved to be of considerable importance in agriculture. An increase in the grain yield was noticed with foliar application of these growth retardants

(Schilling 1985). The chloromequat chloride (CCC), mostly used in wheat and barley producing areas to prevent lodging, and when it was used alone on rice, it did not exhibit any growth retarding effect (Gendy, 1985; Lou *et al.*, 1987 and Gendy, 1990). Triapenthenol (RSW 0411) is a new plant growth regulator. It inhibits vertical growth of plant shoots without affecting number of leaves or growth of roots. It was found that the primary mode of action of RSW 0411 was to inhibit gibberellin biosynthesis (Lürssen and Reiser, 1985). MLU 208 is another new growth regulator and is a mixture of 29% DCiB + 36% CCC wt/wt.). It was described and tested by Schilling and Eckert (1985) and Hennig (1985) and is now in wide spread use especially in Germany agriculture. MLU 208 reduced the height of many plant species and also improved the photosynthetic activity and/or affected the hormonal balance of plant which in turn increased the yield (Otto and Schilling 1984).

Uniconazole (S330 7D) is a patent plant growth retardant manufactured by Sumitomo Chemical Company Ltd., (1986) which is being developed worldwide as a new plant growth regulator in variety of crops and in amenity outlets. Its primary mode of action is the inhibition of gibberellin (GA) biosynthesis (Rademacher and Jung 1986). This investigation was conducted to study the effect of some new growth retardants i.e. MLU 208, Triapenthenol (RSW 0411) and Uniconazole in addition to CCC as foliar application on the growth, chemical characters, stem anatomical structure as well as yield components of rice plants.

# REVIEW OF LITERATURE

## Review of Literature

### A) Vegetative growth analysis:

Effects of growth retardants on growth of many plant species have been investigated by several workers.

#### 1- Culm length:

Das et al. (1968) showed a reduction in plant height by treating rice with CCC.

Zeidan et al. (1976) studied the effect of CCC concentrations and time of application on the growth of rice plant. They found that, plant height was not influenced by CCC.

Rademacher and Jung (1986) found that few plant growth regulators are known to retard the growth of rice plants.

Otto and Schilling (1984) reported that MLU 208 reduced the height of many plant species.

Gendy (1985) found that CCC did not show any effect on rice plants under greenhouse conditions.

Hennig (1985) reported that plant growth regulator (MLU 208) played important role in modern agriculture. This compound is used to reducing culm length.

Lürssen and Reiser (1985) reported that RSW 0411 is a new triazole plant growth regulator. It inhibits extension growth of plant shoots without affecting number of leaves or root growth.