EFFECT OF SOME PESTICIDES ON THE SEQUENCE OF CELL DIVISION IN PLANTS.

THESIS

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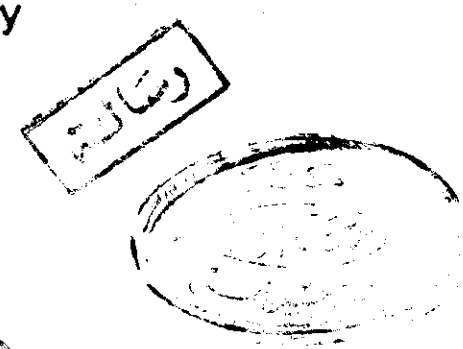

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TO

MY DEAREST SISTER

This thesis has not been previously submitted for a degree at this or any other university.

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Mohamed Soliman Ahmed.

CONTENTS

INTRODUCTION

I - Introduction

In recent years application of different pesticides were idely utilized. The use of such pesticides could overcome the ss of up to 50% of agricultural crop yields. However, a large ount of investigations showed the danger of these pesticides n the damage of the hereditary material. For example the eff-ct of a number of pesticides in inducing chromosomal aberration n both mitotic and meiotic divisions (Grover and Tyagi, 1980, mer and Ali 1980, Soliman and Al Najjar 1980) and many others. he frequency of cancer was increased among people who have been xposed to pesticides (Axelson and Sundell 1974,1977; Barthel 976; Hardell 1979; Hardell and Sandström 1979 and Infante et al., 978).

The danger of these pesticides does not necessary be due o direct contact, since it was found that some of these pestic-des may accumulate in the food to a toxic level and therefore ould be dangerous on the public health. Unterstenhöfer (1963) owed that the insecticide "Baygen" (2-isopropoxyphenyl-N-methyl rbamate) caused a considerable activity against stored products nd an public health.

Jones and Gones (1974) reported that the pesticides arse-icals, organochlorine or organobromine compounds may persist in he soils for months or years. As a result of successive treat-nt, a certain amount of pesticide accumulates in the soil which y harm the root system.

At present, hunders of chemicals are being used as pesticides. Many of them showed to have a mutagenic effect on different organisms (Amer, (1965), Amer, and Ali, (1974 & 1980), Amer, and Farah, (1974 & 1975)).

The aim of the present study is to investigate the cytological effects of three pesticides newly released on the process of mitosis on root tips of Allium cepa.. Also, to investigate their effect on the rate of germination of both Allium cepa seeds and Vicia faba seeds. These pesticides are the fungicide "Pupirimate", the insecticide "Curacron" and the herbicide "Dual".

LITERATURE_REVIEW.

II - Literature Review

. Classification and types of Pesticides :

The pesticides used in the present investigation include fungicides, insecticides and herbicides. Fungicides can be divided into four groups, according to their action; protective, predicants, protective and eradicant and chemotherapeutants fungicides (Maloln, 1956).

Protective fungicides are applied as foliage and fruit sprays or dusts to keep disease causing fungi from entering fungi. This group of chemicals include glyodin, zineb, sulfur, thiran, polyran, ziram and possibly the inorganic copper materials. These compounds must be applied before an infection starts.

Eradicant fungicides are applied as foliage sprays, seed treatment, or soil drenches to kill or inhibit fungi after they have penetrated plants. These fungicides have limited uses and are often dangerous to use on green foliage and fruits.

Protective and eradicant fungicides are used to control foliage and fruit diseases and may also perform well as seed treatments. These materials in addition to offering protecion. they are sufficiently toxic to fungus spores and mycelium to eradicate or "burn-out" established infections. Captan, folpet and dodine possess both fungicidal qualities. Other fungicides that have good protective characteristics and that may also partly eradicate established infections are maneb, niacide M, and nabam. Also, the fungicide "bupirimate" which is one of the investigated substances in the present work, has both eradicant and protective