سامية محمد مصطفى

شبكة المعلومات الجامعية

بسم الله الرحمن الرحيم

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شبكة المعلومات الجامعية

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التوثيق الإلكتروني والميكروفيلم

قسم

نقسم بالله العظيم أن المادة التي تم توثيقها وتسجيلها علي هذه الأقراص المدمجة قد أعدت دون أية تغيرات

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شبكة المعلومات الجامعية

بعض الوثائق الأصلية تالفة

سامية محمد مصطفى

بالرسالة صفحات لم ترد بالأصل

RHIZOSPHERE EFFECT ON BIODEGRADATION OF POLLUTANTS

BY

ABDELGAWAD AHMED THARWAT ALKAHAL

B.SC. (AGRIC. CHEMISTRY), AIN SHAMS UNIV., 1979

M.SC. (AGRIC. CHEMISTRY), ZAGAZIG UNIV

BENHA BRANCH , 1990

THESIS

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Department of Soils and Agricultural Chemistry

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CONTENTS

1-INTRODUCTION.

The contamination of soils and water by man-made chemicals, as a result of careless disposal techniques and also application of compounds such as herbicides and pesticides creates pollution and public health problems. Many efforts in many industrialized countries are being made to solve these pollution problems.

The use of biological systems to bring about the timely remediation or detoxification of man-made pollutants is the goal of soil bioremediation. Many man-made chemicals, can be transformad by microorganisms to harmless forms or completely mineralized to carbon dioxide and water.

The rhizosphere, in particular, is an area of increased microbial activities that may enhance transformation and degradation of pollutants in soils. The use of plants to contain or transform pollutants is called phytoremediation.

However, some organic toxic compounds still used, such as P-nitrophenol "PNP", 2,4-D and glyphosate. PNP is considered a raw material for the synthesis of various pesticides, azo dyes, explosives and

pharmaceuticles. PNP is wide-spread environmental pollutant in soils, rivers, groundwater, pesticides-treated soils, as a consequence, it has been listed as a priority pollutant by the U.S.A. Environmental Protection Agency (Keith and Telliard, 1979)

2,4-Dichlorophenoxy acetic acid "2,4-D," is a herbicide and it was banned by the Egyptian government as a result of its toxicity to the environment. The last one, Glyphosate, a broad-spectrum highly toxic herbicide, is a potent inhibitor of the shikimic acid pathway and this in turn, leads to the inhibition of protein synthesis.

Therefore, the present study is mainly concerned to accelerate the mineralization of P-nitro phenol, 2,4-D, and glyphosate by natural microbial communities in the rhizosphere of corn and soybean plants under two different types of soils. Besides, the influence of corn and soybean root exudates as well as synthetic root exudates on the mineralization process were also investigated.