



شبكة المعلومات الجامعية  
التوثيق الإلكتروني والميكرو فيلم

# بسم الله الرحمن الرحيم



**HANAA ALY**



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التوثيق الإلكتروني والميكروفيلم



# شبكة المعلومات الجامعية التوثيق الإلكتروني والميكروفيلم



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# جامعة عين شمس

## التوثيق الإلكتروني والميكروفيلم

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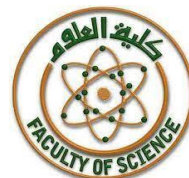


### يجب أن

تحفظ هذه الأقراص المدمجة بعيدا عن الغبار



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# **Effect of Lactic Acid Bacteria on Malathion Degradation in Vivo and in Vitro**

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## Declaration

I declare that the thesis titled Effect of Lactic Acid Bacteria on Malathion Degradation in Vivo and in Vitro is my own work and has not previously been submitted to any other university. The references were being checked whenever possible; show the extent to which I have availed myself of the work of other authors.

Shaimaa Basyouni Hassan El-Abd

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# List of Abbreviations

Abb.	Full term
ACh .....	Acetylcholine
AChE .....	Acetylcholinesterase
AD .....	Alzheimer's disease
ALP .....	Alkaline phosphatase
ALS .....	Amyotrophic lateral sclerosis
ALT .....	Alanine aminotransferase
AST .....	Aspartate aminotransferase
BTC .....	Butyrlthiocholine
EMP .....	Embden–Meyerhof–Parnas
FAO .....	Food and Agriculture Organization
FDA .....	Food and Drug Authority
G+C .....	Guanine-cytosine content
GM .....	Gut microbiota
GRAS .....	Generally regarded as safe
LAB .....	Lactic acid bacteria
MDA .....	Malathion dicarboxylic acid
MDH .....	Malate dehydrogenase
MMA .....	Monocarboxylic acid
NPICI .....	National Pesticide Information Center of United States
NS .....	Nervous system
OP .....	Organophosphates
OPCs .....	Organophosphorus compounds
OPs .....	Organophosphates
PChE .....	Pseudo cholinesterase
PD .....	Parkinson's disease
p-NPP .....	p-Nitrophenylphosphate
ROS .....	Reactive oxygen species
SEM .....	Standard error of the mean
SPSS .....	Statistical Package for Social Science
TNF- $\alpha$ .....	Tumour necrosis factor alpha
USDA .....	United States Department of Agriculture
WHO .....	World Health Organization

# ABSTRACT

Lactobacilli belong to a group of probiotics, regarded as safe microorganisms and they have several abilities such as they can reduce Reactive oxygen species (ROS) production, enhance gastrointestinal barrier function, reduce inflammation, and modulate host xenobiotic metabolism.

The detoxification potential of xenobiotic comes from the finding that lactic acid bacteria have an affinity for many toxic metals and various organic pesticides including organophosphorus (OP), making it possible to isolate them prior to their adsorption into the bloodstream and tissues.

The widespread occurrence of any foreign chemical in the environment like pesticides is a public health concern. Pesticides, of course, are poisons that are used to control insects, rodents and other undesirable animals on plants.

Worldwide, Pesticides are manufactured, transported, and applied in billions of pounds yearly, and individuals working at any stage of pesticide production, transportation, or application are at risk for OP exposure. Exposure to OP pesticides can occur through multiple pathways, including food contamination, environmental and household pollution, proximity to agricultural fields, and agricultural work.

Two strains *Lactobacillus acidophilus* and *Lactobacillus casei* studied for their degradation ability in vitro and in vivo on organophosphorus malathion.

In vitro, the two tested strains showed a high ability in malathion biodegradation which is detected by tracing the relative abundance of malathion and its degradative product by the GC- MS spectrometry. Also, by the detection of phosphatase enzyme level which was elevated in both strain in