BIOREMEDIATION OF SOME AGRICULTURAL DRAINAGE WATER USING UNTRADITIONAL TECHNIQUES

By

MANAL MOHAMMED SAID MOHAMED ALI

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A thesis submitted in partial fulfillment
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IN

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APPROVAL SHEET

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ABSTRACT

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In the present study, biodegradation of atrazin and 1.2- di-chloroethane using various bacteria strains isolated from specified contaminated area along the main drain in Qalubiya governorate was investigated. Wild bacteria were isolated from the collected water samples from different drain locations. Three strains of isolated bacteria were identified as type of ***Escherichia coli, Bacillus thurangesis, and Pseudomonas florescence*** using morphological characteristics. The efficiency of the isolated strains for the biodegradation of **atrazin** and dichloroethan (DCE) were evaluated. The biodegradation activities of the ***Pseudomonas florescence*** type isolated from water samples were found to be the most efficiency of atrazin degradation than other isolated strain from water samples. However, ***Escherichia coli*** type of isolated strains from water samples demonstrated an increase in the activity for degrading the DCE than those strains isolated from water samples. In an attempt to increase the effect of pesticide bioremediation by improved its efficiency via the addition of the DCE gene which in ***Escherichia coli*** to the higher strain for degradation of Atrazin which is *Pseudomonas* sp. The improvement was achieved by transformation between *Pseudomonas sp.* and ***Escherichia coli***. The detection of DCE gene was achieved by using specific PCR primer. The efficiency of the new strain (transformant strain) was measured at different pesticide concentrations. The transformant strain succeeded to degrade the two pesticides (atrazin and dichloroethan) with higher efficiency. Genetic fingerprinting was carried out at the molecular level by RAPD – PCR.

Key words: bioremediation – atrazin – dichloroethane - molecular level –bacterial strains – contamination area.

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