



International Association of
Scientists
www.iasnetedu.com

Available online at www.jobiost.com

IJBLS 2023; 2(3):340-340



International Journal of
BioLife Sciences

Abstract

Biodegradation of Pesticides by Microorganisms Isolated from the Soils of North-East Algeria

Zidane Branes^{1*}, Akila Abdi², Hananne Slimani¹

¹Laboratory of Biogeochemical and Ecological Analysis of Aquatic Environments, Department of Biochemistry, Faculty of Sciences, Badji Mokhtar-University, BP 12, 23000 Annaba, Algeria

²Laboratory of Biochemistry and Applied Microbiology

Received: 22 September 2023

Revised: 29 September 2023

Accepted: 6 October 2023

Abstract

Background and aim: Phytosanitary products, while reducing the damage caused to crops by phytopathogenic agents, also contribute to the degradation of the quality of different environments. The objective of our study is to isolate and identify autochthonous microorganisms involved in the bioremediation of soils contaminated by pesticides. The isolation tests were carried out on agricultural land chronically treated with pesticides.

Material and method: The characterization of the bacteria was carried out according to standardized microbiological methods (morphological and biochemical identification culture dependent) then a molecular characterization via the identification of proteins by MALDI-TOF-MS as well as the sequencing of the rDNA16S according to Sanger. The strains identified were subjected to growth tests in the presence of active substances (Abamectin, Chlorpyrifos Methyl, Deltamethrin and Thiophanate methyl) at various concentrations, in order to determine their growth phase as well as their ability to develop in the presence of these xenobiotics as the sole carbon source, and finally confirm their ability to biodegrade them in a mineral medium.

Results: The results obtained show that with Abamectin the strains of *Pseudomonas* present long growth phases, in particular the latency phase, signifying a difficulty of adaptation. The curves obtained, with the genus *Bacillus*, show particular appearances with an absence of stationary phase. Among the pesticides tested, it clearly appears that Thiophanate Methyl is very difficult to biodegrade.

Conclusion: In conclusion, we can say that the identified strains are capable of biodegrading the pesticide molecules used more or less quickly.

Keywords: *Bacteria Strains, Bioremediation, Depollution, Pesticides, Soil, Growth*

***Corresponding author:** Zidane Branes, Laboratory of Biogeochemical and Ecological Analysis of Aquatic Environments, Department of Biochemistry, Faculty of Sciences, Badji Mokhtar-University, BP 12, 23000 Annaba, Algeria.

E-mail address: djbranes@yahoo.fr