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## Selection of an actinobacteria consortium for enhancing diazinon degradation

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The biological treatment of pesticides constitutes a promising alternative for a safe, efficient and economical elimination of pesticides. In this way, biological treatments for removing organophosphorus pesticides, toxic and worldwide used pesticides from contaminated matrices are needed. The aim of this work was to select an actinobacteria consortium to enhance the diazinon degradation. For this, organophosphorus-degrading actinobacteria identified as *Streptomyces* sp. strains AC5, AC6, AC7, AC9, GA3, GA11, ISP4 and ISP13 were used. In 30mL of minimal medium containing 50 mg L<sup>-1</sup> diazinon as only carbon source, single strains of actinobacteria were added. After 96 hours of incubation, microbial growth, intracellular protein content, protein profile and the concentration of diazinon and their metabolite 2-isopropyl-6-methyl-4-pyrimidinol (IMHP) were analyzed. The results showed that biomass and protein content increased with the diazinon addition. Thus, some of the actinobacteria showed prominent bands of proteins enhanced in response to diazinon application. About 10-30% of diazinon degradation for single actinobacteria was observed and only three strains showed IMHP production. However, when mixed cultures of two, three, four and five actinobacteria strains were evaluated, the diazinon degradation was increased reaching values close to 90%. The quadruple culture composed by the strains AC5, AC9, GA11 and ISP13 presented the best diazinon degradation which occurs during the first 72 hours with a decrease of IMHP over time. Therefore, we conclude that the selected actinobacteria consortium is a promising alternative to increase the diazinon degradation.

### Biography

Gabriela Briceno Munoz has completed her PhD in Natural Resource Sciences at the age of 31 years from Universidad de La Frontera (Chile). She has developed research in environmental biotechnology like studies of pollutants degradation by actinobacteria and environmental fate of pesticides. Currently, she is a Researcher in the Scientific and Technological Bioresource Nucleus and Professor of the Department of Chemical Science and Natural Resources. She is author of chapters of books, several scientific publications and regularly is working as Referee for scientific journals.

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