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Abstract Book

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The 14th Symposium was organized on behalf of the Biodeterioration and Biodegradation Society and it is the first time this Symposium has been organized in Italy.

The Symposium is located at Hotel Capo dei Greci in Sant'Alessio Siculo, Messina, Italy.

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BIODIVERSITY OF MICROORGANISMS INVOLVED IN THE BIODEGRADATION OF PESTICIDES IN SUBTROPICAL FRESHWATER SWAMP FORESTS IN BRAZIL

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In the biome Campos Sulinos, in the State of Rio Grande do Sul (RS), Brazil, in the regions of cultivation of irrigated rice by flooding, poorly drained soils predominate, which are formed in areas of plane and smoothly undulated topography, known as subtropical freshwater swamp forests. The objective of this work was to study the biodiversity of microorganisms that degrade herbicides and insecticides, isolated in the soils of subtropical freshwater swamp forests. Within the scope of research of the Laboratory of Agricultural and Environmental Microbiology at Embrapa Clima Temperado, Pelotas, RS, bacteria were isolated from the soils that are capable of degrading the following herbicides: clomazone, glyphosate, quinclorac, pirazolsufuronetil and atrazine; and these insecticides: carbofuran, carbosulfan and fipronil. With regards to biochemical and molecular taxonomic tests, the identification of the isolated bacteria was performed, based on phylogenetic analysis of partial sequences of DNA ribossomal 16S (DNAr 16S). The following bacteria were identified, capable of degrading clomazone: one specie of the Family Enterobacteriaceae and two lineages of Bacillus megaterium; glyphosate: two species of *Pseudomonas* and one specie of *Sinorhizobium* not yet described in the literature; pirazolsufuorn-etil: six species of Pseudomonas and one of Raoultella planticola; and five species of Pseudomonas degrading carbofuran. The results show a rich diversity of bacterial species capable of pesticide degradation, with predominance of the genus Pseudomonas. These germoplasms are being conserved in organized collection, allowing for the study of the microbial diversity of these soils, the application in agricultural and biotechnological processes, and inter-institutional exchange.

Keywords: pesticides, biodegradation, rice, soil, water