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# Chemical Compound In Detergents Produce Bacteria Alterations In **Agricultural Soils**

ScienceDaily (Nov. 8, 2007) - Detergents are a pollutant agent which can be found frequently in agricultural soils. There are numerous channels for the passing of chemical components to the soils. Two primary ways are the use of distilled water (both of domestic and industrial origin), and of fertilizers based out of biological mixtures. A study done by the Institute of Water and the Department of Microbiology at the University of Granada, directed by Dr. Maria del Mar Sánchez Peinado, stress the importance of controlling the contamination of our farm grounds. This is due to the increasing presence of linear alkyl benzene sulphonate, a chemical component whose active ingredient can be found in most detergents.

The research project, carried out by

three professors, Clementina Pozo

Martínez Toledo, was financed by

the Ministry of Education. This study

understanding of agricultural soils as

compounds, as well as the impact of

such compounds on the microbial

community, and its microbiotic role

on agricultural soils with regards to

LAS biodegradation processes. The

conducted in the lowlands of Spain,

researching LAS biotransformation

Llorente . Maria Belén Rodelas

González, and Maria Victoria

has proven to be an important

advancement towards further

a receptor of these pollutant

field work of this study was

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#### The most utilized

At this moment LAS is the most used anionic surfactant in the worldwide detergent market. Its international consumption reaches values of 2,000 kt per year and by the year 2010 it is expected to reach values of up to 3,400 kt per year. However, the UGR scientists believe that its high global production, the need to use it and the toxicity of its initial forms and of some of its waste products "determine the need to control it in different environmental circumstances."

This research work goes deeply, from chemical, microbiological and molecular techniques, into the impact of LAS in the structure, function and composition of the microbial community in the soil ecosystem. Likewise, the scientists have analyzed the biodegradation capacity of this pollutant in fields with regards to the microbial community combining techniques corresponding to different knowledge areas, such as microbiology, analytical chemistry and microbiology.

With regards to agricultural soils. "the use of biological mud as a fertilizer and the great demand for water due to agricultural needs are the main means ways that LAS reaches the fields." A unique ecosystem, where biological interactions and biogeochemical processes, associated to organic material degradation and mineral elements transformation for plant nutrition are especially intense.



Field irrigation. In some cases the great demand for water due to agricultural needs has led to the use of water contaminated with chemicals from detergents for irrigation. (Credit: USDA)

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The scientists of the University of Granada warn about the negative effects of LAS "LAS could significantly alter the metabolic activity of soils, therefore affecting their fertility."

Adapted from materials provided by Universidad de Granada.

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