**Biodegradation of pesticides in soil under different environmental conditions**

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Anthropogenic organic chemicals like pesticides (2,4-Dichlorophenoxyacetic acid and Glyphosate) are deliberately released in major amounts to nearly all compartments of the environment. Soil as a complex matrix provide a wide variety of binding sites and are the major sinks for these compounds. Xenobiotics entering these complex systems may undergo various turnover processes. They can be degraded chemically (e.g. photolysis), biologically by microorganisms, volatilised leached to the groundwater, taken up by living organisms or immobilised.

The biological degradation of organic contaminants in soil generally results in the formation of metabolites, microbial biomass, CO2 and “bound” residues (non-available form). The extraction of these metabolites from soil allows the estimation of microbial activity; however, this activity could be modified thought the variation of physical, chemical or biological factors. Many studies have shown that parameters like the temperature, the organic matter content and the acidity of the soil are key factors to determinate the degradation rate of some organic contaminants and the way in which they are released into the environment.

Nowadays, enhanced transformation of contaminants into “bound” residues (non-extractable form) has been proposed as an alternative remediation method for polluted soils. Nevertheless, this kind of residues may pose a potential risk for environment due to their chemical structure and possible remobilization under different conditions. Some part of these residues may be “biogenic” because microorganisms use the carbon and nitrogen from the pollutant to form their biomass components (fatty acids, amino acids) what can result in the overestimation of the risk of “bound”residues in soil.