

DOES FRESH ORGANIC MATTER ADDITION TO AN INDUSTRIAL SOIL HAVE AN IMPACT ON SOIL STRUCTURE AND ON PAH CONCENTRATION, REPARTITION AND AVAILABILITY?

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A simulation of 10 years of maize culture was performed by incubation of industrial soil highly contaminated by polycyclic aromatic hydrocarbons (PAH) and containing exclusively anthropogenic organic matter (OM) mixed with maize residue. The aim was to evaluate the impact of the fresh OM incorporation on the soil structure and consequently on the contaminants repartition, concentration and availability. Water granulodensimetric fractionation was carried out to isolate five water stable material fractions (coarse and fine sands, coarse and fine silts and clays). The evolution of the added maize repartition in these fractions was followed using $\delta^{13}\text{C}$. Total and available PAH content in the bulk soil as well as in the different fractions were determined by solvent and Tenax® resin extraction respectively. The monitoring of soil structure showed an aggregation process in the amended soil after 3 months of incubation probably due to the promoting of microbial activity. Among the different fractions, fine silts distinguished themselves by enrichment in total organic carbon and in $\delta^{13}\text{C}$ due to the added carbon. However, the results showed no significant impact on pollution, which remained stable in terms of concentration, distribution and

availability. This experiment suggests that a culture on this soil wouldn't mobilize the pollution.