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ENVIRONMENTAL RISKS OF WASTEWATER SLUDGE DISPOSAL

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Abstract

Using sludge with dangerous substances content as an agricultural fertilizer can provide risks for humans and all environmental components. An important risk factor that had to be taken into account is the combination of sludge used as a fertilizer and agriculture activities that has its own consequences.

In this paper, a risk evaluation for sludge disposal was elaborated. The most important risk factors in the studied case, wastewater sludge used as an agricultural fertilizer, comes from the heavy metal contents, nutrient contents, the existence and types of irrigation systems for the land on which the fertilizer will be applied to, climate conditions and others. Sludge samples from a wastewater treatment plant were analyzed in order to determine their quality as fertilizer and the contaminants contents. The results showed that the heavy metals content is low, according to the 86/278 EEC Directive requirements. The sludge's Calcium, Nitrogen and Magnesium content resulted as being comparable to the ones in other EU countries. In exchange, the main nutrients, Potassium and Phosphorus have low concentrations in the analyzed sludge. From an ecological point of view, the best way would be to eliminate the organic matter and nutrients from the environment. Heavy metals, medical wastes and pathogens often found in wastewater sludge represent a considerable risk against human health and the environment. The results led to the conclusion that the environmental risks of using sludge as a fertilizer weren't high if a careful monitoring of substances contents takes place.

Key words: agriculture, risk assessment, sludge, wastewater

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