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TRANSFORMATION OF BITUMS AND FATTY ACIDS DURING COMPOSTING OF MUNICIPAL SOLID WASTES

Bekier Jakub, Drozd Jerzy

Institute of Soil Science and Agricultural Environment Protection, Agricultural University of WrocŁ aw, Grunwaldzka 53, 50-357 Wroclaw, Poland

ABSTRACT

At the present time we observe often improvement of soils by different fertility materials, such MSW composts, sludges etc. These materials consist hydrofobic substances for example bitums, which are more resistant on microbiological activity. Very significant part of them are fatty acids.

The aim of this experiment was to study the intensity of biotransformation and decomposition of bitums and fatty acids during composting of municipal wastes. To analysis was used material made of non-selectively wastes from Katowice, composted according to MUT-DANO technology. Samples were collected in different maturity stages (after 1 to 180 composting days).

The bitums have been extracted by mixture ethanol – benzen (1 : 1), acc. method described by Stevenson (1994) and Adani et al (1995). Fatty acids were extracted from compost by petroleum ether. To characterize of fatty acids forms - catalysed transesteryfication with boron trifluoride (BF_3) in methanol [Metcalfe et al. 1961] and chromatographic analysis were used.

Received results confirms that transformation of hydrophobic organic substancies contents in composted material occur on different composting stage with various intensity. It depends on properties of those substancies and composting parameters. The highest intensity of bitums and fatty acids transformation is connected with termophilic composting phase. During maturation intensity of transformation is weakness that is connected with changes of composting conditions and stabilization of microbiological

processes.

Key words: *bitums, fatty acids, transformation of organic substances*