

## ABSTRACT

Wood contaminated by polycyclic aromatic hydrocarbons (PAH) represent a serious environmental risk. Composting seems to be an effective method for decontamination of such waste material. PAHs are degraded mainly under aerobic conditions the efficiency of composting could be strongly affected by the process conditions. This work is aimed at the comparison of PAH removal by a 340-days-long composting in laboratory scale composting pilots and a 240-days-long process in a pilot scale. To set up composting piles a „green substrate“ commercially used for button-mushroom production and a grass substrate were used. The use of the grass substrate led to a higher PAHs removal (97% of the initial sum of PAHs) in comparison to the green substrate (81% of the initial sum of PAHs). Further, the effect of the size of wood particles on the PAHs removal efficiency was demonstrated. Analysis of phospholipid fatty acids showed an enhanced growth of gram-negative bacteria and fungi during the composting processes. During the degradation process the enzyme activity of laccase was detected. The ecotoxicological test using a bioluminescent bacteria *Vibrio fischeri* and a seed germination test using seeds of *Hordeum vulgare* L. showed that probably no toxic products were formed during the PAHs degradation in these experiments.