Assessment of respiration of some saprophytic fungi and their ability in mass loss of rapeseed residue

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Rapeseed is one of the most important oil seeds. The rapeseed production among oil seeds (except soybean) is the highest in the world. However, its residue is not suitable for animal feeding because of its tannin and fiber contents. Mass loss and respiration rate are important parameters in biodegradation and composting of plant residues. The objective of this study is to compare the ability of some saprophytic fungi in biodegradation of rapeseed residue. Fungal treatments (Tricoderma reesei, Tricoderma harzianum, Phanerochaet chrysosporium and Penicillium notatum) and a blank in 3 replicates were applied on rapeseed residue in a completely randomized design. Statistical analysis showed that there were significant differences (P<0.05) between mass losses of rapeseed residue by fungi. Mass loss of rapeseed residue was the highest in Phanerochaet chrysosporium treatment. It decreased to 39.42 percent in 45 days of incubation. Biodegradation of rapeseed residue was the lowest in Tricoderma harzianum treatment. Phanerochaet chrysosporium released the highest CO₂. Among fungi it had the highest respiration rate. This study showed that the ability of Phanerochaet chrysosporium in biodegradation and compost production form rapeseed residue was considerably high.

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