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Identification of Fungal Communities in Producing Compost by Windrow Method

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ABSTRACT

Considering the importance of fungal genera in producing compost from piling organic matter or biodegradable waste, this study aimed to identify the fungal species and their negative effect on human health during the compost production by windrow method. In this descriptive study, 99 compost samples were collected from the composting research site at Kashan University of medical sciences within 63 days from Oct 3 to Dec 4, 2010. Sixty-six samples were cultured to determine the fungal species and 33 samples were transferred to the laboratory to determine the physical and chemical parameters. Twenty-five fungal species were identified during the compost process including 15 saprophytes, 8 dermatophites, 1 opportunistic and 1 yeast fungi. Identified fungal species during the compost process according to their frequencies were Aspergillus spp)34.45%), Microsporium spp (18.89%), Trichophyton spp (8.89%), Yeast sp (6.67%), Mucor sp (5.56%), Penicillium sp)4.45%), Rhizopus sp (4.45%), Fusarium sp (3.34%), Cladosporium sp)3.34%), Curvularia sp (3.34%) and also other fungal species (6.62%), respectively. Considering the presence of various pathogenic fungi during the composting process, the employees of the compost factory should use individual protective devices and also due to the presence of 11 fungal species in the mature compost and their pathogenic effect, preventive measures should be taken by persons involved in the production of compost especially farmers, in order to prevent successive inhalation of spores.

KEYWORDS

Compost; Windrow; Method; Fungal Species

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