

عنوان مقاله:

Microbial diversity during composting cycles of rice straw

محل انتشار:

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خلاصه مقاله:

Mesophilic bacteria, fungi and actinomycetes varied during composting cycles with high numbers in the initial and final cycles with maximal values in compost C and D, and sharply decreased in the heating cycles. Staphylococcus aureus and Bacillus subtilis were dominated at the initial composting cycle. Whereas, at maturity Bacillus subtilis was the major followed by B.badies, B.polymixa and B.brevius and exhibited high numbers in compost C and D. Thermophilic B.stearotherophilus, Thermus sp. and other Bacillus sp. were the major in the heating cycles (20,40 days) with maximum values in compost A and D. Fusarium oxysporium and F. moniliform disappeared at the heating cycles while, Rhizopus nigricans was the major mesophilic fungus found in compost heaps with maximum value in compost D. Aspergillus fumigatus was dominated in the heating cycles with high frequency also in compost D. Trichoderma viride and T. ressei appeared only in cooling cycle and dominated in compost D. Streptomyces antibioticus, St. cinnaborinus, St. roses, Thermo dichotomicus and Thermo vulgaris exhibited high frequencies in all compost heaps in initial and cooling cycles. While, Thermo dichotomicus and Thermo vulgaris were dominated in heating cycles. Microbial succession and community dynamics started by high numbers of mesophilic bacteria, actinomycetes and fungi in the initial phase followed by high numbers of thermophilic ones in the heating phase whereas, other mesophilic organisms appeared in the final cooling phase. Mixing equal ratios of Rice, wheat, clover, faba bean and .maize straw (compost D) might be more suitable in composting of rice straw

کلمات کلیدی:

Composting, fungi, bacteria, actinomycetes, physical and chemical parameters

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