

Changes of physical and chemical characteristics during microbial composting of rice straw at various pH levels

ABSTRACT

The physical and chemical parameters were monitored for seven weeks during *Trichoderma/Aspergillus* inoculated rice straw composting at various pH levels. Three treatments (A, B, and C) were inoculated with lignocellulolytic microbial consortium (*Aspergillus niger*, F44 and *Trichoderma viride*, F26) and three were un-inoculated (D, E, and F). pH of the starting materials was amended to 5.75 (A and D), 6.75 (B and E), and 7.75 (C and F) with either acetic acid or sodium hydroxide. Three typical phases of temperature were observed both in inoculated and un-inoculated treatments during composting: mesophilic phase, thermophilic phase, and followed by cooling and maturation phase. The bioconversion were maximum in *Trichoderma/Aspergillus* inoculated treatments within 14–21 days as indicated by the profiles of electrical conductivity, bulk density, total carbon and nitrogen, and germination index. After day 21, the germination index of *Trichoderma/Aspergillus* inoculated treatment (B) without any pH amendment was increased to 74.5 indicating the maturity of compost and suitability for field application.

Keyword: Rice Straw; pH levels; *Trichoderma/Aspergillus*