

酒糟型生物有机肥初始酵解条件对木质纤维

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Effects of initial composting conditions on lignocellulosic degradation of brewer's spent grains-based bio-organic fertilizer

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摘要

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摘要 木质纤维是有机物料堆肥化过程最难降解的物质,影响着堆肥化进程。提高木质纤维降解,有利于促进堆肥的快速腐熟,提高堆肥质量。试验应用二次通用回归旋转组合设计四因素(1/2 实施)方案,研究酒糟型生物有机肥堆制初始条件对总碳、木质纤维降解的影响,旨在为木质纤维高效快速降解提供理论依据。结果表明,在本试验条件下,秸糟比对总碳、半纤维素的影响作用最大;含水率对纤维素、木质素的影响作用最大。实现总碳等较好降解效果的各因子配比方案范围为: pH值6.63~7.02,接种量0.49%~0.551%、含水量65.52%~66.68%、秸糟比41.61%~44.32%。

关键词: 酒糟型生物有机肥 酵解条件 木质纤维 降解

Abstract: Lignocellulosic is one of the most difficult degradable substances during organic composting process.

Enhancing degradation of lignocellulosic is beneficial to promote the rapid decomposition of compost and improve the quality of compost. An experiment was conducted to study the effects of original zymolytic condition of brewer's spent grains-based bio-organic fertilizer on degradation of total carbon and lignocellulosic by using the quadratic uniform-precision rotatable central composite design including four factors and five levels. The results show that the influence of ratios of straw to lees is important for the degradation of total carbon and hemicellulose, and the influence of water content is important for the degradation of cellulose and lignin. The best conditions for the degradations are that pH value is 6.63-7.02, inoculation fungal biomass is 0.49%-0.551%, water content is 65.52%-66.68%, and ratios of straw to lees is 41.61%-44.32%.

Keywords: brewer's spent grains-based bio-organic fertilizer initial zymolytic condition lignocellulosic degradation

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