

林可霉素菌渣与牛粪联合堆肥实验研究

Study on co-composting of lincomycin fermentation dregs and cattle manure

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中文摘要:

抗生素菌渣因含有抗生素残留而成为一种较难处理的废弃物, 不合理的处理方法极易造成环境污染和生态危害, 同时也会造成资源浪费。为了探讨林可霉素菌渣堆肥化处理的可行性, 设计了林可霉素菌渣与牛粪的联合堆肥实验。4个堆肥处理的林可霉素初始含量分别为1.35 mg/g(干重)、1.89 mg/g(干重)、3.52 mg/g(干重)和1.67 mg/g(干重), 堆肥后, 仅菌渣添加比例最大的堆3处理检测到0.0097 mg/g(干重)林可霉素残留。堆肥前, 5个处理的种子发芽指数分别为0%、0%、0%、0%和67.89% (对照), 堆肥后的种子发芽指数分别为78.49%、73.90%、70.02%、76.19%和89.81%, 均已达到了基本无植物毒性的水平。实验结果表明, 林可霉素菌渣与牛粪的联合堆肥产品已达到无害化和稳定化, 说明堆肥是一种可行的菌渣资源化处理方法。

英文摘要:

The antibiotic fermentation dregs were grouped into the intractable wastes because of residual antibiotics. The inappropriate treatments on these wastes could cause environmental pollution, ecological risk and resource waste. To research the feasibility of composting treatment on lincomycin fermentation dregs, a co-composting of lincomycin fermentation dregs and cattle manure was designed. The initial lincomycin concentrations of the four composting treatments were 1.35 mg/g (dry weight), 1.89 mg/g(dry weight), 3.52 mg/g(dry weight) and 1.67 mg/g(dry weight), respectively. After 41 days, the lincomycin content was 0.0097 mg/g(dry weight) in the third treatment which had the biggest proportion of the fermentation dregs and was not detected in other treatments. Before composting, the seed germination indexes(GI) were 0%, 0%, 0%, 0% and 67.89% (the control), respectively. After composting, the GI of the samples increased to 78.49%, 73.90%, 70.02%, 76.19% and 89.81%, respectively, achieved the practical non phytotoxicity level. It can be concluded that composts from lincomycin fermentation dregs and cattle manure are harmless and stable. So composting is a feasible method for making the antibiotic fermentation dregs into usable resources.

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