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Improved lignocellulose-degrading performance during straw composting from diverse sources with actinomycetes inoculation by regulating the key enzyme activities

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Abstract: This study was conducted to assess the effect of thermophilic actinomycetes inoculation on the lignocellulose degradation, enzyme activities and microbial community during different types of straw composting from wheat, rice, corn and soybean. The results showed that actinomycetes inoculation not only changed the structure of actinomycetic and bacterial community but also accelerated the degradation of cellulose, hemicellulose and lignin and increased the key enzymes activities including CMCase, Xylanase, manganese peroxidase, lignin peroxidase and laccase during composting particularly from wheat straw and rice straw. The key enzyme and physiochemical parameters which affected organic fractions degradation have been identified by redundancy analysis. The combined application of actinomycete inoculation and urea addition as a source of nitrogen was suggested to regulate the key