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Gene cloning, expression, and X-ray crystallographic analysis of a β-mannanase from *Eisenia fetida*

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Highlights

- The first report of cloning, expression and X-ray crystallographic analysis of a β-mannanase from *Eisenia fetida.*
- The amino acid sequence of Ef-Man showed similarity with endo-1,4- β -mannanases from invertebrate.
- The Ef-Man gene was expressed in *Pichia pastoris*.
- Ef-Man requires at least six subsites for efficient hydrolysis
- Overall structure of recombinant Ef-Man is similar to those of GH5 family proteins.

ABSTRACT

The Ef-Man gene was determined to consist of 1131 bp and encode a 377 amino acid protein. The amino acid sequence showed similarity with the endo-1,4-β-mannanases of *Daphnia pulex* (62%), *Cryptopygus antarcticus* (64%), *Crassostrea gigas* (61%),