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Isolation and Identification of Feather Degrading-Bacteria for Biotechnological Application of Keratinaceous Protein Waste

Hong-Joo Son, Keun-Ki Kim, Han-Soo Kim and Yong-Gyun Kim

Department of Biotechnology, Miryang National University

Feathers, which are almost pure keratin protein, are produced in large amounts as a waste by-product at poultry-processing plants. Millions of tons of feathers are produced annually worldwide and represent a potential alternative to more expensive dietary ingredients for animal feed. It is generally treated by high pressure and temperature to be feather meal used as an animal feed. However, this processes are expensive and also destroy certain amino acids, yielding a product with poor digestibility and variable nutrient quality. Keratinolytic enzymes may have important uses in biotechnological processes involving keratin-containing wastes from poultry and leather processes. In this study, screening and identification of keratin-degrading bacteria were investigated. Five keratin-degrading bacterial strains(F3-1, F3-4, F7-1, C1-1, C1-2) were isolated from compost and decayed chicken feather. On the basis of morphological, physiological studies, and Biolog system, all isolates were identified as the genus *Bacillus*. Among them, the strain F7-1 had the highest feather-degrading ability and was selected for further taxonomical study. Phylogenetic analysis of strain F7-1 based on comparison of 16S rDNA sequences revealed that this strain is closely related to *Bacillus megaterium*.

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