Degradation of keratin by keratinase and disulfide reductase from Bacillus sp. MTS of Indonesian origin

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Abstract	Bacillus sp. MTS isolated from Tangkuban Perahu crater Indonesia was found capable of degrading whole chicken feather effectively. The bacteria produced extracellular alkaline keratinase and disulfide reductase. When grown in feather media, Bacillus sp. MTS produced multi-fractions of both enzymes. The purified enzymes worked optimally at alkaline pHs, for keratinase at pH 812, and for disulfide reductase at pH 810. Optimum temperature for the extracellular keratinase was within 4070 degrees C, while that for disulfide reductase was 35 degrees C. When the purified keratinase was mixed with purified disulfide reductase, enzyme activities on the natural keratin substrates (feather and wool) were greatly increased compared to activity of each enzyme alone, activity of proteinase K or activity of purified keratinase in the presence of reducing agents. The mutual action of the two enzymes on feather was examined by Scanning Electron Microscope. (C) 2012 Elsevier Ltd. All rights reserved.
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