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A Cellobiohydrolase from a Thermophilic Actinomycete, *Microbispora bispora*

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ABSTRACT

A screening for thermophilic cellulolytic microbes from the soils of volcanic areas yielded several potentially useful bacteria. Of these, *Microbispora bispora* was the most useful. The enzyme complex was stable at 60–65°C. Analysis of the complex indicated the presence of endoglucanase, cellobiohydrolase, and β-glucosidase components. The two former enzymes were secreted, whereas the β-glucosidase was cell-associated. The cellobiohydrolase was of particular interest, since this type of enzyme has rarely been reported from bacteria, and therefore was characterized in greater detail. Its mechanism of action was clarified through its action pattern towards soluble (and reduced) oligosaccharides. Synergism was observed between the cellobiohydrolase and endoglucanases during attack on crystalline cellulose (cotton and Avicel). This represents one of the first demonstrations of synergism in a procaryotic cellulase system.