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Journal of Crystal Growth 196 (1999) 313–318

JOURNAL OF CRYSTAL GROWTH

Crystal growth and preliminary X-ray study of glutamic acid specific serine protease from *Bacillus intermedius*

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Abstract

The glutamic acid specific protease (glutamyl-endopeptidase) from *Bacillus intermedius*, strain 3-19, was isolated and purified using ion exchange chromatography on CM-cellulose and Mono-S FPLC column. The conditions for crystallization of the enzyme have been discussed. The crystals of enzyme were grown using hanging-drop vapor-diffusion technique. Crystals belong to the space group C2 with unit cell parameters of $a = 61.62$ Å, $b = 55.84$ Å, $c = 60.40$ Å, $\beta = 117.6°$ X-ray diffraction data to 1.68 Å resolution were collected using synchrotron radiation (EMBL, Hamburg) and an imaging plate scanner. © 1999 Elsevier Science B.V. All rights reserved.

Keywords: Protease; Glutamyl-endopeptidase; Crystallization; X-ray study

1. Introduction

The pancreatic-type serine proteases have been classified into four main groups on the basis of their specificity. Trypsin-like proteases cleave polypeptide chains after positively charged residues, the chymotrypsin-like ones cleave after large hydrophobic residues, and elastase-like after small hydrophobic residues. More recently a group of acidic-amino-acid-specific (Glu, Asp-specific) proteases have been characterized. These endopeptidases, isolated at first from *Staphylococcus* and then from *Actinomycetes*, *Streptomycetes* and *Bacilli*, cleave peptide bonds on the carboxyl side of either glutamic or aspartic acid [1–6]. Some of these enzymes, for instance, epidermolytic toxins A and B and interleukin-1β converting enzyme, have important biological roles being implicated in several disease states and in viral processing [7–9]. Due to their specificity Glu, Asp-endopeptidases are used very extensively for fragmentation of proteins prior to amino acid sequencing, for enzymatic synthesis

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PII: S0022-0248(98)00874-4