Crystallization and preliminary X-ray crystallographic studies on a Kunitz-type potato serine protease inhibitor

Author(s) Thomassen, Ellen A. J.; Pouvreau, Laurice; Gruppen, Harry; Abrahams, Jan Pieter
Author(s) at UniBasel Abrahams, Jan Pieter ;
Year 2004
Title Crystallization and preliminary X-ray crystallographic studies on a Kunitz-type potato serine protease inhibitor
Journal Acta Crystallographica. Section D, Biological Crystallography
Volume 60
Number Pt 8
Pages / **Article-Number** 1464-6
Mesh terms Crystallization; Crystallography, X-Ray; Peptides, chemistry; Plant Proteins, chemistry; Solanum tuberosum, chemistry
Interest in protease inhibitors has been renewed because of their potent activity in preventing carcinogenesis in a wide variety of in vivo and in vitro model systems. Potato tubers contain a wide range of such protease inhibitors. In cv. Elkana potato tubers, protease inhibitors represent about 50% of the total amount of soluble protein. Potato serine protease inhibitor (PSPI), one of the isoforms of the most abundant group of protease inhibitors, is a dimeric double-headed Kunitz-type inhibitor. No high-resolution structural information on this type of inhibitor has so far been obtained, as all currently known structures are of the monomeric single-headed or monomeric double-headed types. Crystals were grown in 0.1 M HEPES pH 7.5, 10% PEG 8000 and 8% ethylene glycol complemented with 9 mM 1-s-octyl-beta-D-thioglucoside or 0.1 M glycine. Data were collected from a single crystal under cryoconditions to 1.8 A resolution. The protein crystallized in space group P2(1), with unit-cell parameters a = 54.82, b = 93.92, c = 55.44 A, beta = 100.7 degrees; the scaling Rsym is 0.044 for 45,456 unique reflections.
Publisher Munksgaard
ISSN/ISBN 0907-4449

Digital Object Identifier DOI 10.1107/S0907444904013484
PubMed ID http://www.ncbi.nlm.nih.gov/pubmed/15272178
ISI-Number WOS:000222791700023
Document type (ISI) Journal Article