

Publication

Structure of a post-translationally processed heterodimeric double-headed Kunitz-type serine protease inhibitor from potato

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Potato serine protease inhibitor (PSPI) constitutes about 22% of the total amount of proteins in potato tubers (cv. Elkana), making it the most abundant protease inhibitor in the plant. PSPI is a heterodimeric double-headed Kunitz-type serine protease inhibitor that can tightly and simultaneously bind two serine proteases by mimicking the substrate of the enzyme with its reactive-site loops. Here, the crystal structure of PSPI is reported, representing the first heterodimeric double-headed Kunitz-type serine protease inhibitor structure to be determined. PSPI has a β -trefoil fold and, based on the structure, two reactive-site loops bearing residues Phe75 and Lys95 were identified.

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