

Characterization of a trypsin inhibitor with antifungal properties from *Phaseolus vulgaris* cv IAC-Carioca seeds

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Several plant proteins capable of inhibiting fungal growth *in vitro* have been isolated and characterized, including proteinase inhibitors. The aims were to purify and characterize a trypsin inhibitor from *P. vulgaris* seeds (PvTI), which was isolated using ion exchange, gel filtration and reverse phase chromatography. This inhibitor exhibited an apparent molecular mass of approximately 10 kDa in SDS-PAGE. The  $K_i$  value against bovine trypsin was  $3 \times 10^{-8}$  M and the inhibitory activity was thermostable. The N-terminal sequence of PvTI was GDDVKSA-CCDTCLCTKSEPPTCRCVDV and showed high homology with other Bowman-Birk type inhibitors. PvTI exerted a significant inhibitory effect on the mycelial growth of *Fusarium moniliforme* and *Colletotrichum graminicola* at a concentration of 500 µg/mL, but did not inhibit spore germination. Similar results were found for *Ustilago scitamina*. However, this inhibitor showed no effect against bacteria *Xanthomonas axonopodis* pv *passiflorae* and *Xanthomonas axonopodis* pv *phaseoli* at inhibitor concentrations per assay of 100 and 300 µg/mL. This study could contribute to the characterization of other trypsin inhibitors, elucidating their role in plant defense.

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