Nucleotide and deduced amino acid sequence of an aspartic proteinase inhibitor homologue from potato tubers (*Solanum tuberosum* L.)

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cDNA sequences of any aspartic proteinase inhibitors have not been reported so far. Two protein inhibitors of aspartic proteinases were isolated from potato tubers and sequenced (1–3). In order to find related inhibitors, several cDNA clones have been isolated from a potato tuber lambda gt11 cDNA library encoding aspartic proteinase inhibitor homologues. The longest, full-length clone contains an open reading frame of 660 bp coding for a protein of 220 amino acid residues. The deduced protein sequence shows about 94% and 99% similarity to the novel inhibitor of cathepsin D (3) and potato cathepsin D inhibitor (2), respectively. The presumed signal peptide and two polyadenylation signals are underlined.

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                                                                CCACAAATAAAATCAAT   -1

ATGATGAAGTGTTTATTTTTGTTATGTTTGTGTTTGCTTCCCATTGTGGTGTTTTCATCAACTTTCACTTCCCAAAATCTCATTGACCTA    90
 M  M  K  C  L  F  L  L  C  L  C  L  L  P  I  V  V  F  S  S  T  F  T  S  Q  N  L  I  D  L     30

CCCAGTGAATCTCCTCTACCTAAGCCGGTACTTGACACAAATGGTAAAGAACTCAATCCTGATTCGAGTTATCGCATTATTTCCATTGGT   180
 P  S  E  S  P  L  P  K  P  V  L  D  T  N  G  K  E  L  N  P  D  S  S  Y  R  I  I  S  I  G     60

AGGGGTGCCTTAGGTGGTGATGTATACCTAGGAAAGTCCCCAAATTCAGATGCCCCTTGTCCAGATGGCGTATTCCGTTACAATTCCGAT   270
 R  G  A  L  G  G  D  V  Y  L  G  K  S  P  N  S  D  A  P  C  P  D  G  V  F  R  Y  N  S  D     90

GTTGGACCTAGCGGTACACCCGTTAGATTCATTCCTTTATCTGGAGGTATATTTGAAGATCAACTACTCAACATACAATTCAATATTCCA   360
 V  G  P  S  G  T  P  V  R  F  I  P  L  S  G  G  I  F  E  D  Q  L  L  N  I  Q  F  N  I  P    120

ACAGTGAAATTGTGTGTTAGTTATACAATTTGGAAAGTCGGAAATCTAAATGCATATTTTAGGACGATGTTGTTGGAGACGGGAGGAACC   450
 T  V  K  L  C  V  S  Y  T  I  W  K  V  G  N  L  N  A  Y  F  R  T  M  L  L  E  T  G  G  T    150

ATAGGGCAAGCAGATAGCAGCTATTTCAAGATTGTTAAATTATCAAATTTTGGTTACAACTTATTGTATTGCCCTATTACTCCCCCTTTT   540
 I  G  Q  A  D  S  S  Y  F  K  I  V  K  L  S  N  F  G  Y  N  L  L  Y  C  P  I  T  P  P  F    180

CTTTGTCCATTTTGTCGTGATGATAACTTCTGTGCAAAGGTGGGTGTAGTTATTCAAAATGGAAAAAAGGCGTTTGGCTCTTGTCAACGAA   630
 L  C  P  F  C  R  D  D  N  F  C  A  K  V  G  V  V  I  Q  N  G  K  R  R  L  A  L  V  N  E    210

AATCCTCTTGATGTCTTATTCCAGGAAGTTTAGTAACAAATAATGCCTGCAGATAGACTATACTATGTTTTAGCCTGCCTGCTGGCTAGC   720
 N  P  L  D  V  L  F  Q  E  V  *  *                                                           220

TACTATGTTATGTTATGTTGTAAAATAAACACCTGCTAAGGTATATCTATATATATTTTAGCATGGCTTTCTCAATAAATTGTCTTTCCT   810
TAAAAAAAAAAAAAA                                                                              825
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