

# **Polyamine-bound trypsin inhibitors in sweet potato storage roots, sprouted roots and sprouts**

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## **Abstract**

Trypsin inhibitors (TIs) were purified from storage roots, sprouted roots and sprouts of sweet potato variety Tainong 57 (T57) by ammonium sulfate precipitation and Sephadex G-75 chromatography. Active fractions were further purified by affinity chromatography on trypsin-Sepharose 4B. Activity staining of TIs on a 15% SDS-PAGE gel revealed TI bands (73, 38 and 22 kDa) in storage roots, sprouted roots and sprouts. TIs, purified by the affinity column, were hydrolysed by mixing with an equal volume of 12 N HCl at 110 °C for 16 h. The hydrolysates were benzoylated with benzoyl chloride in alkaline condition, and the polyamines (PAs) were identified by HPLC using 64% methanol as an eluent. Cadaverine, spermidine and spermine were found in all TI hydrolysates with different amounts in storage roots, sprouted roots and sprouts. TIs purified from the sprouts had higher PA titres, which were expressed as nmol/mg protein, than those from sprouted roots or storage roots. The possible physiological roles of PA-bound TIs are discussed.