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Isolation and Partial Characterization of a Trypsin Inhibitor

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One of the best known of blood sucking animals is European leech which has been used in medicine for long time. There are many pharmacologically active substances, especially protease inhibitors such as hirudin, antistasin, bdellin, eglin, hirustasin, all of which have been isolated from *Hirudo medicinalis*. We have screened various protease inhibitors from the Korean native leech *Hirudo nipponia* and isolated trypsin inhibitory activity in the extract of acetone precipitation. The peptides were purified by Sephadex G-75 gel filtration, anion exchange, and reversed phase high performance liquid chromatography. The protein has a molecular weight of about 16kDa estimated by SDS polyacrylamide electrophoresis and mass spectrometry. The amino acid residues of N-terminal region were sequenced. The result reveals that the inhibitor has 78% sequence similarity with bdellin B-3 that is known for a leech derived strong trypsin inhibitor. Further studies are in progress to ascertain the complete sequence and functional properties of this interesting protein with the long range goal of application as a therapeutic agent.

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Purification and Characterization of Mucin Type Protein

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Leech skin is coated by a conspicuous amount of slime material which forms gel. This mucus is very important in the lives of these soft-bodied animals. It subserves a variety of functions, including lubrication, respiration, osmoregulation, excretion, defence against bacteria and physical attack. Mucin type glycoprotein, the major component of this gel forming mucus complex were isolated by sequential chromatography on Sepadex G-200, Separose CL-2B with 6M urea. Threonine, serine, valine, glycine and alanine comprised 50% of the total amino acids. Unlike serum glycoproteins, the physical properties and biological functions of this mucin are dominated by their high carbohydrate content (60 to 70% by weight).