Purification and characterization of cathepsin D from herring muscle (Clupea harengus) -
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Cathepsin D was purified and concentrated 469-fold from a homogenate of Clupea harengus muscle. The purified enzyme is a monomer with a molecular weight of 38 000-39 000. It is inhibited by pepstatin and has optimal activity at pH 2.5 with hemoglobin as the substrate. The isoelectric point is at pH 6.8. Glycosidase treatment and binding to Concanavalin A indicated that the enzyme contains one N-linked carbohydrate moiety of the high-mannose type per molecule. The first 21 amino acid residues of the N-terminal showed high similarity to cathepsin D from antarctic icefish liver (Chionodraco hamatus) and trout ovary (Onchorhynchus mykiss). Digestion of the P-chain of oxidized insulin resulted in preferential cleavage at Leu(15)-Tyr(16), (47%), Tyr(16)-Leu(17) (34%) and Ala(14)-Leu(15) (18%). Incubation with myofibrils from herring muscle at pH 4.23 showed that the enzyme mainly degraded myosin, actin and tropomyosin. (C) 2001 Elsevier Science Inc. All rights reserved.

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