Purification and characterization of elastase from the pyloric caeca of rainbow trout (Oncorhynchus mykiss)

1. An elastase-like enzyme was purified from the pyloric caeca of rainbow trout by hydrophobic interaction, cation exchange and gel-filtration chromatography. 2. The approximate molecular weight of the elastase was 27 kDa and the isoelectric point was remarkably basic. 3. The pH optimum of this enzyme was 8.0, when assayed with Succinyl-Ala-Ala-Ala-p-Nitroanilide. 4. When assayed with Succinyl-Ala-Ala-Ala-p-Nitroanilide, the enzyme activity had a temperature optimum of 45 degree C, and the enzyme was stable up to this temperature. 5. The trout elastase exhibited a higher specific activity than porcine elastase against Succinyl-Ala-Ala-Ala-p-Nitroanilide and elastin-orcein. 6. The trout elastase was inhibited by elastatinal, PMSF, TPCK, SBTI and Bowman-Birk inhibitor.

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In vitro protein digestion in fish
A project has been carried out with the aim of developing a rapid and reliable method for predicting the protein digestibility in fish feed. The method should replace present methods using experimental animals like rats, minks and fish. These methods take up to several weeks until the result is known. The results in the present project show that an in vitro method can give a result after a one day assay only. The project has been successfully ended by submission of a thesis for an industrial ph.d., which has been approved.

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Fiskernes Fiskeindustri

Aalborg University
Period: 01/02/1994 → 31/03/1997
Number of participants: 2

Project participant:
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Project