

Title Properties of liver protein from different fish species
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Abstract

In Alaska there is over one million metric tons of fish processing byproducts produced annually. One of the major byproducts is viscera which contain substantial quantities of liver. Most of the liver is made into fishmeal and oil or discarded in Alaska. During fish processing, liver can easily be separated from other byproducts and used to make other products. The purpose of this study was to examine properties of liver protein derived from six different species of fish. Fish were collected over the course of a year from commercial fish processing plants or as part of harvests from fish surveys. For each species the livers from a minimum of six different fish were immediately separated and frozen. Livers were obtained from Arrowtooth Flounder (AF), Pacific Halibut (PH), Alaska Pollock (AP), Pink Salmon (PS), Flathead Sole (FH) and Spiny Head Rock Fish (RF). Analysis of samples included, protein content, amino acid profile, mineral content, and protein molecular weight by SDS gel electrophoresis. Average liver protein content of PS was 18.6%, PH 13.2%, AF 14.0%, RF 11.9%, and AP 7.1%. Large differences in liver lipid content between species were found. The amino acid profiles of liver protein from different species were similar in many respects. The average lysine content ranged from 8.0 for AF and PS to 5.8 Mole% for AP. Methionine content ranged from 3.2 for PH to 2.2 Mole% for FH. Evaluation of samples using SDS polyacrylamide electrophoresis indicated most liver proteins had molecular weights less than 120,000 and greater than 10,000. Several protein bands with similar molecular weights were observed in all samples. Liver protein from six different species of fish were found to have many similar chemical properties and many desirable nutrition properties.