Extraction and partial purification of *Salmo salar* (Atlantic salmon) digestive lipases

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*Salmo salar* is one of the cultivated species by the Chilean aquaculture industry. Its processing generates a large volume of biological wastes (head, skin, and viscera) that could be used as source for obtaining products of higher value compared to fish meal in which they are transformed today. Previous work has reported the presence of different enzymes in the digestive tract of juvenile and adult fish, among which are found lipases (EC 3.1.1.3). Lipase, a class of hydrolases, catalyzes a wide spectrum of chemical reactions being the most known the triglyceride hydrolysis. Lipases find uses in different industries from food/feed production to biodiesel production. The study of the behavior of enzymes in fish digestive tract in some of these processes is limited by the complexity of their extraction and purification. In this work the purification of intestinal lipases from salmon was optimized; the process consisted in the precipitation with ammonium sulfate of the protein extracted from the delipidated tissue, and the following separation by 2 chromatographic steps [hydrophobic interaction chromatography (Butyl Sepharose 4 FF) – ionic exchange chromatography (DEAE FF)] eluting with NaCl gradients. The specific lipase activity (SLA), measured from the fatty acid released after the incubation with olive oil, in the initial extract was 2.2 U/g. The purification process allowed to obtain a fold purification of 45.5, with a percent yield of 15.

**Keywords:** lipase, chromatography, fatty acids, triglycerides, salmon, protein purification.

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