

**A STUDY ON EXTRACTING GELATIN FROM BIG EYE
TUNA (*Thunnus obesus*) SKIN:
AN ALTERNATIVE TO MAMMALIAN GELATIN**

A dissertation submitted to the
Faculty of Animal Science and Export Agriculture
UvaWellassa University
in partial fulfillment of the requirement of
the degree of
Bachelor of Aquatic Resources Technology

By

ADAMPULLE MUHAMMADU AZHAR

**Aquatic Resources Technology Degree Programme
Faculty of Animal Science and Export Agriculture
UvaWellassa University
2013**

ABSTRACT

Gelatin represents a major source of protein biopolymer with many applications in food, pharmaceutical, photographic and cosmetic industries. Fish skins are major by-products of the fishery and aquaculture industries with high collagen content that can be used to produce fish gelatin. The Objective of this study was adding value to the fish processing skin waste in fish processing industry and to develop the best processing method for extracting gelatin. Gelatin was extracted from big eye tuna (*Thunnus obesus*) skin by alkaline pretreatment followed by acid extraction method. Different acid (sulfuric acid) and alkaline (sodium hydroxide) concentrations (0.1 %, 0.2 %, and 0.3 %) and soaking time (48 h and 72 h) were used for gelatin extraction.

Big eye tuna skin gelatin was subjected for different characters such as yield, gel strength, melting point, color, odor, pH and proximate composition for evaluating best method. Based on highest yield, gel strength and melting point, sample treated with 0.1 % of NaOH and HCl for 48 h was selected as best sample. The most appropriate sample was compared with commercially available gelatin product. The gel strength of selected big eye tuna skin gelatin (260 Bloom) was higher than bovine gelatin (200 Bloom), while melting point was lower (24.2⁰C). 19.67 % yield was obtained. Proximate composition of big eye tuna skin gelatin sample was 15.2 % moisture, 82.17 % crude protein and 0.97 % crude lipid respectively. Gelatin sample of Big eye tuna fish skin treated using concentration of 0.1 % NaOH and H₂SO₄, with a soaking time of 48hrs at 60 ⁰C hot water extraction for 5 hours is concerned as most suitable method for gelatin production.

Key words: Fish gelatin, Big eye tuna, Fish skin, Characteristics