Antioxidant and Metal Chelation Activities of Fish Protein Hydrolysates Produced from *(Scomber japonicus)* Pacific Mackerel Canned Fish Processing Fin Wastage

T.K. Ediriweera, A.L.Y.H. Aruppala and E.D.N.S. Abeyrathne*

Department of Animal Science, Uva Wellassa University, Badulla, Sri Lanka

Pacific chub mackerel *(Scomber japonicus)* is a salience fish species which highly utilized in canned fish processing. In production, around 30% of raw fishes are discarded as wastes which lead to economic losses and environmental pollution. Hence, production of Fish Protein Hydrolysates (FPH) utilizing fish wastes, which contains bioactive compounds may be an ideal remedy. In this study *Scomber japonicus* canned fish processing fin wastage was collected and blended. Aqueous extracts of Fish Protein Concentrates (FPC) were produced with 04 different ratios as sample: distilled water, 1:1, 1:2, 1:3 and 1:4. Crude extraction was observed using 10% SDS-PAGE. Extracted FPCs were hydrolyzed using Papain, Pepsin, Trypsin and Protease enzymes (1:100) under 370C with their optimum pH conditions for 0, 3, 6, 9, 12 and 24 hours followed by heat inactivation at 1000C for 15 minutes. Hydrolyzed samples were lyophilized and observed for antioxidant activities by TBARS and DPPH scavenging assay and metal chelation activity by Fe (II) chelating activity. According to the observations there was no significant difference between the 04 ratios in yield *($p > 0.05$)*. So 1:1 ratio was selected with periods as Papain-24 h, Pepsin3 h, Trypsin-3 h, Protease-0 h for further experiments. According to the results obtained from TBARS assay, none of the FPHs showed antioxidant properties *($p < 0.05$)*, instead all showed high oxidative activity. However DPPH scavenging assay showed significance difference among the treatments *($p < 0.05$)*. Results obtained by Fe (II) chelation activity analysis revealed that the produced FPHs show Fe(II) releasing activity instead of chelation (1.84, 13.99, 16.48, 1.84%,), while FPHs produced according to standard protocol showed a slight chelating activity (0.73%). This concludes the FPHs produced using aqueous extracts of *Scomber japonicus* do not contain strong antioxidant activity and they have iron releasing properties.

Keywords: Fish Protein Hydrolysates (FPH), Enzymse Treatment, Antioxidant, Metal Chelating