

**EXTRACTION OF BIOACTIVE PROTEINS FROM  
SCAVENGER FISH (*Pterygoplichthys pardalis*)  
HARVESTED AT DIGANA, CENTRAL PROVINCE,  
SRI LANKA**

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by

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## ABSTRACT

*Pterygoplichthys pardalis* (Scavenger fish) survive by competing with native biota. This species is an omnivore which threatens to endemic fish species and inland aquaculture industry. However, these fishes contain compounds which autolysis proteins under low temperatures. Objective of this study was to check the difference in the water extracted and salt extracted proteins which can be used as bioactive compounds separated from scavenger fish after slaughtering, stored at 4°C for 24 hrs. Female fishes (n=3) were collected from local reservoir and slaughtered in the field. Slaughtered fish which stored at 4 °C were separated in to 04 main components as Flesh, GI tract, Mucus and Other organs in 0, 3, 6, 9, 12 and 24 hour of storing. Separated parts were homogenized with distilled water (1:4 ratios) and centrifuged to collect the supernatant. Level of separation was observed using SDS PAGE gel electrophoresis. Then, samples were lyophilized and used for further analysis. Antioxidant activity was measured using TBAR assay and DPPH scavenging activities. SDS PAGE images confirmed that there were no differences in the extracted compounds after 03 hour of slaughtering. According to the TBARS assay, both water and salt extractions from Flesh, Mucus and Other organs had stronger antioxidant properties compared to the control ( $p < 0.05$ ). While DPPH scavenging results of water extracted proteins showed over 75% activity (Other organs-  $91.26 \pm 8.28\%$ , Flesh-  $87.07 \pm 4.49\%$ , GI-  $86.20 \pm 3.94\%$ , Mucus-  $75.20 \pm 4.09\%$ ) but no difference was observed among the extracted compounds ( $p > 0.05$ ). Salt extracted proteins showed highest antioxidant activity than water extractions with significant difference (Other organs-  $82.35 \pm 10.4\%$ , Flesh-  $61.16 \pm 12.75\%$ , GI-  $89.16 \pm 2.28\%$ , Mucus-  $70.6 \pm 18.8\%$ ) ( $p < 0.05$ ). All the water extracted proteins showed lower  $Fe^{2+}$  chelating activity and salt extracted proteins showed some amount of  $Fe^{2+}$  chelating activity compare with the water extractions and OO showed the highest activity with the significant difference ( $P < 0.05$ ). All the water and salt extractions showed good antibacterial activity against locally isolated *Salmonella* and *E.coli* when compare to the Augmentin® as the positive control. Because of having different functional properties, those extractions can be used as preservatives by conducting further analysis.

Key words: Scavenger fish, Antioxidant properties, TBARS assay, DPPH assay