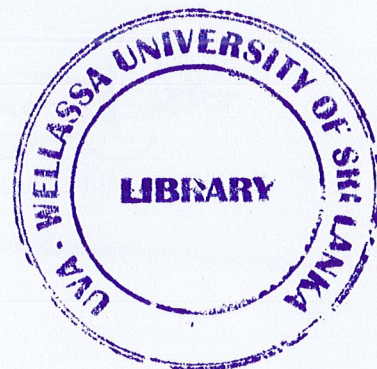


**DEVELOPMENT OF BIOACTIVE PEPTIDES  
FROM *Hilsa kelee* FISH CRUDE PROTEIN AND  
CHECKING THE FUNCTIONAL PROPERTIES OF  
ITS HYDROLYSATES**



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## ABSTRACT

*Hilsa kelee* also known as “Karattaya” is a marine pelagic, seasonal fish species which has a high catch during April to September. It mainly used to produce fish meal and baits even though it has high nutrients. Nevertheless, it has a low market value and demand due to its bony structure leading to high wastage. Production of fish Protein Hydrolysates (FPH) can be an alternative. Therefore, the study was designed to determine the functional properties of FPH produced from, *Hilsa kelee* fish crude protein (water and salt) and determine it's the functional properties of its hydrolysates. Crude protein 20mg/ml concentrated extractions were mixed with Protease from *Bacillus licheniformis* (60°C, pH 6.5-8.5), Papain from papaya latex (65°C, pH 5.8-7.0),  $\alpha$ -chymotrypsin from bovine pancreas (50°C, pH 7.8) and Elastase from porcine pancreas (37°C, pH 7.8-8.5) separately in 1:100 ratios (enzyme: substrate =1:100). Each sample was incubated under different time period (0, 3, 6, 9, 12 and 24hrs) in their optimum temperatures. According to 15% SDS-PAGE analysis Protease – 3 h for both water and salt extraction, Papain – 6 h for water extraction and 3h for salt extracted FPC,  $\alpha$ -chymotrypsin – 6h for both water and salt extraction and Elastase – 6h for both water and salt extraction was determined as the best time combinations. TBARS assay, Ferrous chelation activity and antibacterial activities by agar well diffusion method. All treatments were triplicated (n=3). According to the results obtained from TBARS assay, FPHs from Papain showed highest antioxidant properties (5.84±0.05 MDA mg/l in water extraction) (p>0.05). Fe (II) chelation activity analysis revealed the FPHs produced from  $\alpha$ -chymotrypsin showed the highest chelation (20.81±0.02% in water extraction) (p<0.05). All hydrolysates did not show any antimicrobial activities (p>0.05). Thus, FPHs produced using  $\alpha$ -chymotrypsin-3 h contain strong antioxidant activity while others did not contain antimicrobial activity nor iron chelating properties.

Keywords: *Hilsa kelee*, Fish Protein Hydrolysates (FPH), Antioxidant, Metal Chelating, Antibacterial activity