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EXTRACTION, CHARACTERIZATION AND EVALUATION OF ACID-SOLUBLE COLLAGEN FROM HILSA (*Tenualosa ilisha)* SCALES: AN APPROACH TOWARDS BIORESOURCE VALORIZATION

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This study investigates acid-soluble collagen (ASC) extraction from Hilsa fish (Tenualosa ilisha) scales, an underutilized bioresource in South Asia. Scales showed high protein (24.84%) and ash (21.43%) content, suitable for collagen extraction. Characterized as type I, the collagen exhibited $\alpha 1$, $\alpha 2$, β, and γ chains (50-250 kDa) with glycine, proline, and lysine dominance. Ultraviolet spectrophotometer (UV) and Fourier Transform Infrared spectroscopy (FTIR) confirmed structural integrity, while antioxidant activity was demonstrated through 2,2-diphenyl-1-picryl-hydrazyl (DPPH) and 2,2-azinobis-3-ethylbenzothiazoline-6-sulfonate (ABTS) assays. These findings highlight innovative waste valorization for fishery by-products.

Keywords: *Collagen Extraction, Tenualosa ilisha, Amino Acid, FTIR Spectroscopy, Biomedical Applications*