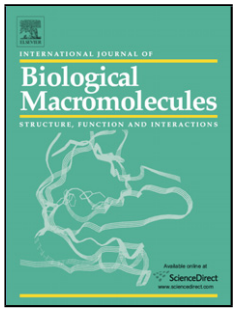

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PII: S0141-8130(15)00537-1
DOI: http://dx.doi.org/doi:10.1016/j.ijbiomac.2015.08.002
Reference: BIOMAC 5270

To appear in: *International Journal of Biological Macromolecules*

Received date: 3-4-2015
Revised date: 29-7-2015
Accepted date: 1-8-2015

Please cite this article as: J. Kozlowska, A. Sionkowska, J. Skopinska-Wisniewska, K. Piechowicz, Northern pike (*Esox Lucius*) collagen: extraction, characterization and potential application, *International Journal of Biological Macromolecules* (2015), http://dx.doi.org/10.1016/j.ijbiomac.2015.08.002

Northern pike (*Esox Lucius*) collagen: extraction, characterization and potential application

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Keywords: fish scale, *Esox Lucius*, acid soluble collagen, pepsin soluble collagen, collagen film, surface properties

Abstract

Acid soluble collagen (ASC) and pepsin soluble collagen (PSC) from the scales of northern pike (*Esox Lucius*) were extracted and characterized. It was the first time that this species was used as sources of collagen. FT-IR and amino acid analysis results revealed the presence of collagen. Glycine accounts for one-third of its amino acid residues and specific for collagen amino acid - hydroxyproline - is present in isolated protein. The content of imino acid: proline and hydroxyproline in ASC and PSC was similar (12.5% Pro and 6.5% Hyp). Both ASC and PSC were type I collagen. The denaturation temperature of ASC and PSC were 28.5 °C and 27 °C, respectively. Thin collagen films were obtained by casting of collagen solution onto glass plates. The surface properties of ASC and PSC films were different - the surface of ASC collagen film was more polar and less rough than PSC and we can observe the formation of collagen fibrils after solvent evaporation. ASC films showed much higher tensile properties than PSC. The obtained results suggest that northern pike scales has potential as an alternative source of collagen for use in various fields.