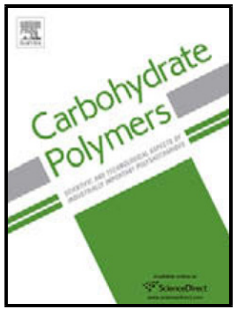

Title: Optimization of high purity chitin and chitosan production from *Illex argentinus* pens by a combination of enzymatic and chemical processes

Authors: José Antonio Vázquez, Diana Noriega, Patricia Ramos, Jesus Valcarcel, Ramon Novoa-Carballal, Lorenzo Pastrana, Rui L. Reis, Ricardo I. Pérez-Martín

PII: S0144-8617(17)30708-7
DOI: http://dx.doi.org/doi:10.1016/j.carbpol.2017.06.070
Reference: CARP 12458

To appear in:

Received date: 15-5-2017
Revised date: 13-6-2017
Accepted date: 19-6-2017

Please cite this article as: Vázquez, José Antonio., Noriega, Diana., Ramos, Patricia., Valcarcel, Jesus., Novoa-Carballal, Ramon., Pastrana, Lorenzo., Reis, Rui L., & Pérez-Martín, Ricardo I., Optimization of high purity chitin and chitosan production from Illex argentinus pens by a combination of enzymatic and chemical processes.*Carbohydrate Polymers* http://dx.doi.org/10.1016/j.carbpol.2017.06.070

Optimization of high purity chitin and chitosan production from *Illex argentinus* pens by a combination of enzymatic and chemical processes

José Antonio Vázquez[1*], Diana Noriega[2,3], Patricia Ramos[3], Jesus Valcarcel[1,3], Ramon Novoa-Carballal[4,5], Lorenzo Pastrana[6], Rui L. Reis[4,5], & Ricardo I. Pérez-Martín[3]

[1] Grupo de Reciclado y Valorización de Materiales Residuales (REVAL), Instituto de Investigacións Mariñas (IIM-CSIC). r/ Eduardo Cabello, 6. Vigo-36208. Galicia – Spain.
[2] Departamento de Química Analítica y Alimentaria, Facultade de Ciencias de Ourense, Universidade de Vigo, Campus As Lagoas s/n, Ourense, Spain.
[3] Grupo de Bioquímica de Alimentos, Instituto de Investigacións Mariñas (IIM-CSIC). r/ Eduardo Cabello, 6. Vigo-36208. Galicia – Spain.
[4] 3B´s Research Group – Biomaterials, Biodegradables and Biomimetics, University of Minho, Headquarters of the European Institute of Excellence on Tissue Engineering and Regenerative Medicine, AvePark, 4805-017 Barco, Guimarães, Portugal.
[5] ICVS/3B's - PT Government Associate Laboratory, Braga/Guimarães, Portugal.
[6] International Iberian Nanotechnology Laboratory (INL), Avda. Mestre José Veiga s/n, 4715 Braga, Portugal

***corresponding author:** jvazquez@iim.csic.es

Highlights

- Production of chitin and chitosan from Illex argentinus pens was optimised.
- Optimal conditions for chemical and enzymatic proteolysis of squid pen were defined.
- Alkaline deacetylation of chitin was subsequently optimized for chitosan production.
- Best values for chitosan were 61.0-63.7% of NaOH and 14.9-16.4 h of deacetylation.
- Molecular weights of chitosan ranged from 143 to 339 kDa.

ABSTRACT