Accepted Manuscript

Title: Purification, structural characterization and bioactivity evaluation of a novel proteoglycan produced by *Corbicula fluminea*

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PII: S0144-8617(17)30940-2

DOI: http://dx.doi.org/10.1016/j.carbpol.2017.08.063

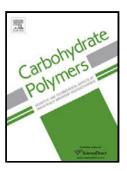
Reference: CARP 12670

To appear in:

Received date: 13-6-2017 Revised date: 5-8-2017 Accepted date: 12-8-2017

Please cite this article as: Yan, Jing-Kun., Wang, Yao-Yao., Qiu, Wen-Yi., Wu, Li-Xia., Ding, Zhi-Chao., & Cai, Wu-Dan., Purification, structural characterization and bioactivity evaluation of a novel proteoglycan produced by Corbicula fluminea. *Carbohydrate Polymers* http://dx.doi.org/10.1016/j.carbpol.2017.08.063

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Submitted to: Carbohydrate Polymers

(Original Research MS)

Purification, structural characterization and bioactivity evaluation of a novel

proteoglycan produced by Corbicula fluminea

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Highlights

• A novel proteoglycan, named CFPS-11, was isolated from Corbicula fluminea

• The structural feature of CFPS-11 was elucidated by physical and chemical analyses

• CFPS-11 exhibited significant antioxidant activity in a dose-dependent manner

CFPS-11 showed remarkable inhibitory activities against α-amylase and

α-glucosidase

CFPS-11 could be explored as a potent food additive or nutritional supplement

Abstract

A novel proteoglycan, named CFPS-11, was isolated from Corbicula fluminea, which is

a food source of freshwater bivalve mollusk. CFPS-11 had an average molecular weight of

807.7 kDa and consisted of D-glucose and D-glucosamine in a molar ratio of 12.2:1.0. The

protein moiety (~5%) of CFPS-11 was covalently bonded to the polysaccharide chain in

O-linkage type through both serine and thereonine residues. The polysaccharide chain of

CFPS-11 was composed of $(1\rightarrow 4)-\alpha$ -D-glucopyranosyl and $(1\rightarrow 3,6)-\alpha$ -D-glucopyranosyl

residues, which branched at O-6. The branch chain consisted of $(1\rightarrow)-\alpha$ -D-glucopyranosyl

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