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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 threonine residues. The polysaccharide chain of CFPS-11 was composed of (1→4)- α -D-glucopyranosyl and (1→3,6)- α -D-glucopyranosyl residues, which branched at O-6. The branch chain consisted of (1→)- α -D-glucopyranosyl

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