

Preparation and Characterization of Quaternized Chitosan Derivatives and Assessment of Their Antioxidant Activity

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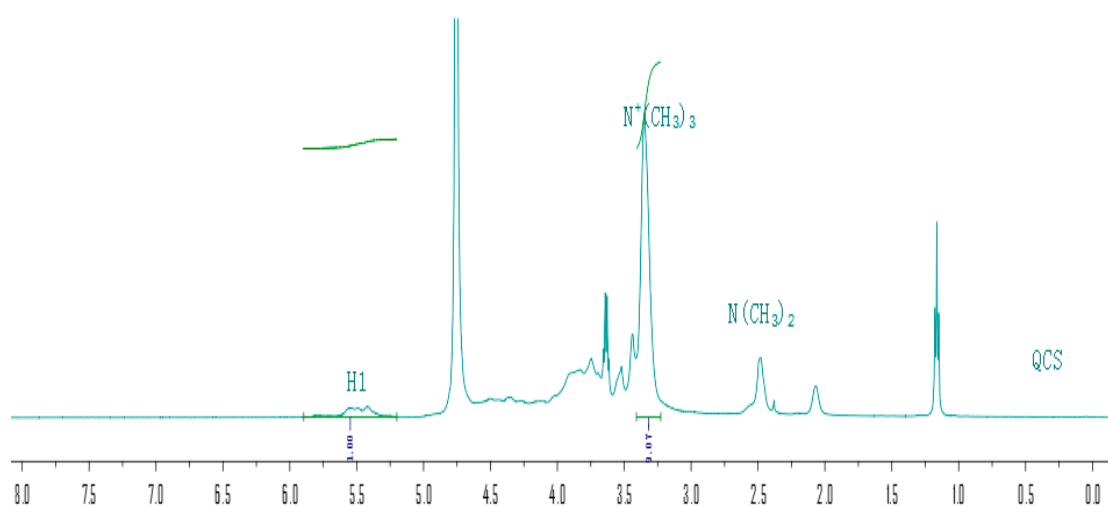


Fig. S1. ¹H NMR spectra of QCS in D₂O.

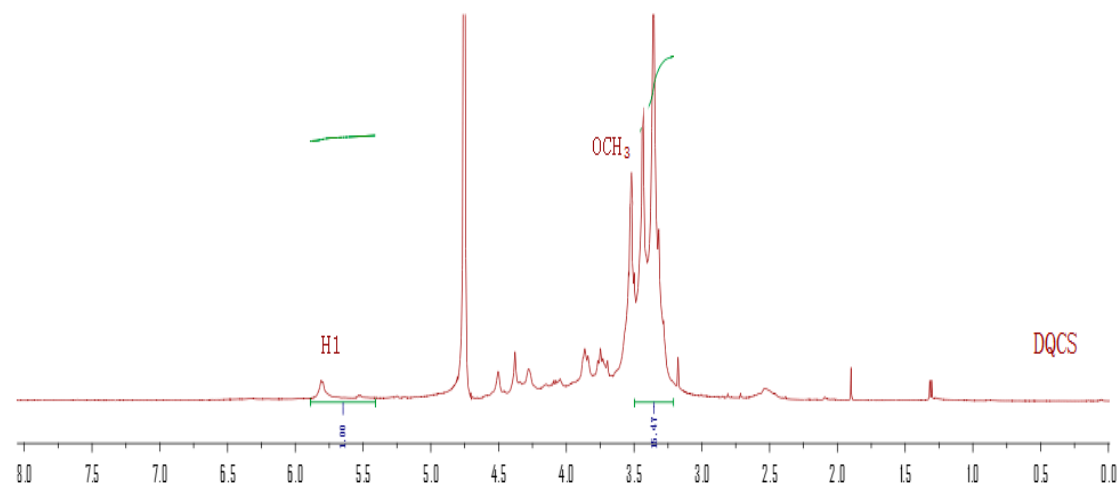


Fig. S2. ¹H NMR spectra of DQCS in D₂O.

Table S1. ¹H NMR chemical shifts of chitosan derivatives.

CS	4.5 ppm (H1)	2.8 ppm (H2)	3.4-4.0 ppm (H3-H6)	
NCS	5.1-5.5 ppm (H1)	3.1 ppm (H2)	3.4-4.3 ppm (H3-H6)	
QCS	5.3-5.7 ppm (H1)	3.5-4.3 ppm (H2-H6)	3.3 ppm ([N(CH ₃) ₃])	3.4-3.5 ppm (OCH ₃)
DQCS	5.5-5.9 ppm (H1)	3.6-4.6 ppm (H2-H6)	3.3-3.4 ppm ([N(CH ₃) ₃])	3.5 ppm (OCH ₃)

Table S2. ¹³C NMR chemical shifts of chitosan derivatives.

sample	Peak (ppm)
CS	104.9 (C1), 78.0 (C4), 75.0 (C5), 69.8 (C3), 60.7-60.2 (C6), 57.4 (C2)
QCS	98.0 (C1), 77.5-76.9 (C2,OCH ₃), 74.7 (C4), 73.0 (C5), 58.6-58.3 (C6), 54.1 [(NCH ₃) ₃], 50.1 [(NCH ₃) ₂]
NCS	105.4 (C1), 82.2-75.7 (C3,C4,C5), 57.6 (C2), 40.4 (C6)
DQCS	97.8 (C1), 77.4-76.7 (C2,OCH ₃), 74.7 (C4), 72.9(C5), 58.3-58.1 (C6), 55.4-54.0 [(NCH ₃) ₃]