

Supporting Information

Evaluation of the xylooligosaccharides production from residual hemicelluloses of the dissolving pulp by acid and enzymatic hydrolysis

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The structure of hemicelluloses was investigated using ^1H NMR, ^{13}C NMR, and 2D-HSQC NMR. Fig. S1 (^1H NMR) and Fig. S2 (^{13}C NMR) showed the structural information of the hemicelluloses and the signals are assigned based on the previous literature.^{31,S1} As can be seen from Fig. S1, the major signals at 4.22 (H-1), 3.87 (H-5eq), 3.56 (H-4), 3.27 (H-3), 3.17 (H-5ax), 3.07 (H-2) ppm are assigned to β -D-xylopyranosyl (β -D-Xylp) units. In the ^{13}C NMR spectrum (Fig. S2), five strong signals at 102.4, 75.8, 75.1, 73.4, and 63.3 ppm were observed, which are attributed to C-1, C-4, C-3, C-2, and C-5 of β -D-xylopyranosyl units. These results implied that the hemicelluloses were mainly consisted of β -D-xylopyranosyl units with few branches.

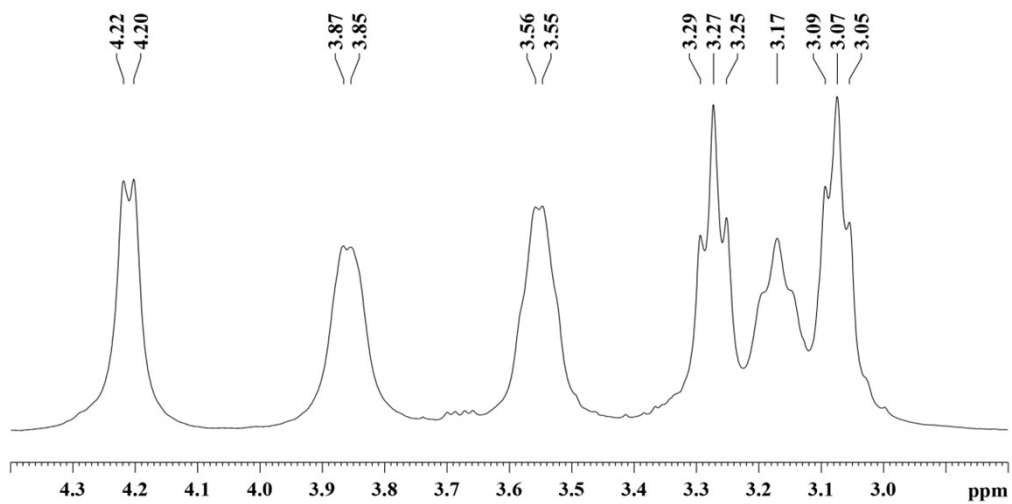


Fig. S1. ^1H NMR spectrum of the hemicelluloses extracted from the dissolving pulp.

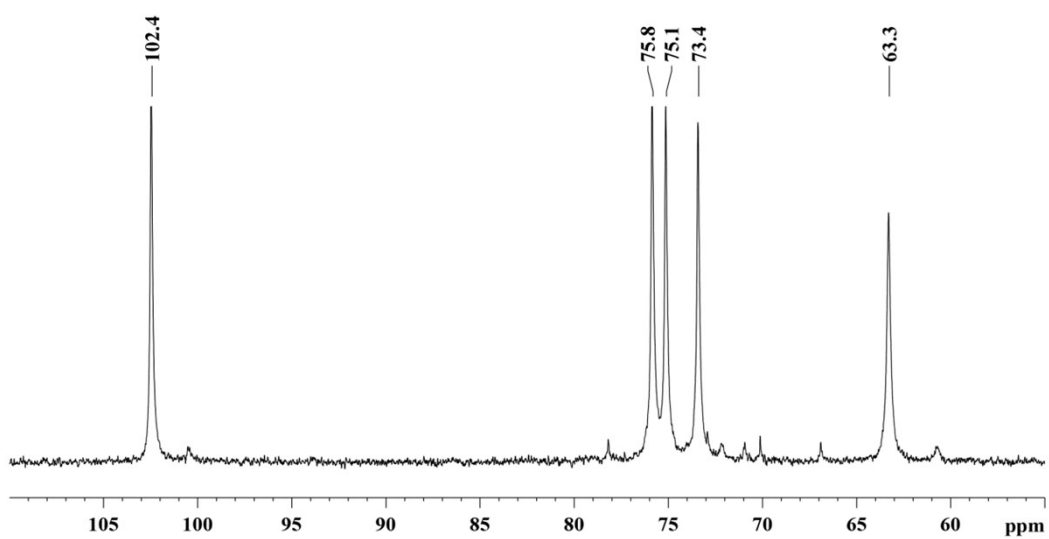


Fig. S2. ¹³C NMR spectrum of the hemicelluloses extracted from the dissolving pulp.

Table S1. The molecular weight of the hemicelluloses extracted from the dissolving pulp

M_w (Da)	M_n (Da)	M_w/M_n
14343.50	9295.65	1.54

References

- (S1) Bian, J.; Peng, F.; Peng, P.; Xu, F.; Sun, R. C. Isolation and fractionation of hemicelluloses by graded ethanol precipitation from *Caragana korshinskii*. *Carbohydr. Res.* **2010**, *345* (6), 802-809.