

Supporting Information of

Noncovalent Dispersion and Functionalization of Cellulose

Nanocrystals with Polysaccharides and Proteins

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Analysis of sugar monomers

Different concentrations of CMC and XG were hydrolyzed and the released monosaccharides were analyzed by high performance anionic exchange chromatography (HPAEC). For CMC, the amount of carboxymethyl glucose correlated linearly with those of glucose (Figure S1). For XG, the amounts of xylose, galactose, and arabinose correlated linearly with those of glucose (Figure S2). Therefore, the amount of glucose derived from CMC could be calculated from the carboxymethyl glucose amount, and the amount of glucose derived from XG could be calculated from the xylose, galactose and arabinose amounts. The amount of glucose derived from CNCs was calculated by subtracting the glucose from CMC or XG. The amount of CMC or XG could be calculated according to the glucose amount (Figure S3).

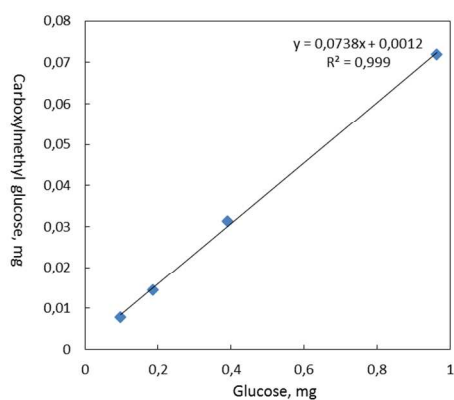


Figure S1. Ratio of carboxymethyl glucose / glucose after hydrolysis and chromatographical analysis of CMC at different concentrations.

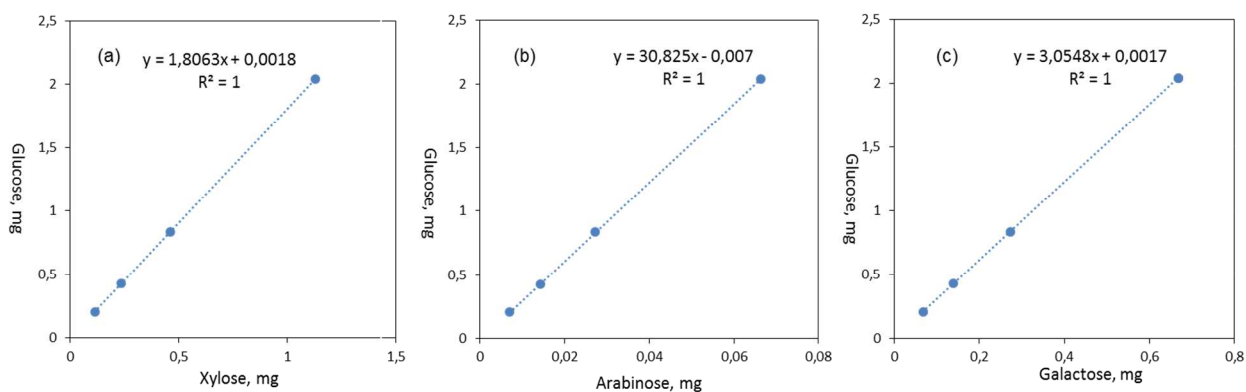


Figure S2. Ratios of xylose/glucose (a), arabinose/glucose (b) and galactose/glucose (c) after hydrolysis and chromatographical analysis of XG at different concentrations.

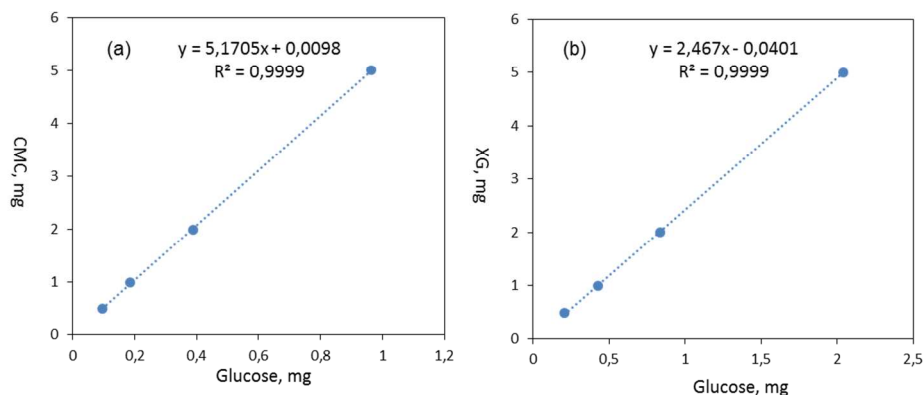


Figure S3. From monosaccharide determination calculated CMC- or XG-glucose concentrations versus CMC (a) or XG (b) concentrations.

The surface charge of the plain CNC was measured by conductometric titration with 0.1 M NaOH at room temperature and the titration curve was shown in Figure S4. There was almost no platform on the curve which indicated the absence of surface charge for the hydrochloric acid hydrolyzed CNC.

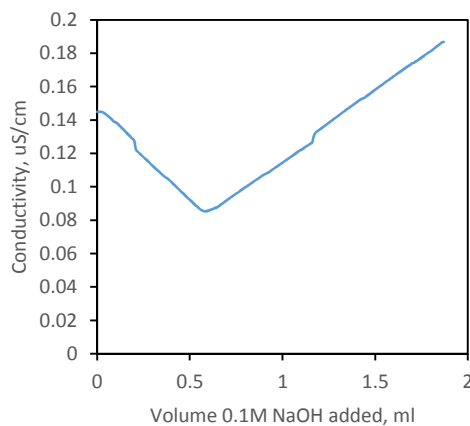


Figure S4. Conductometric titration curve for hydrochloric acid hydrolyzed CNC.