

Electronic Supplementary Information

Accelerated Reducing Synthesis of Ag@CDs composite and Simultaneous Determination of Glucose during the Synthetic Process

Qi Wang, Hongjie Song, Yuan Hu, Yingying Su, and Yi Lv*

Key Laboratory of Green Chemistry & Technology, Ministry of Education, College of Chemistry, Sichuan University, Chengdu, Sichuan 610064, P. R. China

Tel. & Fax: (+86) 028-85412398

E-mail: lvyy@scu.edu.cn (Y Lv)

General Information

Size distribution of as-prepared CDs and Ag@CDs

The size distribution of as-prepared CDs and AgNPs were performed by counting over 50 particles.

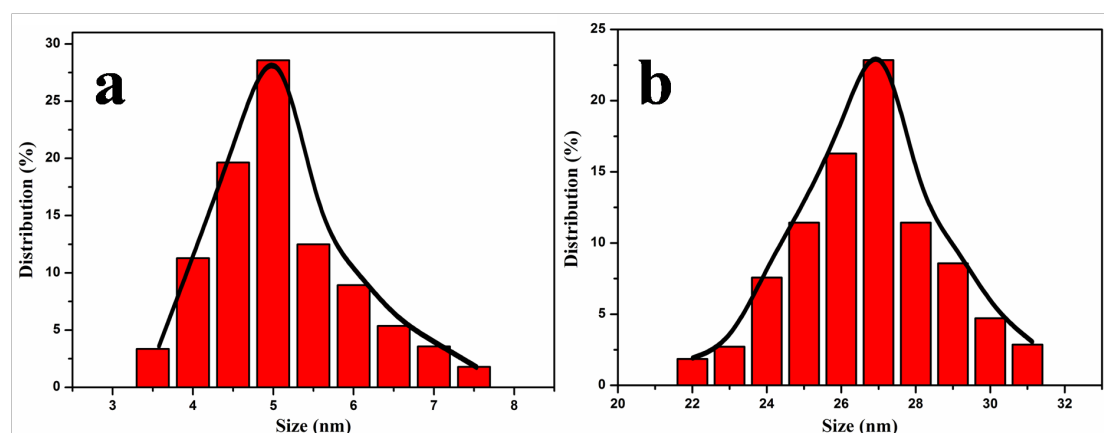


Fig. S1 The size distribution of as-prepared (a) CDs and (b) AgNPs.

X-ray diffraction (XRD) pattern of CDs

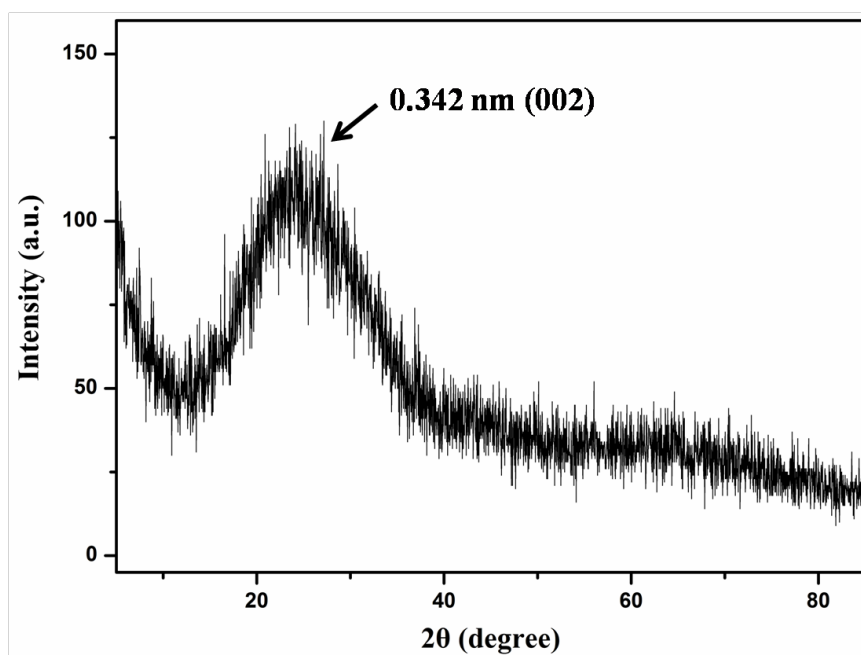


Fig. S2 The XRD pattern of CDs.

Energy dispersive X-ray (EDX) spectrum of CDs and Ag@CDs

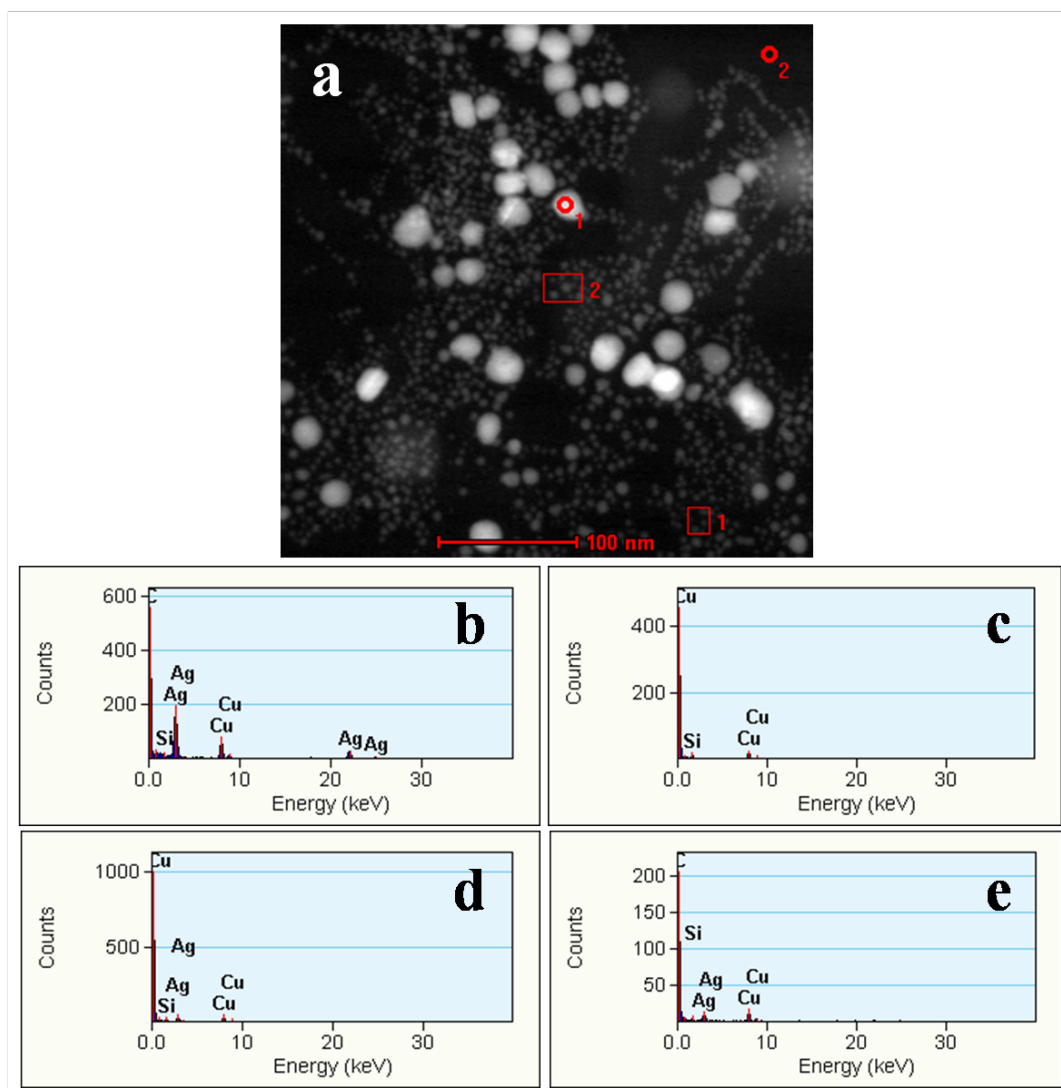


Fig. S3 The (a) high-angle annular dark-field (HAADF) image of as-prepared Ag@CDs. The EDX patterns of (b) point 1, (c) point 2, (d) area 1 and (e) area 2.

PL properties of CDs

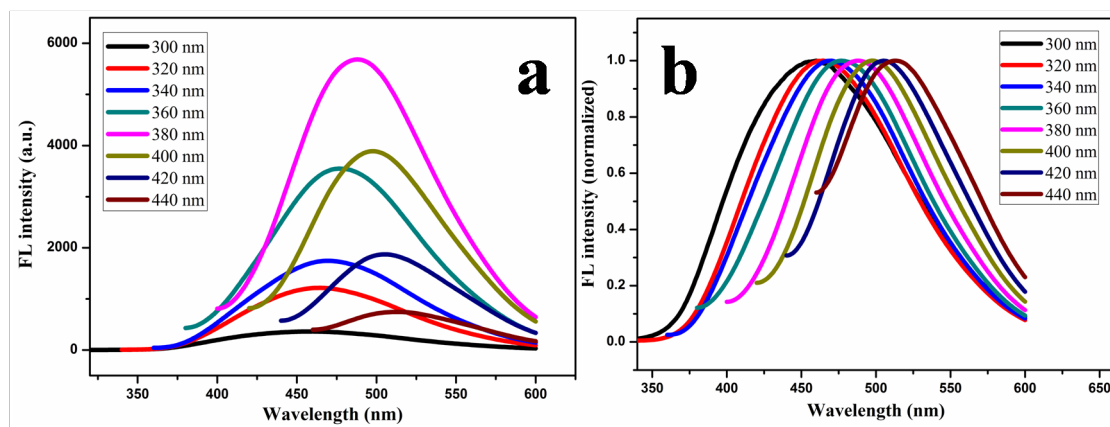


Fig. S4 The (a) PL spectra and (b) normalized PL spectra of CDs under different excitations ranging from 300 nm to 440 nm.

Control experiments

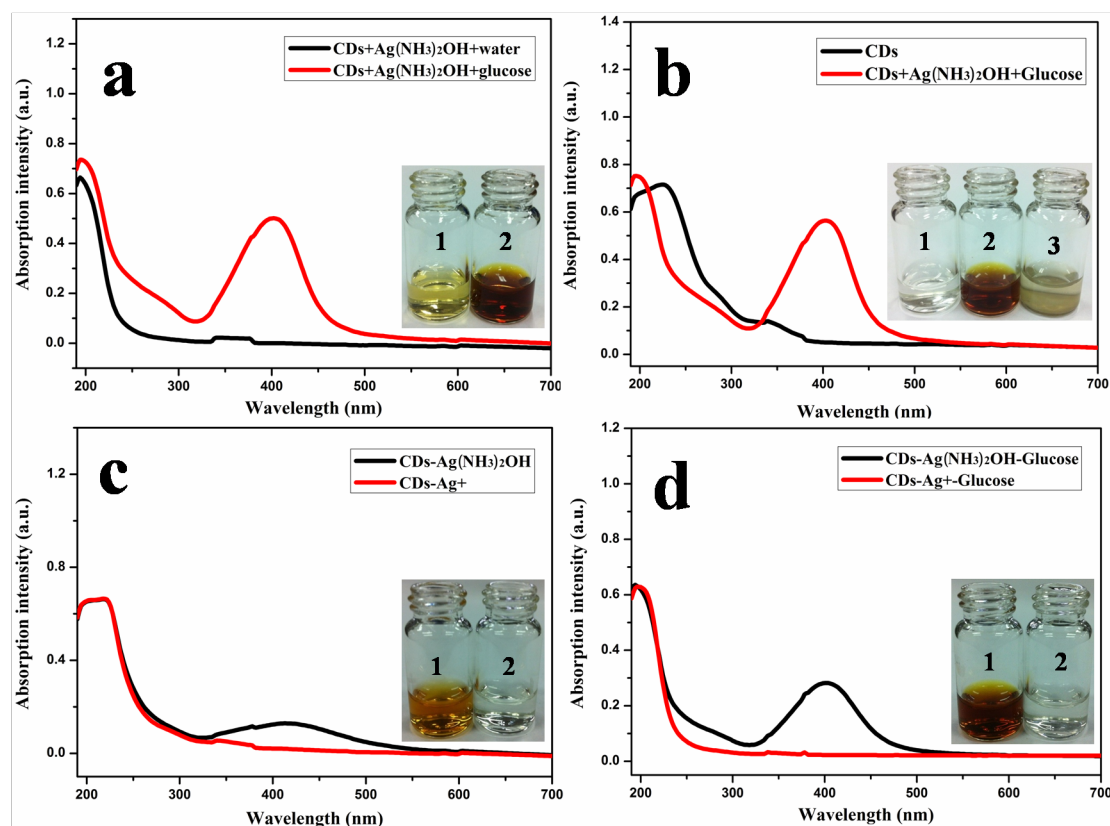


Fig. S5 (a) The UV-vis spectra comparison of mixture with and without glucose for 30 min under room temperature. Inset: Photographs of mixture (1) without and (2) with glucose. (b) The UV-vis spectra comparison of CDs only and CDs-Ag(NH₃)₂OH-glucose for 30 min under room temperature. Inset: Photographs of (1) CDs only, (2) CDs-Ag(NH₃)₂OH-glucose and (3) Ag(NH₃)₂OH-glucose. The UV-vis spectra of (c) CDs reducing system and (d) CDs-glucose reducing system with Ag(NH₃)₂OH or Ag⁺. Inset: Photographs of mixtures (1) with Ag(NH₃)₂OH and (2) Ag⁺.

Selectivity test

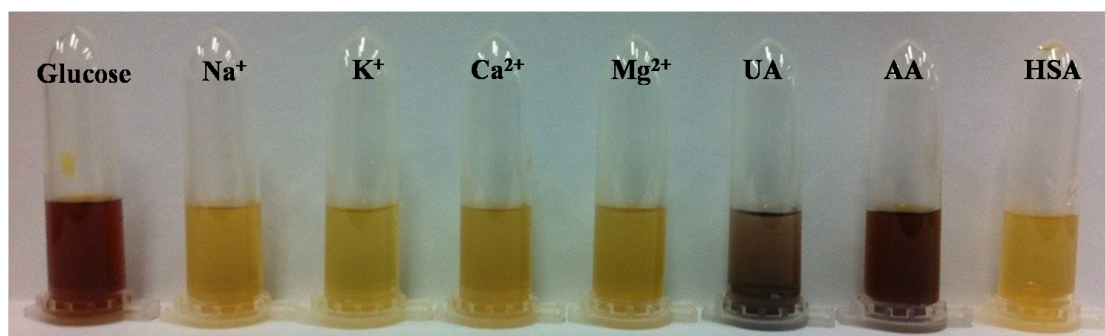


Fig. S6 The photograph of selectivity test of detecting glucose based on the $\text{Ag}(\text{NH}_3)_2^+$ -CDs system. The concentrations of glucose, ascorbic acid (AA), uric acid (UA), Na^+ , K^+ , Ca^{2+} and Mg^{2+} were 15 μM , and human serum albumin (HSA) was at the level of 20 mg L^{-1} .

Influence of saccharides

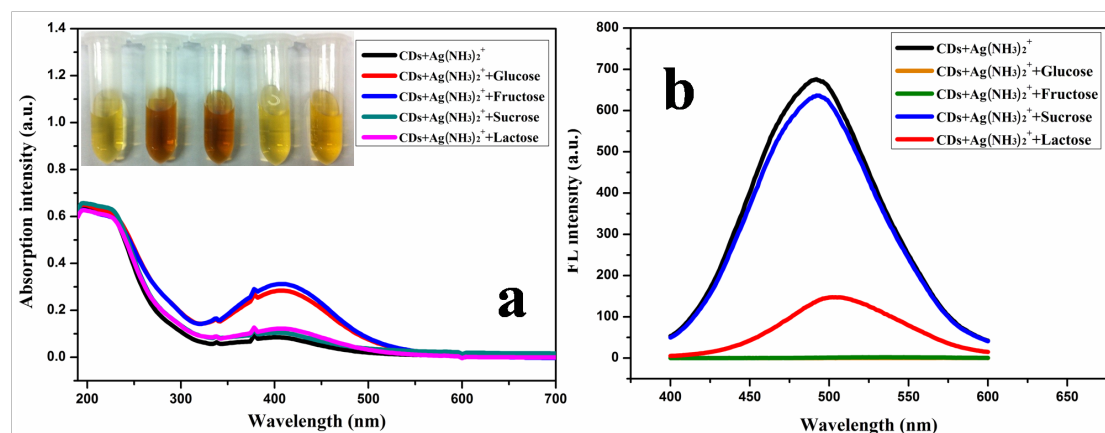


Fig. S7 The (a) UV-vis spectra and (b) PL spectra of CDs-Ag(NH₃)₂⁺ system with glucose, fructose, sucrose and lactose (20 μM). Inset: The photograph of CDs-Ag(NH₃)₂⁺ system with saccharides (from the left: blank, glucose, fructose, sucrose and lactose).