Supporting information for

Borax promotes the facile formation of hollow structure in Cu single crystalline nanoparticles for multifunctional electrocatalysis

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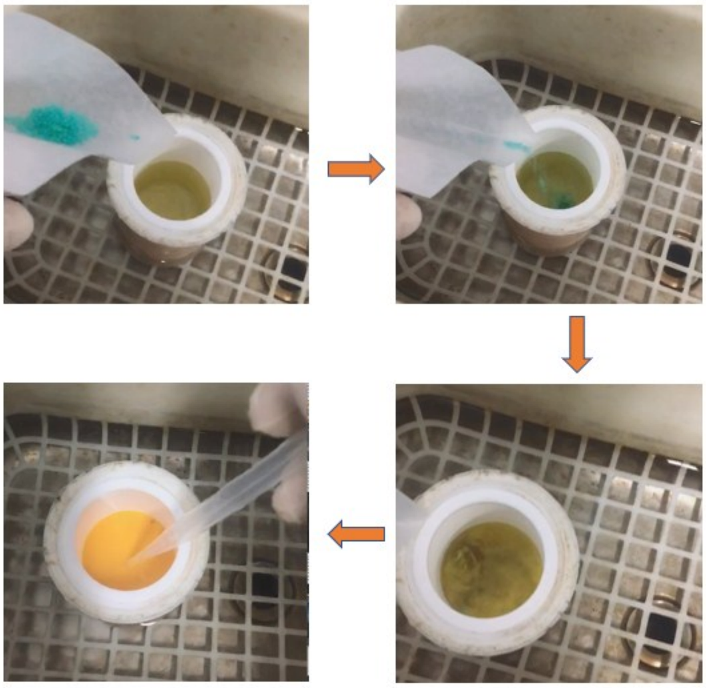

Figure S1 The color change of the aqueous solution of ascorbic acid and borax upon adding copper dichloride

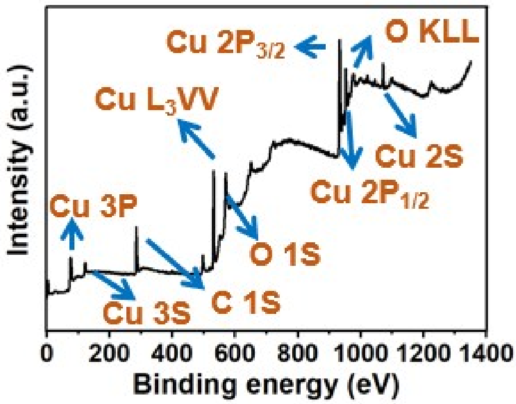

Figure S2 XPS survey spectra of the Cu/Cu_2O.

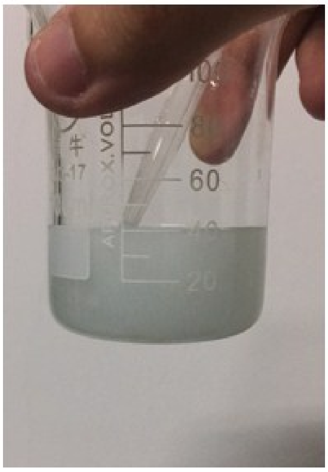

Figure S3 The ascorbic acid solution after adding copper dichloride. The white color indicates the formation of CuCl.

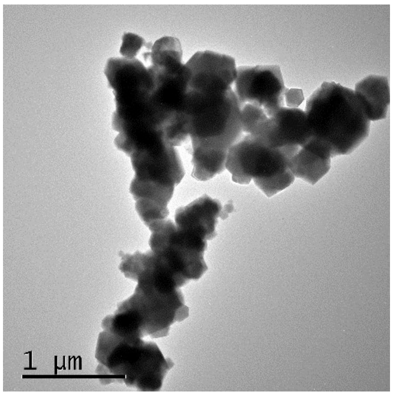

Figure S4 The TEM image of the Cu_2O solid product prepared using KOH instead of borax.

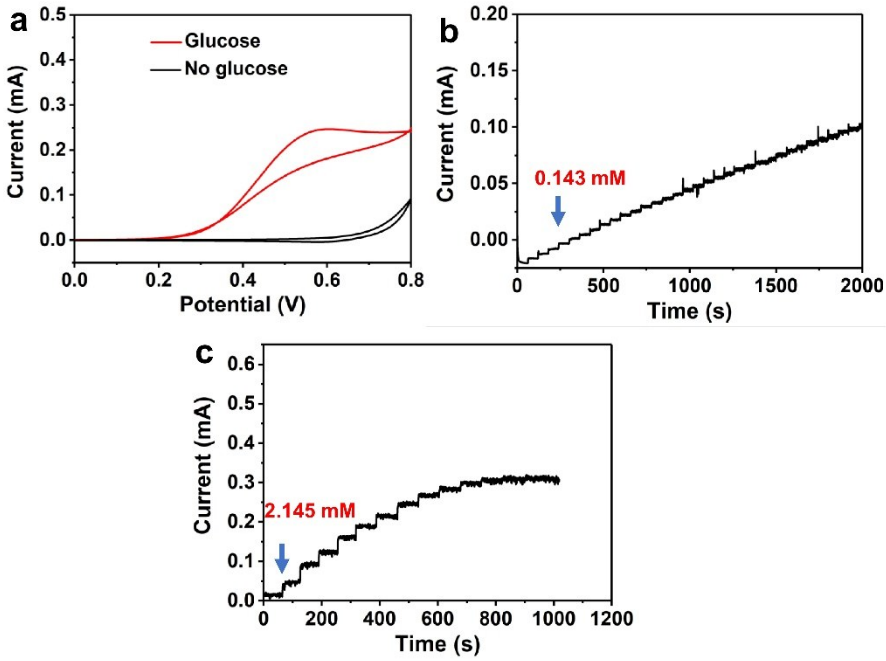

Figure S5 (a) Cyclic voltammograms of the glassy carbon electrode modified with hollow Cu_2O in 0.1 M NaOH aqueous solution with and without 10 mM glucose at a scan rate of 50 mV s^{-1} in ambient atmosphere. (b) The current responses of the Cu_2O electrode at an applied potential of 0.65 V (vs. Hg/Hg_2SO_4) upon the successive addition of 0.143 mM glucose every 60 s. (c) The current responses of the Cu_2O electrode upon the successive addition of 2.145 mM glucose every 60 s.

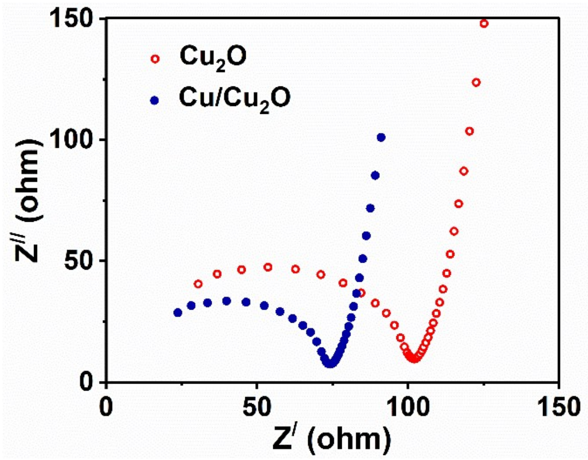

Figure S6 Nyquist plots of electrochemical impedance spectroscopy of the glass carbon electrode modified with hollow Cu_2O or Cu/Cu_2O in 0.1 M NaOH aqueous solution.

Table S1. Comparative performance data of our hollow Cu/Cu_2O with other reported non-enzymatic glucose sensors.

Electrode material	**Sensitivity (μA mM^{-1} cm^{-2})**	**Detection limit (μM)**	**Linear range (up to, mM)**	**Ref.**
CuO nanowires	648	2	–	[1]
Cu/ZIF-8	412	2.76	0.7	[2]
Cu nanoparticles / N-doped graphene	48	1.3	4.5	[3]
CuO nanoparticles / S-doped graphene	1298	0.08	10.5	[4]
$Cu@Cu_2O$ coaxial nanowires mesh	1420	0.04	2	[5]
CuO/carbon-tubes	2596	0.2	1.2	[6]
Cu_xO/Cu	1620	49	6	[7]
Cu_2O nanocubes/ graphene	285	3.3	3.3	[8]
$Cu@Cu_2O$ Aerogel	-	15	8	[9]
CuO NWs	3.4	0.01	0.639	[10]
N-doped-graphene/Cu	1848	0.014	5	[11]
Cu/Pd nanoparticles	298	0.32	9.6	[12]
Cu/graphene	11	1	11	[13]
Hollow Cu/Cu_2O	**453**	**20**	**14**	**This work**

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