Supplementary Information

Hierarchical & ultra-porous copper cobaltite flakes with honeycomb-like physiognomies for highly efficient non-enzymatic glucose sensing

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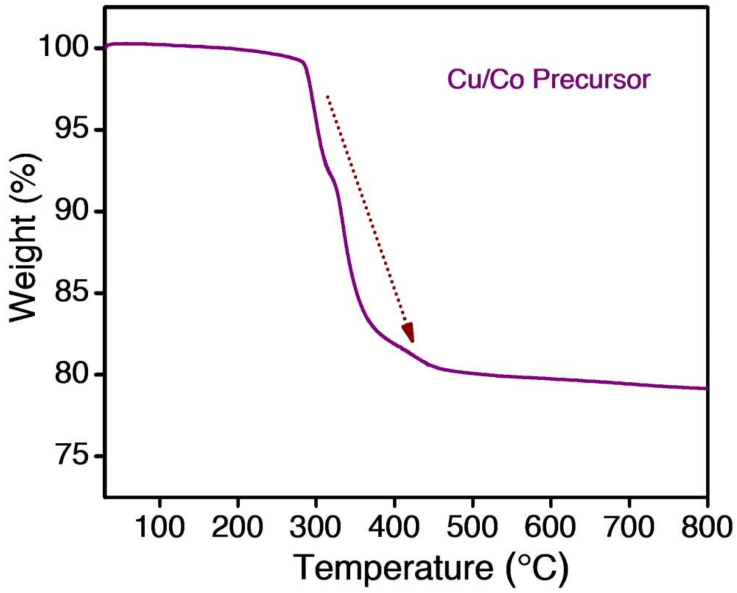
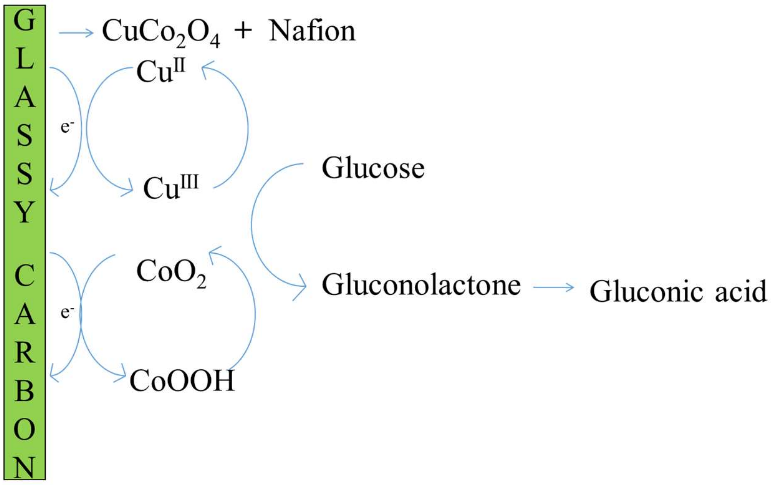


Fig. S1 TGA profile of the Cu/Co precursor



Scheme S1. The plausible mechanism during non-enzymatic electrooxidation of glucose to gluconolactone and gluconic acid on flake & honeycomb-like $CuCo_2O_4$ surface in alkaline medium[s1]

Table S1. Comparative performance (linear range, limit of detection and sensitivity) data of flake & honeycomb-like $CuCo_2O_4$ with literature reported Cu and Co based electrodes for non-enzymatic electrochemical sensing of glucose

Electrode Material	Linear range (mM)	Limit of detection (µM)	Sensitivity (µA mM^{-1} cm^{-2})	Reference
Co_3O_4-rGO nanocomposite	0.5-1.2	1.8	1.36	s2
Cu-xCu_2O nanoparticles	0.8-10	16	230.8	s3
Cu NPs @ graphene	4.50	1.3	48.13	s4
Cu_2O nanocubes @ graphene	0.3-3.3	3.3	285	s5
Cu/Cu_2O@rGO	0.005-7	0.5	145.2	s6
Cu/Cu_2O nanoporous NPs	0.01-5.5	0.05	123.8	s7
Cu_2O/rGO	0.01-6.0	0.05	185.0	s8
Nanodisc like Co_3O_4	0.5-5.0	0.8	27.0	s9
Nanoflake like Co_3O_4	0.1-5.0	0.7	118.0	s10

Porous nanowires like Co_3O_4	0.05-5.7	5.0	300	s11
Hollow microspheres like Co_3O_4	0.02-1.4	1.2	69	s12
Co_3O_4 nanowires	0.01-12	0.02	46	s13
Cu_2O@ZIF-67	0.01-16.3	6.5	181.34	s14
Cu-MOF	0.1-3.5	2.4	89	s15
Cu nanospheres @ porous carbon	0.001-5.62	0.48	28.67	s16
Cu NPs on glass	0.01-0.2	2.47	145.5	s17
Co_3O_4 nanoplates	0.05-3.2	2.7	212.92	s18
NiO-CuO/CFME nanocomposite	0.001-0.5	0.4	70	s19
Co dendrite array film	-	-	359.0	s20
Cu-Co-rGO	-	0.15	240.0	s21
Cu_2O biscuit/SPCE	0.0005-4.0	-	309.0	s22
Porous CuO particles	0.001-4.3	0.25	1.163	s23
Cu_2O @ CuO @ $NiCo_2O_4$	0.035-4.5	12.0	0.112	s24
$CuCo_2O_4$ nanowire arrays	0.5-1.0	1	20.9	s25
Cu/$Ni(OH)_2$ nanoboxes	0.00005-5.0	0.07	487.3	s26
Porous Co_3O_4	0.49-1.92	0.16	426.0	s27
3D Co_3O_4	0.001-0.3	0.1	471	s28
Cu_2O vulcan XC-72	0 - 6.0	2.4	629	s29
CuO/$Ni(OH)_2$	0.05-8.5	0.31	598	s30
Co_3O_4/carbon nanotube	0- 5.2	0.08	131.69	s31
Cu/CuO/ZnO hybrid nanostructures	0.1 to 1	18	408	s32
Zn doped Co_3O_4 film	0.005–0.62	2	193	s33

$Cu/CuO/Cu(OH)_2$ - polydopamine	0.02–20	20	223.17	s34
Cu/Cu_2O aerogels	0.001–5.2	0.6	195	s35
3D rambutan-like CuO/reduced graphene oxide	0.0005–3.75	0.10	52.1	s36
Flake & honeycomb-like $CuCo_2O_4$	0-3.2	1.5	690.0	Present work

Table S2. Amperometric response of flake & honeycomb-like $CuCo_2O_4$ to sequential addition of 1 mmol dm^{-3} of various interfering species in 0.15 mol dm^{-3} NaOH solution after initial addition of 0.1 mmol dm^{-3} of glucose at an applied potential of 0.5 V.

Interferent	Current response (%) with respect to glucose[a]
Lactose	4.70
Fructose	1.76
Ascorbic Acid (AA)	3.52
Uric Acid (UA)	1.17
Dopamine (DA)	1.11

[a]The current response to 0.1 mol dm^{-3} of glucose is 0.017 mA (100%)

Table S3. The actual sample markup recovery of glucose using flake & honeycomb-like $CuCo_2O_4$ electrode at an applied potential of 0.5 V.

Sl. No.	Coke sample (mM)	Glucose added (mM)	Glucose recovered (mM)	RSD (%)	Recovery (%)
1	0.015	0.060	0.0813	1.31	108.40
2	0.015	0.135	0.1498	1.87	99.86
3	0.015	0.210	0.2290	2.18	101.77

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