Electronic Supplementary Material (ESI) for Green Chemistry.

One-pot synthesis of a carbon supported bimetallic Cu-Ag NPs catalyst for robust catalytic hydroxylation of benzene to phenol by fast pyrolysis of biomass wastes

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Table S1 The surface area and pore structure of Ag-Cu/C, Cu/C, Ag/C, and C.

	BET surface area (m^2 g^{-1})	Total pore volume (cm^3 g^{-1})	Average pore width (Å)
Cu-Ag/C	162.73	0.13	16.17
Cu/C	160.47	0.14	17.87
Ag/C	155.23	0.12	15.59
C	89.23	0.08	17.98

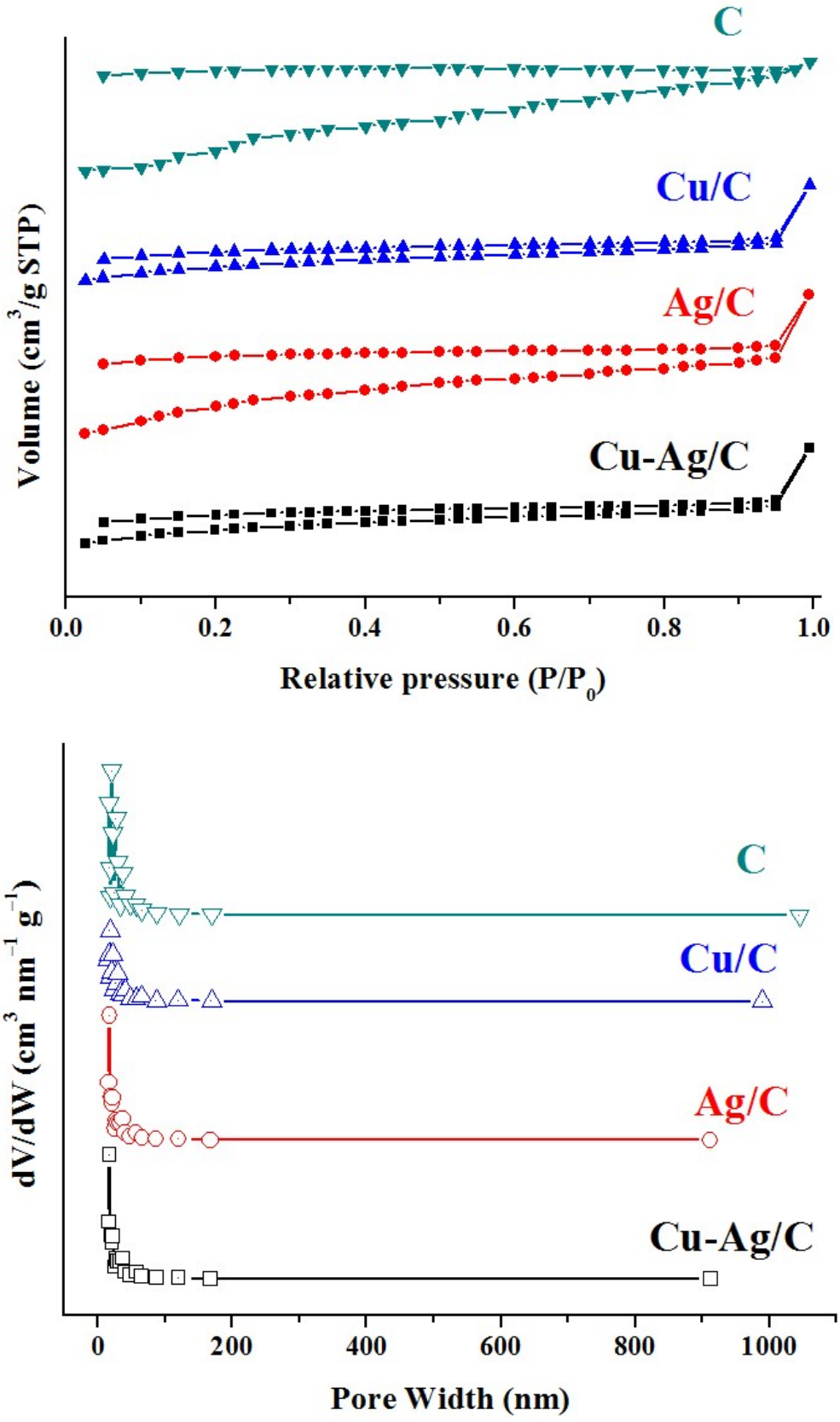

Fig. S1 The adsorption/desorption isotherms and size distribution of Ag-Cu/C, Cu/C, Ag/C and C.

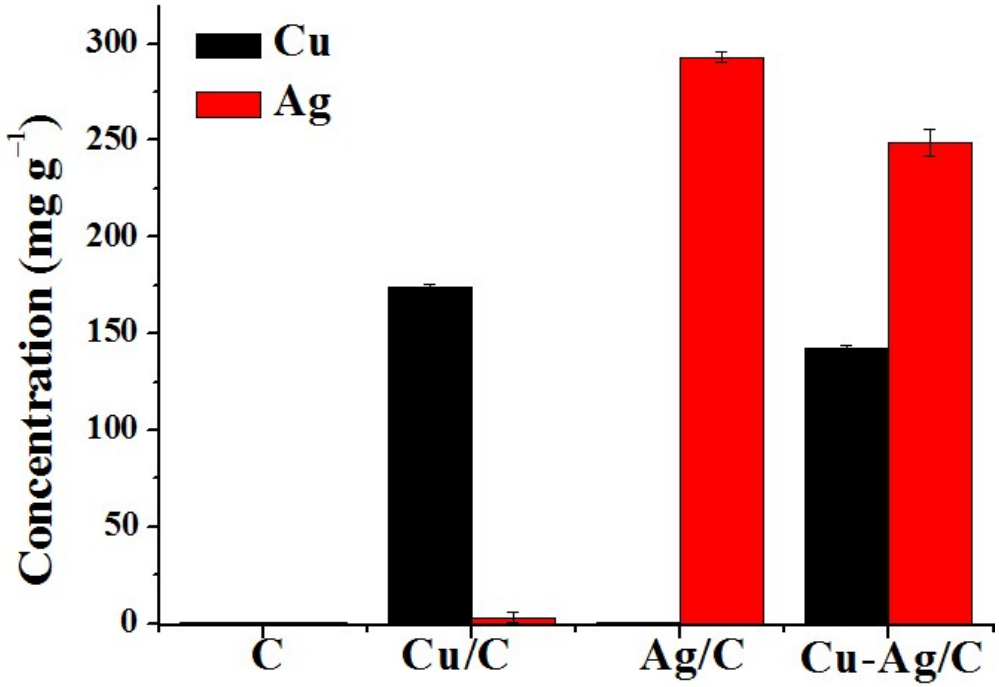

Fig.S2 The amounts of Cu and Ag in the different catalysts.

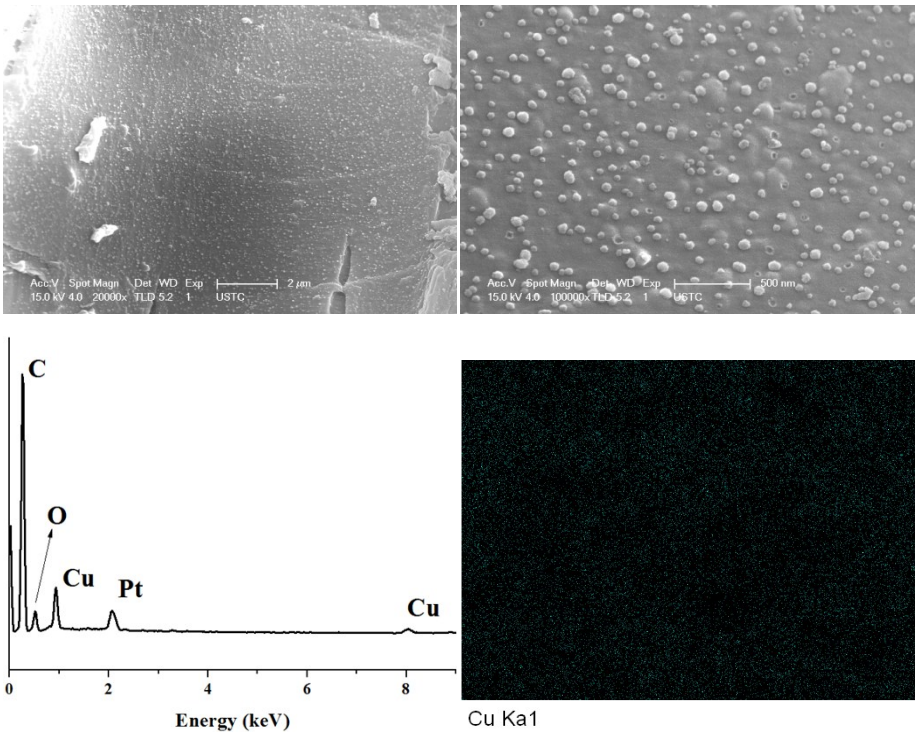

Fig.S3. SEM/EDX/mapping scanning of Cu/C.

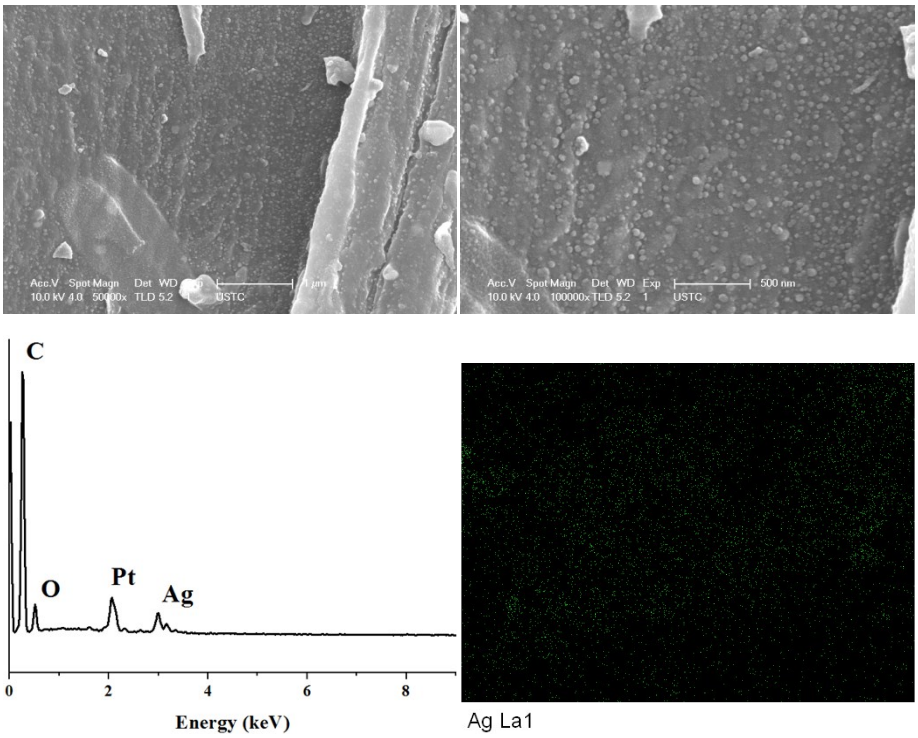

Fig.S4. SEM/EDX/mapping scanning of Ag/C.

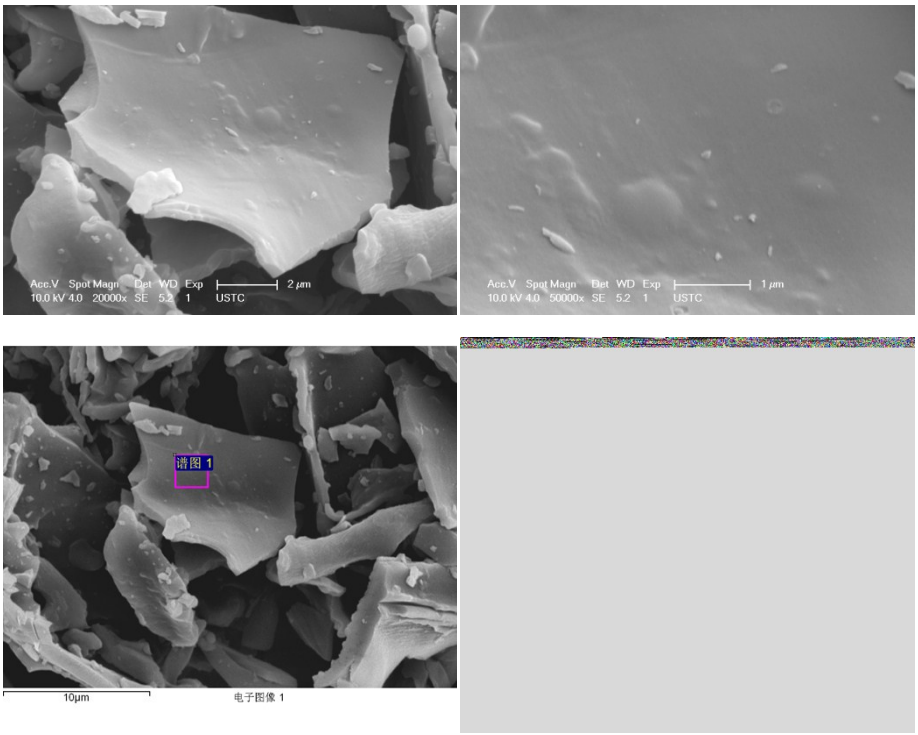

Fig.S5. SEM/EDX of C.

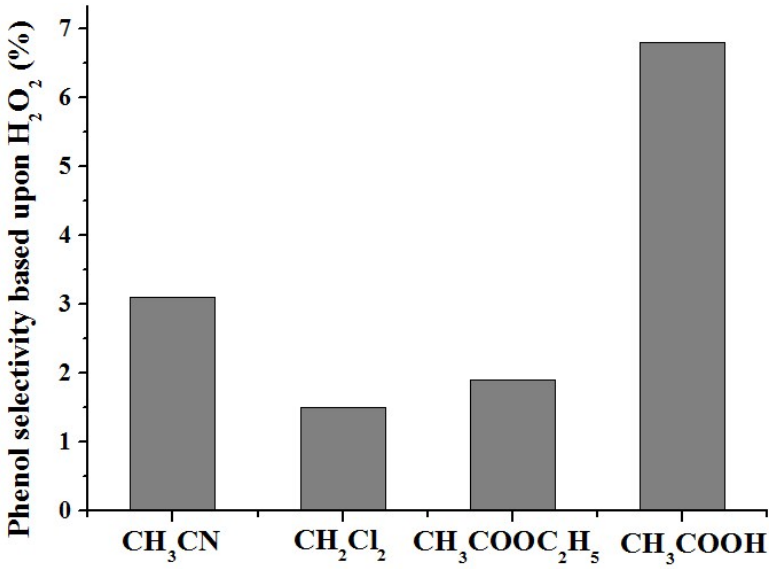

Fig. S6. The phenol selectivity based upon H_2O_2 for Cu-Ag/C in catalytic HOB at different solvent (Catalyst: Cu-Ag/C; temperature: 323 K; reaction time: 2 h).

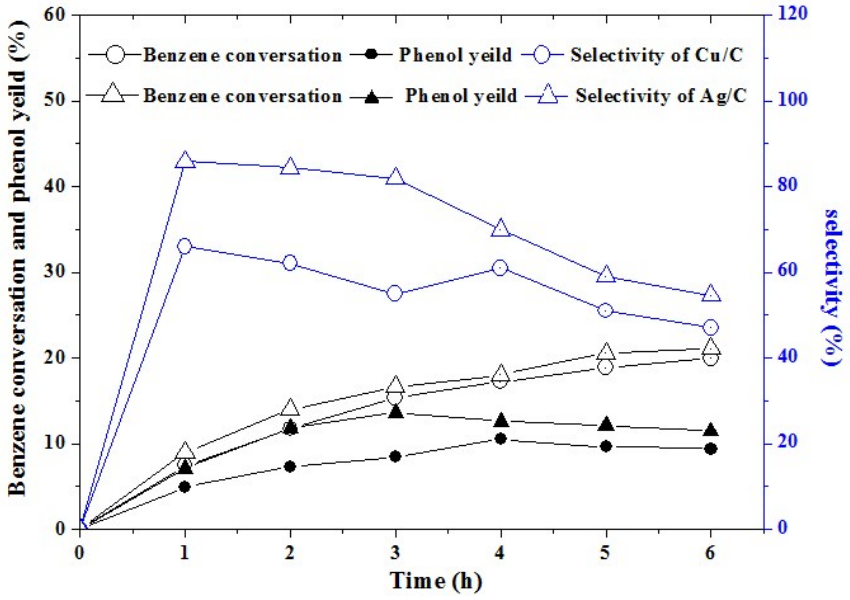

Fig. S7. Catalytic HOB by the carbon support bimetallic Cu-Ag NPs (Catalyst: Cu/C, Ag/C; solvent: CH_3COOH; temperature: 323 K).

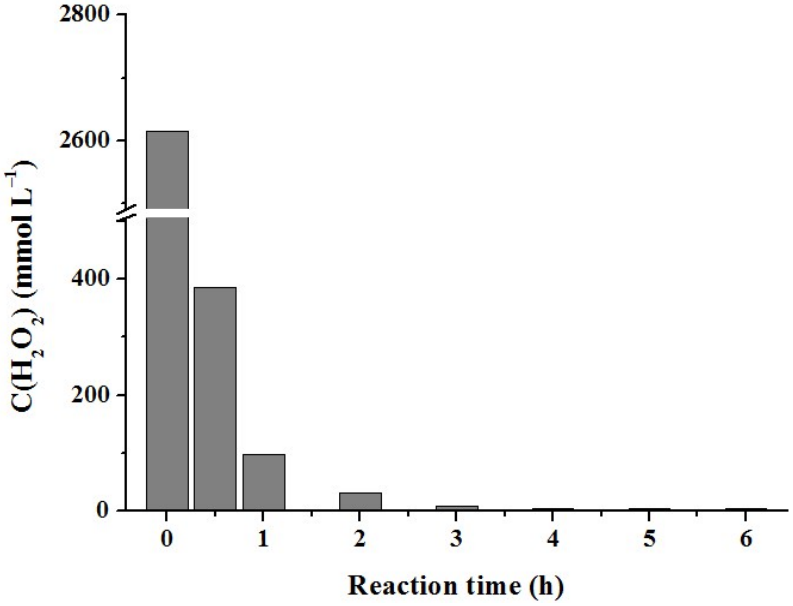

Fig. S8. The amount of H_2O_2 in catalytic HOB of Cu-Ag/C (Catalyst: Cu-Ag/C; solvent: CH_3COOH; temperature: 323 K)

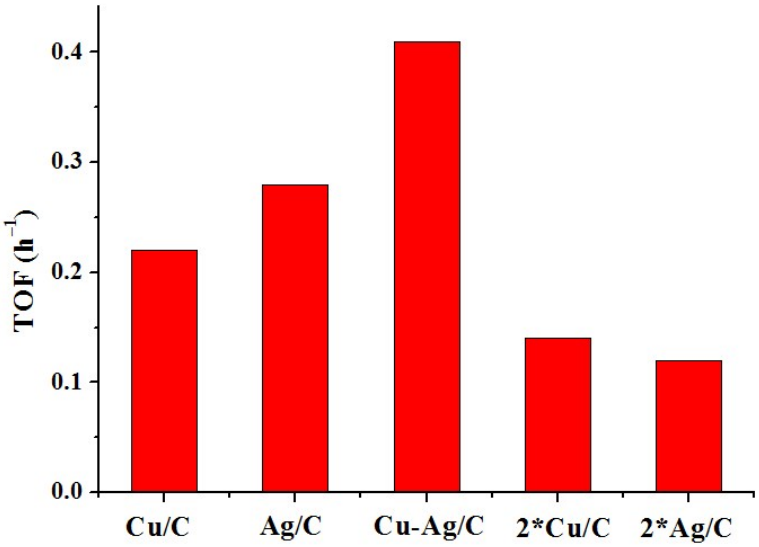

Fig. S9. The TOF value of different catalyst in catalytic HOB (Catalyst: Cu/C, Ag/C, Cu-Ag/C; solvent: CH_3COOH; temperature: 323K; reaction time: 2h).

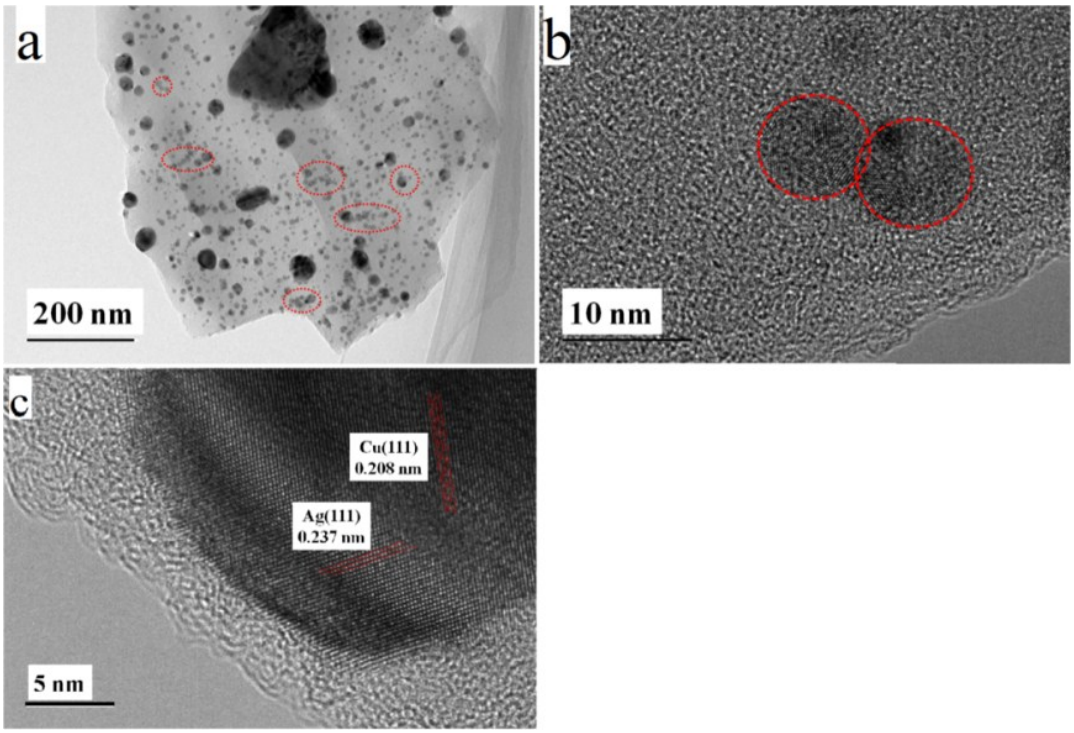

Fig.S10. The TEM image of Cu-Ag/C.

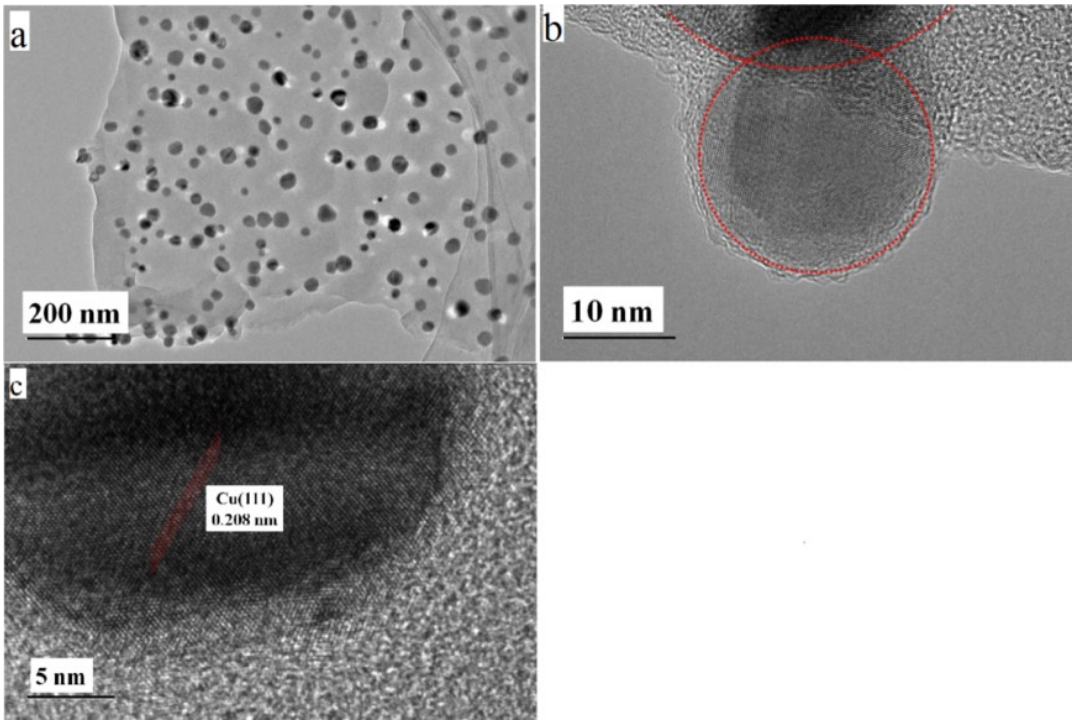

Fig.S11 . The TEM image of Cu /C.

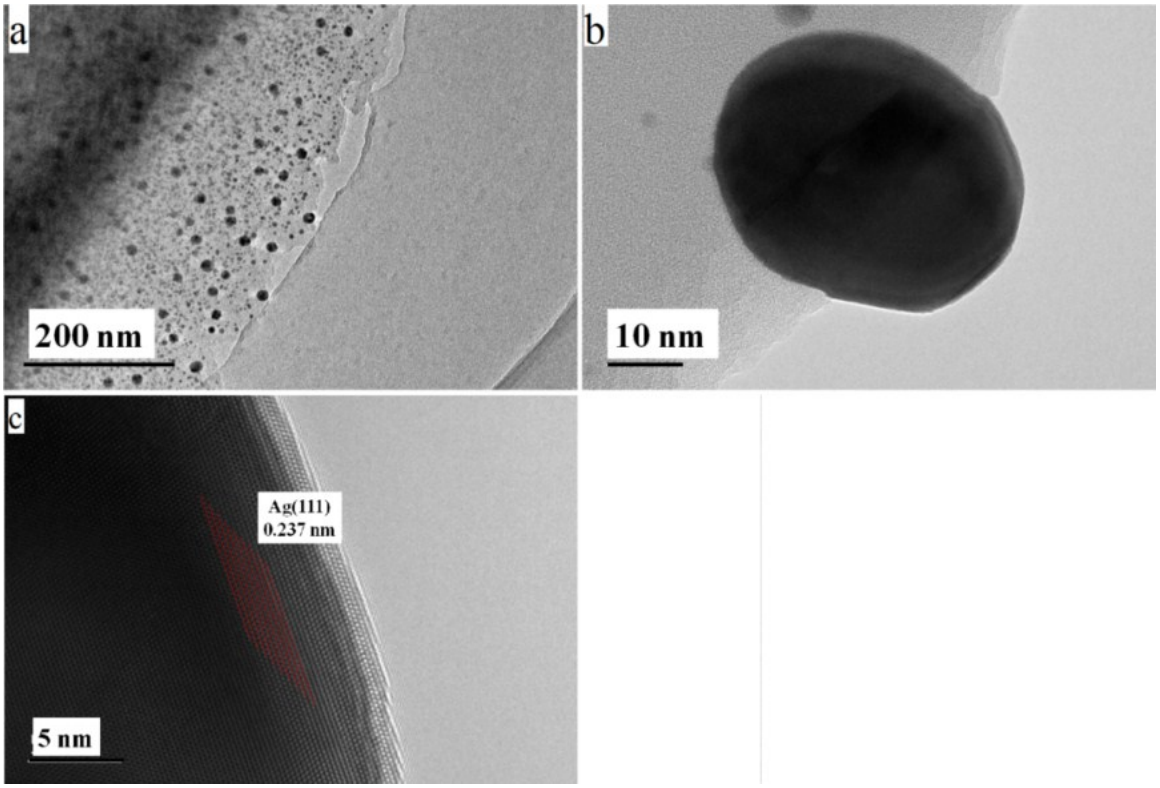

Fig. S12. The TEM image of Ag/C.

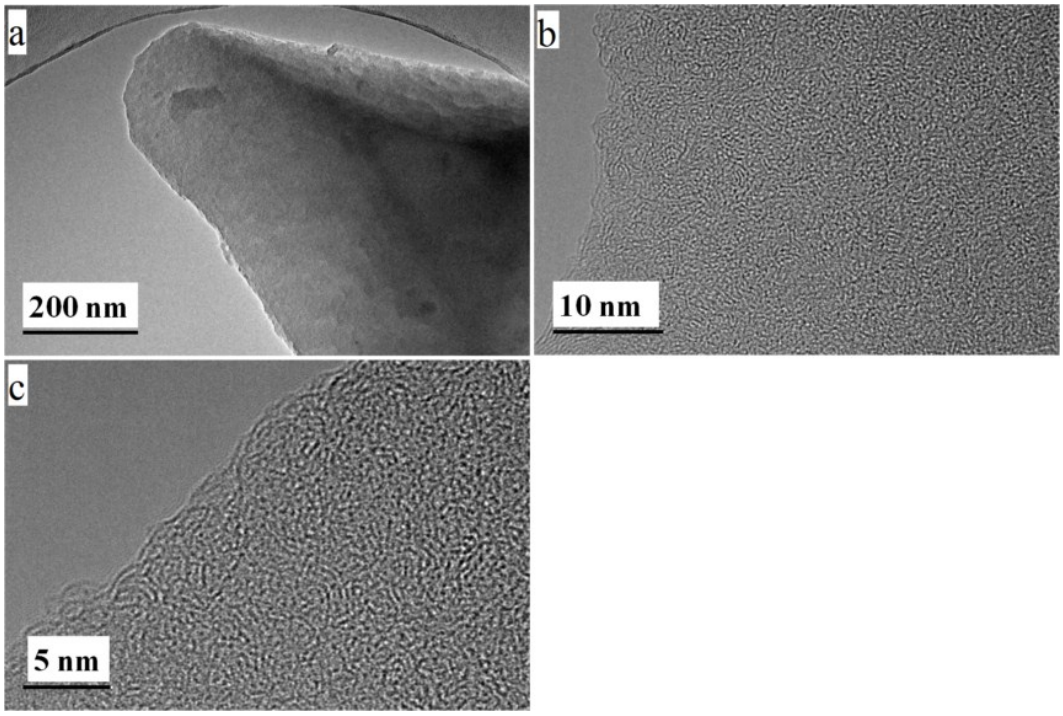

Fig.S13. The TEM image of C.

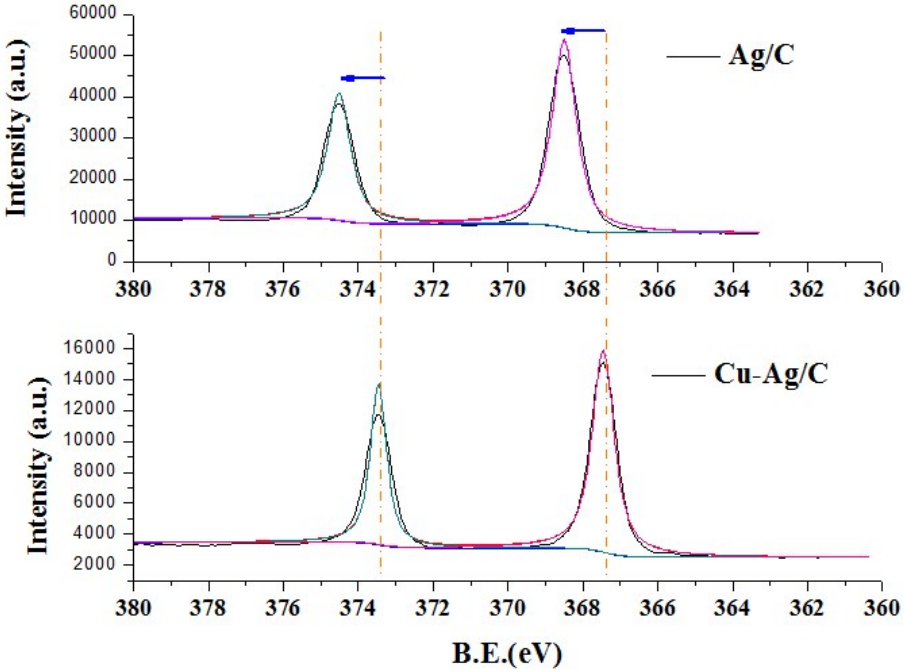

Fig.S14. XPS spectra of Ag 3d for Ag/C and Cu-Ag/C.

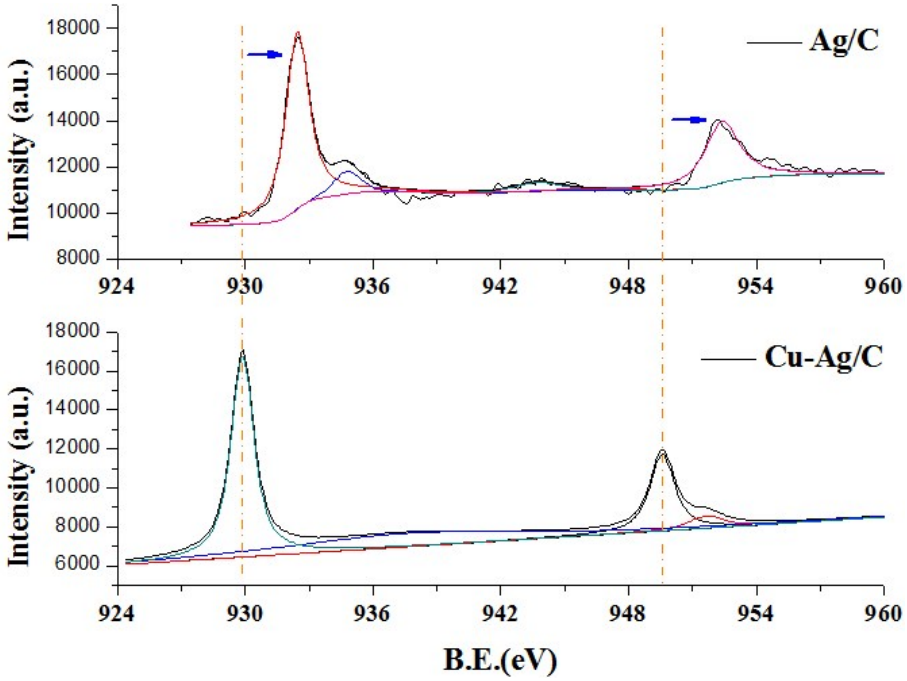

Fig.S15. XPS spectra of Cu 2p for Cu/C and Cu-Ag/C.