

A simple room temperature fast reduction technique for preparation of copper nanosheet powder

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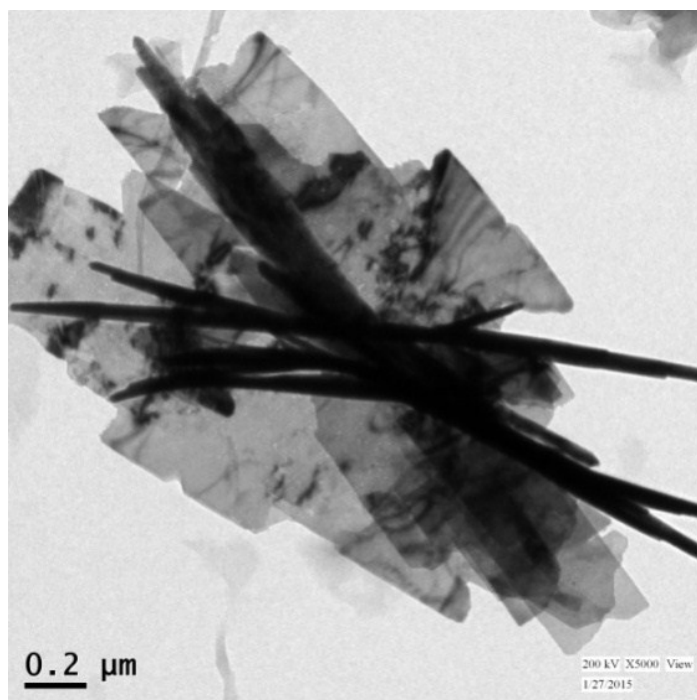


Fig. S1 TEM image of copper nanosheets in aqueous phase indicating nanosheets laid one upon other.

Table S1 Table representing the type of nanostructure obtained with respect to different metal precursors and reducing agents

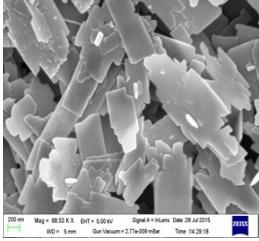
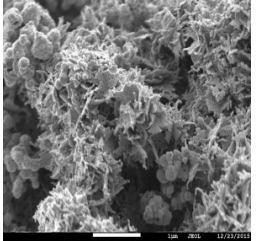
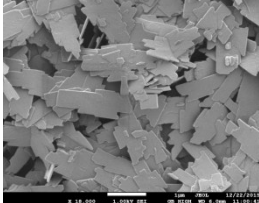
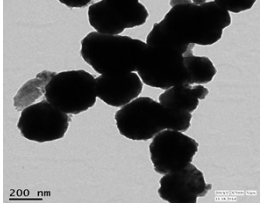
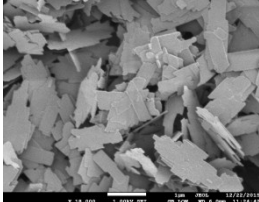
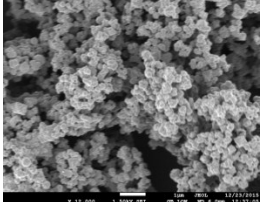
Reducing Agent Metal Precursor	Hydrazine hydrate (N_2H_4)	Sodium borohydride (NaBH_4)
Copper chloride dihydrate $(\text{CuCl}_2 \cdot 2\text{H}_2\text{O})$	 scale bar: 200 nm	 scale bar: 1 μm
Copper sulphate pentahydrate $(\text{CuSO}_4 \cdot 5\text{H}_2\text{O})$	 scale bar: 1 μm	 scale bar: 200 nm
Copper nitrate trihydrate $(\text{Cu}(\text{NO}_3)_2 \cdot 3\text{H}_2\text{O})$	 scale bar: 1 μm	 scale bar: 1 μm

Table S2 Table showing the stability of colloid with respect to polarity index of various solvents. The relative polarity of the solvents have been taken from (Christian Reichardt, *Solvents and Solvent Effects in Organic Chemistry*, Wiley-VCH Publishers, 3rd ed., 2003)

Solvent	Relative Polarity	Stability of colloid
Water	1.00	3 months
Ethanol	0.654	2 months
Methanol	0.762	2 months
Dimethylsulfoxide (DMSO)	0.444	1.5 months
Chloroform	0.259	Weeks
Hexane	0.009	20 minutes
Toluene	0.099	10 minutes

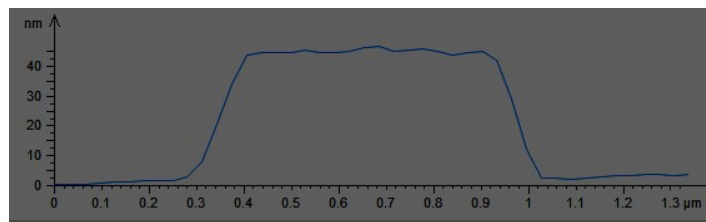
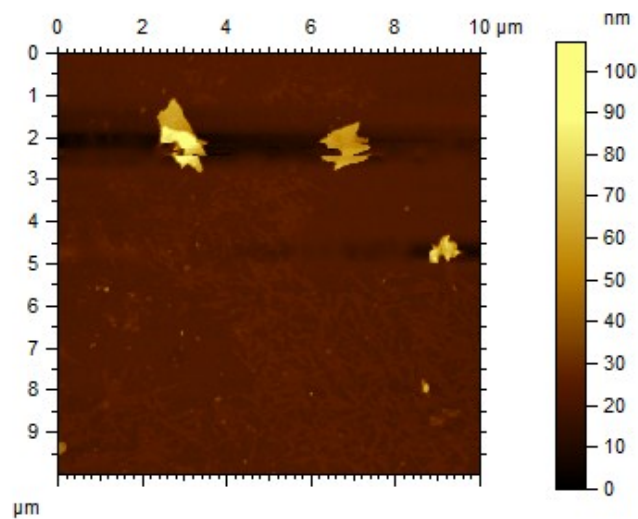


Fig. S2 AFM and corresponding thickness profile of copper nanosheets redispersed in DMSO.

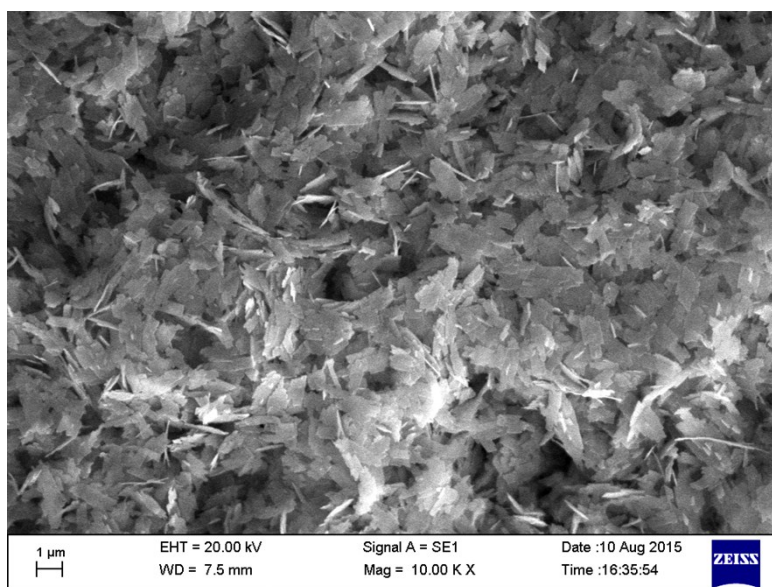


Fig. S3 SEM image of copper nanosheets redispersed in ethanol.

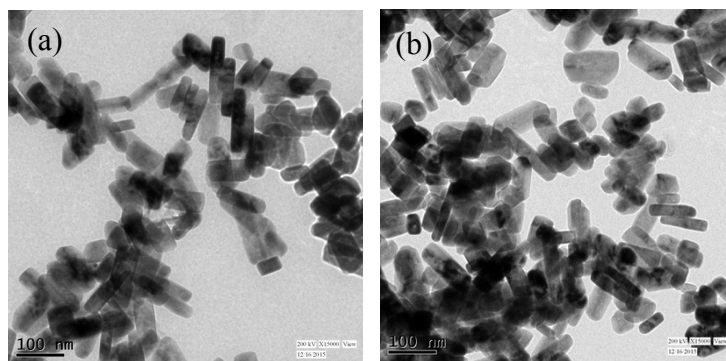


Fig. S4 TEM images of copper nanosheets in (a) DMSO and (b) chloroform after storing for overnight.

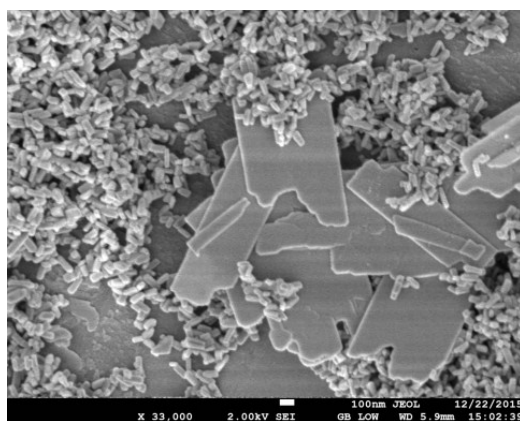


Fig. S5 FESEM of copper nanostructures in DMSO after 4 rounds of precipitation and redispersion.

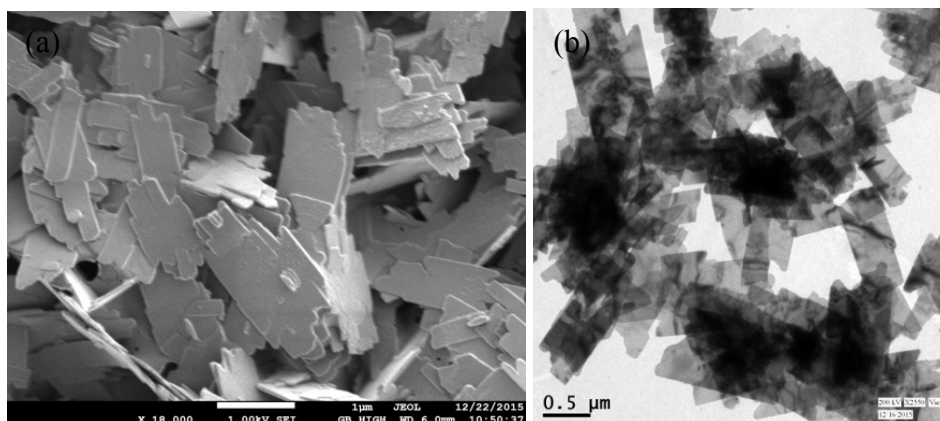


Fig. S6 (a) FESEM of copper nanostructures in chloroform after 4 rounds of precipitation and redispersion and (b) TEM of copper nanostructures in chloroform after 8 rounds of precipitation and redispersion.