Supporting Information

Highly Monodisperse $Cu_3Mo_2O_9$ Micropompons with Excellent Performance in Photocatalysis, Photocurrent Response and Lithium Storage

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A list of the contents for all the supporting information

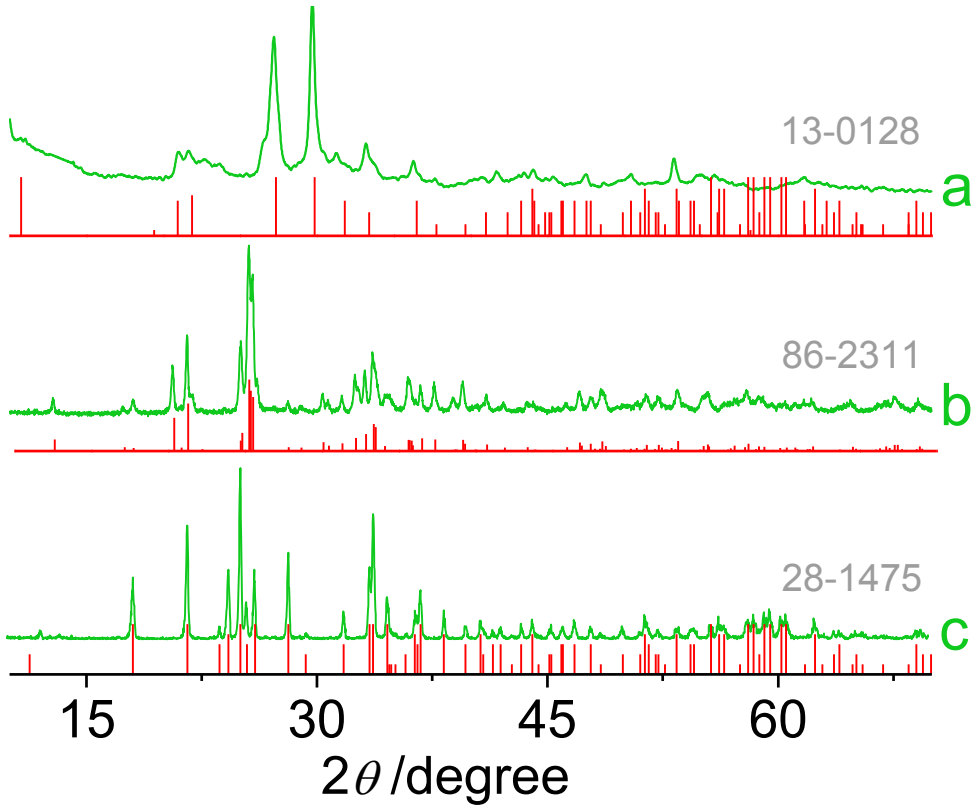

Figure S1. The XRD patterns of $NiMoO_4$ xH_2O (a), $Cu_3(OH)_2(MoO_4)_2$ (b) and $Zn_3(OH)_2(MoO_4)_2$ (c).

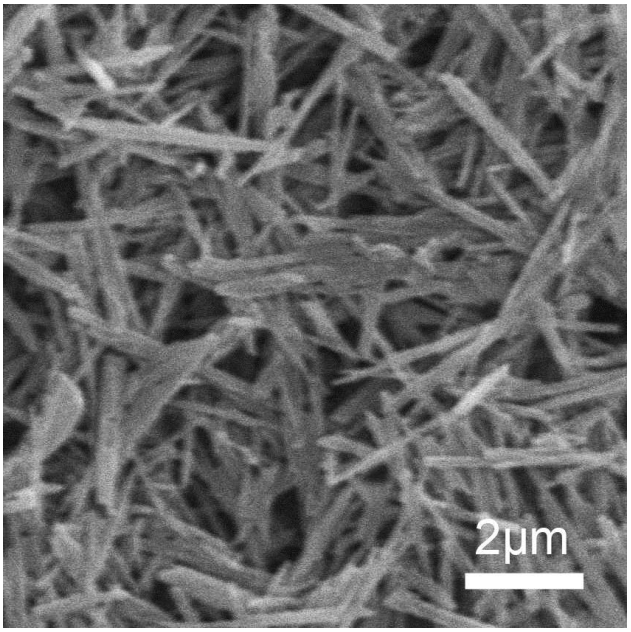

Figure S2. FE-SEM image of $NiMoO_4$ xH_2O.

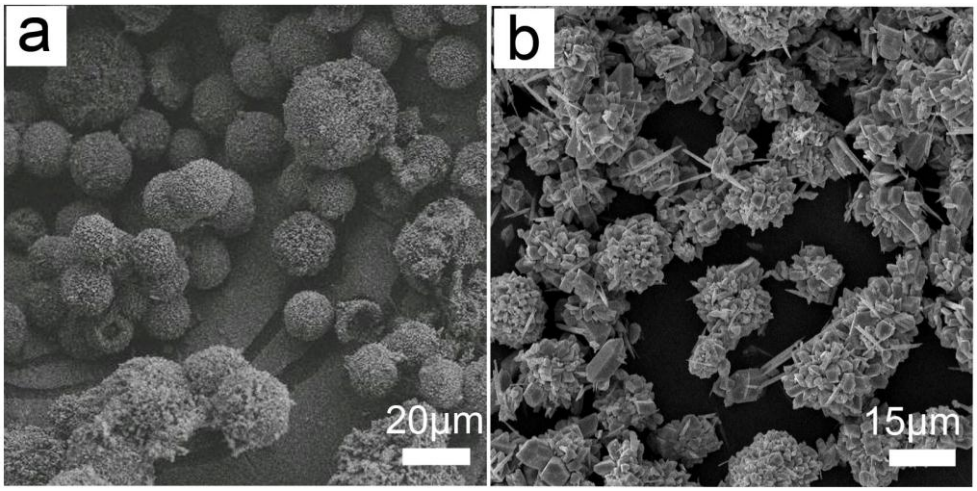

Figure S3. FE-SEM images of $Cu_3(OH)_2(MoO_4)_2$ (a) and $Zn_3(OH)_2(MoO_4)_2$ (b).

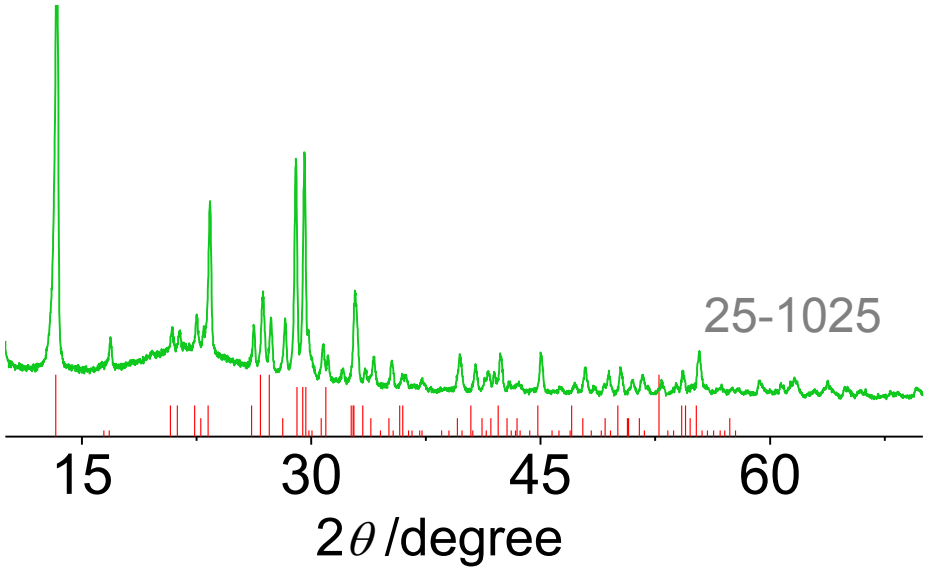

Figure S4. XRD pattern of $ZnMoO_4$ $0.8H_2O$.

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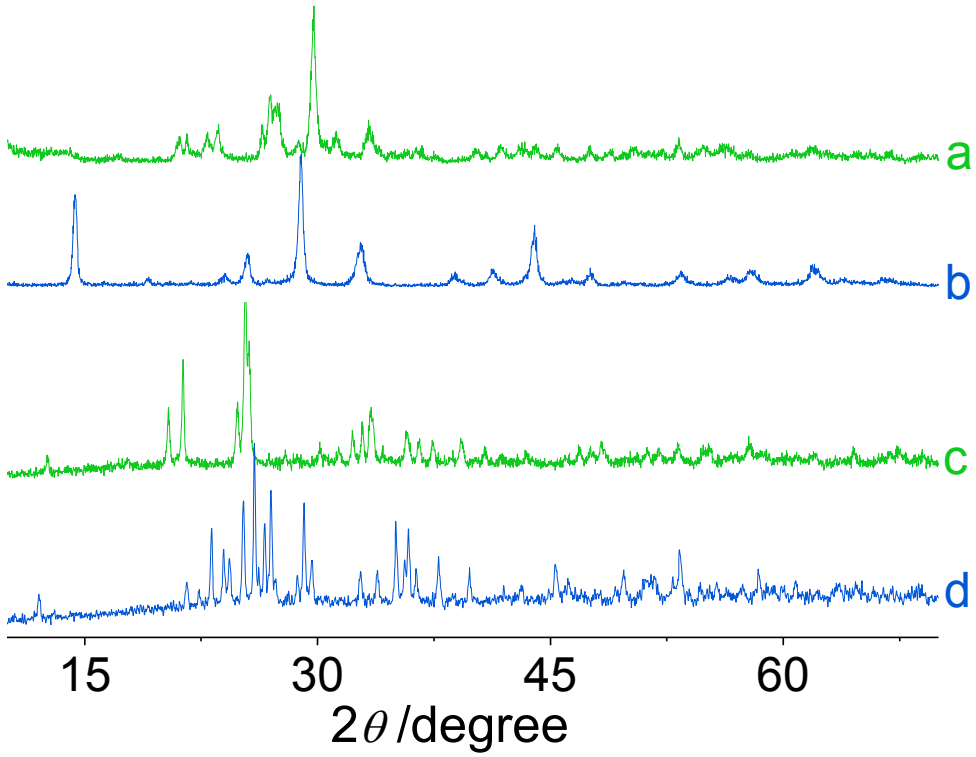

Figure S5. XRD patterns of $NiMoO_4$ $x$$H_2O$ (a) and $Cu_3(OH)_2(MoO_4)_2$ (c) obtained at 383 K for heating time of 10 h with a 2:1 initial molar ratio of Mo to Ni and Mo to Cu; α-$NiMoO_4$ (b) and $Cu_3Mo_2O_9$ (d) were their sintering products at 873 K for 3 h.

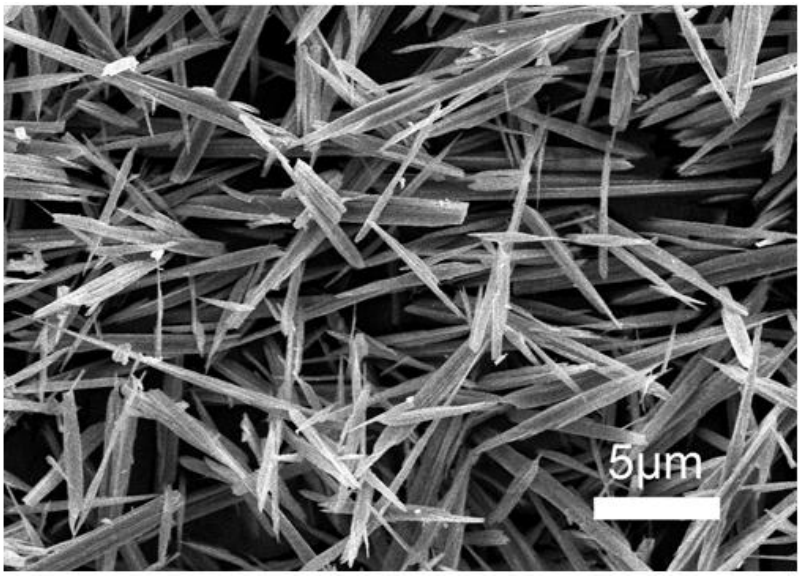

Figure S6. FE-SEM image of $ZnMoO_4$ $0.8H_2O$.

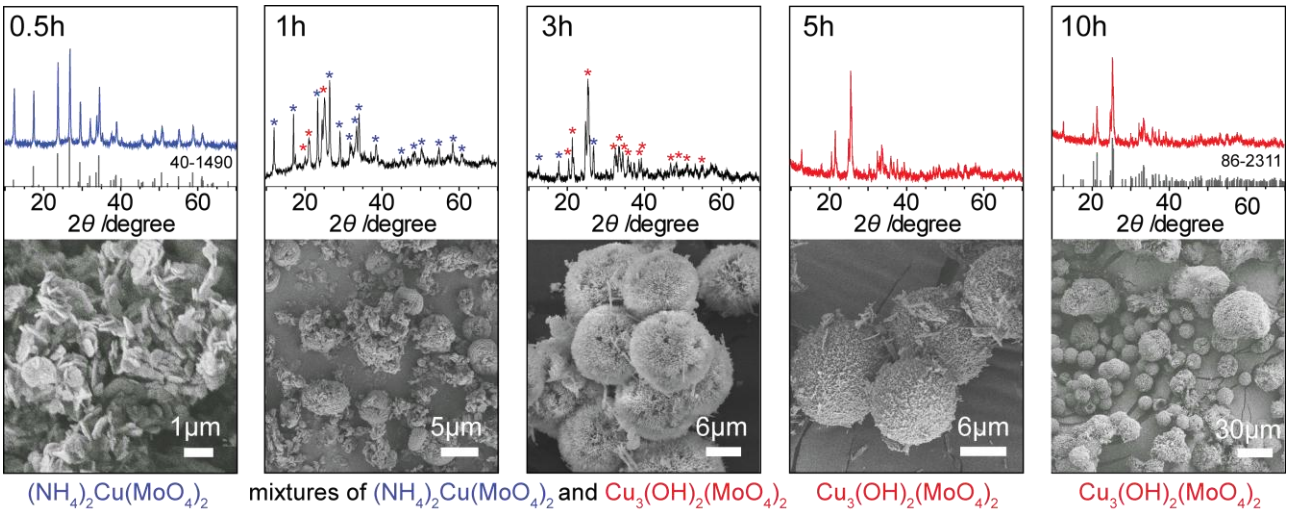

Figure S7. The evolution of the precursor $Cu_3(OH)_2(MoO_4)_2$ performed at 383 K for heating times of 0.5, 1, 3, 5 and 10 h.

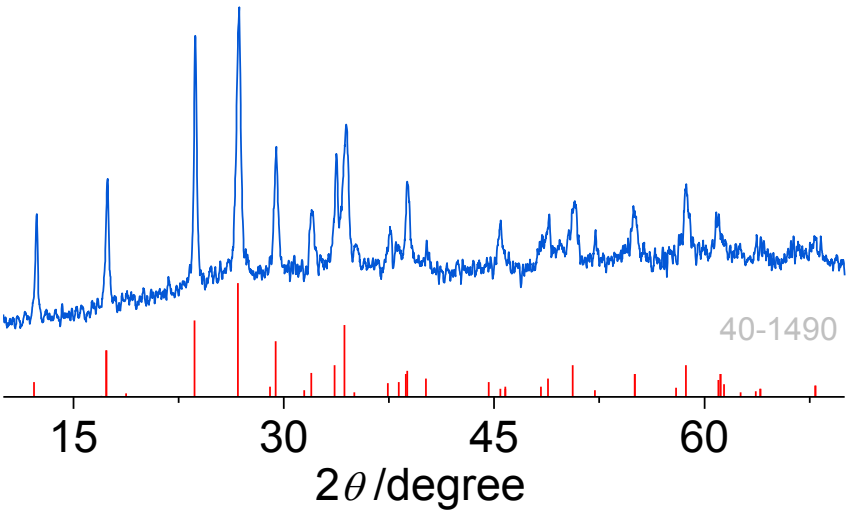

Figure S8. XRD pattern of the $(NH_4)_2Cu(MoO_4)_2$ obtained by changing water to anhydrous ethanol at 383 K for heating time of 10 h.

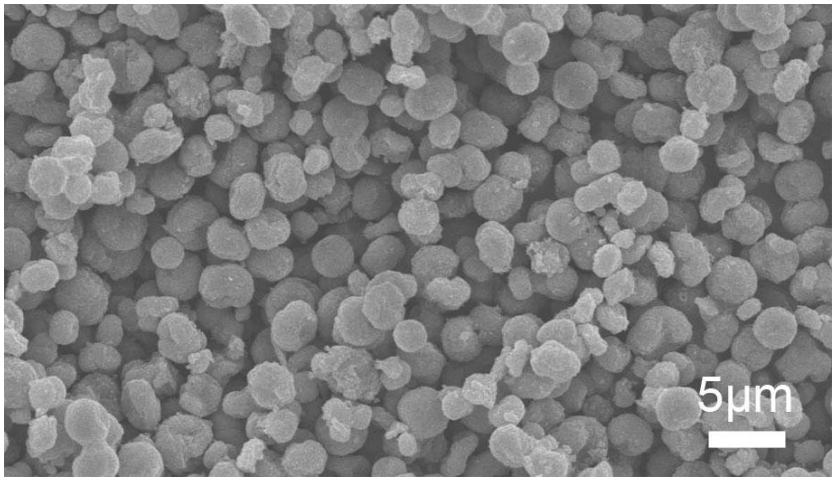

Figure S9. FE-SEM image of the $(NH_4)_2Cu(MoO_4)_2$ obtained by changing water to anhydrous ethanol at 383 K for heating time of 10 h.

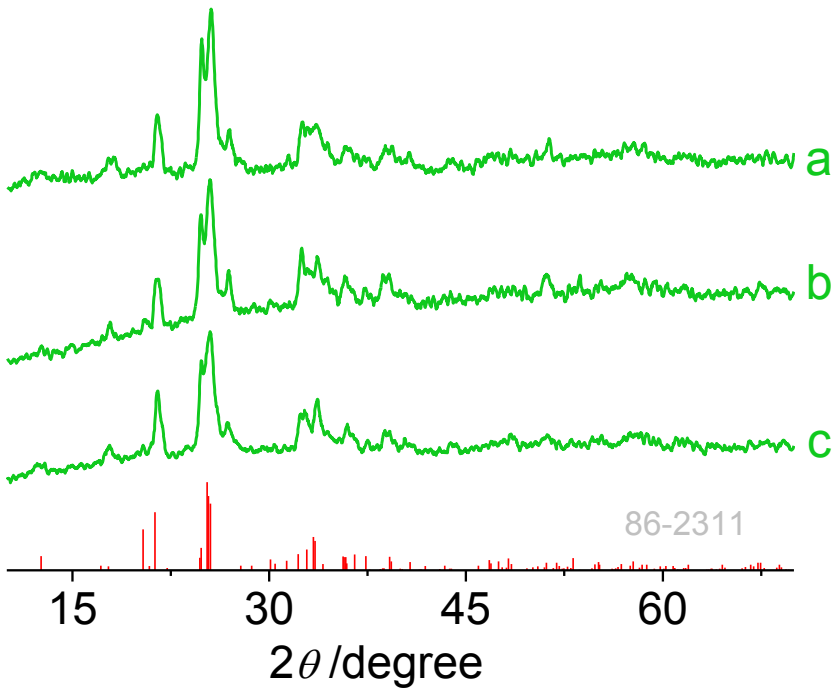

Figure S10. XRD patterns of the $Cu_3(OH)_2(MoO_4)_2$ materials obtained at 383 K for heating time of 0.5 h in the presence of HCl (a), HAc (b) and H_4Y (c).

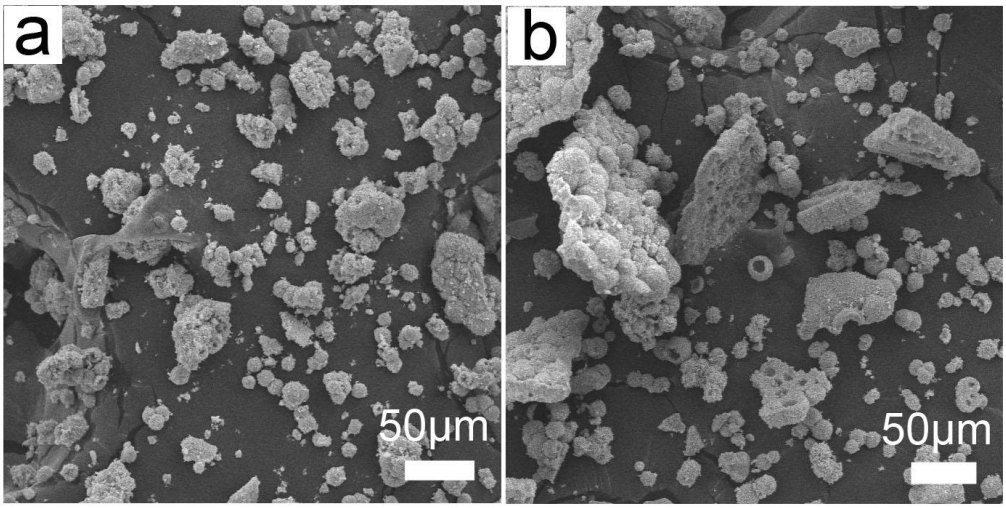

Figure S11. FE-SEM images of the $Cu_3(OH)_2(MoO_4)_2$ materials obtained at 383 K for heating time of 10 h in the presence of HCl (a) and HAc (b).

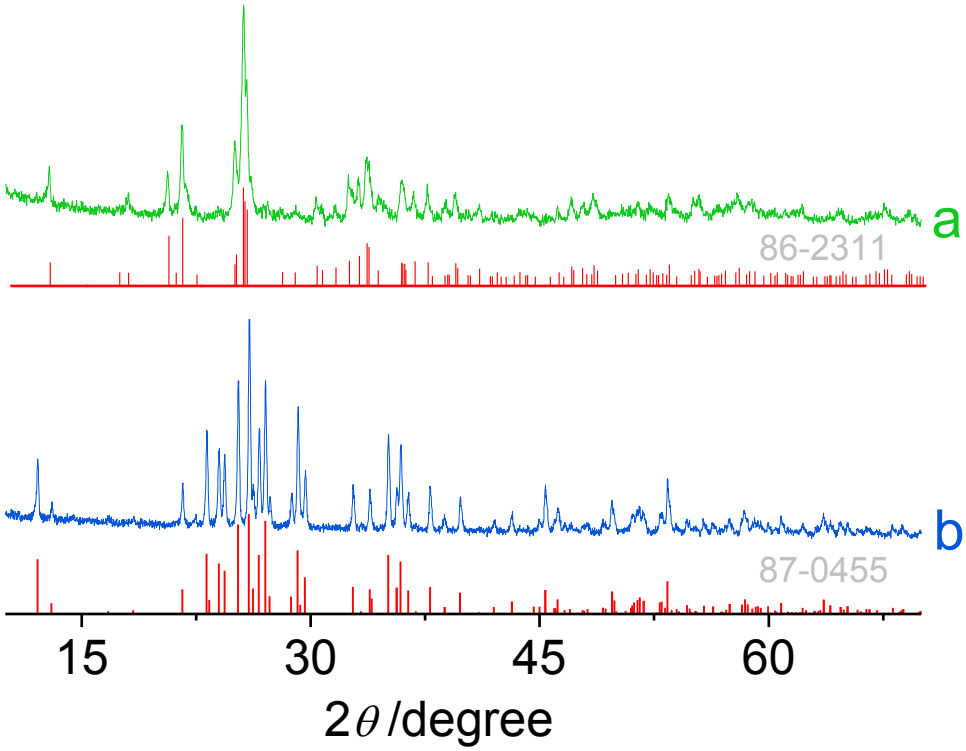

Figure S12. XRD patterns of the $Cu_3(OH)_2(MoO_4)_2$ microurchins (a) and $Cu_3Mo_2O_9$ micropompons (b).

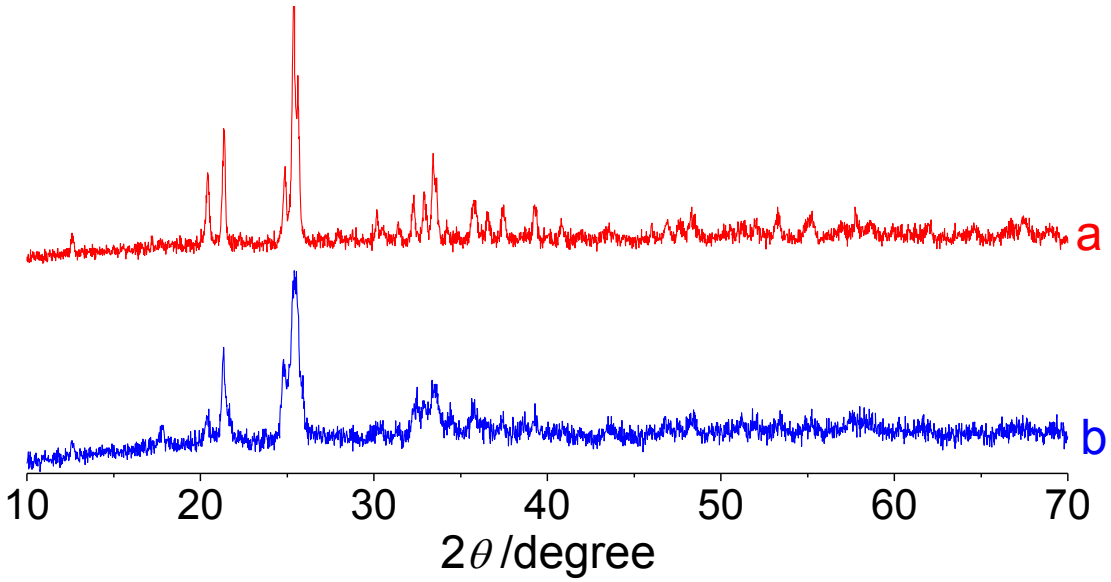

Figure S13. XRD patterns of the spherical $Cu_3(OH)_2(MoO_4)_2$ material prepared at 383 K for 10 h in the presence of 0.10 (a) and 0.30 g (b) H_4Y.

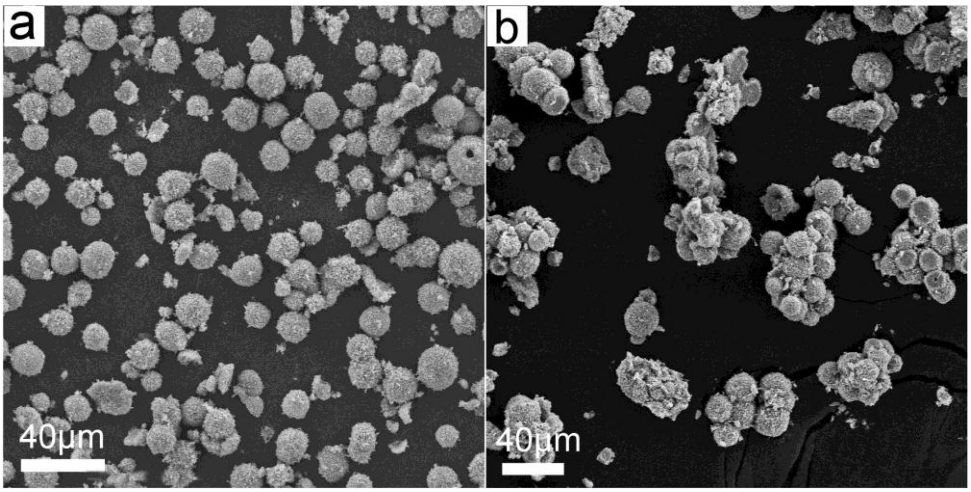

Figure S14. FE-SEM images of the spherical $Cu_3(OH)_2(MoO_4)_2$ material prepared at 383 K for 10 h in the presence of 0.10 (a) and 0.30 g (b) H_4Y.

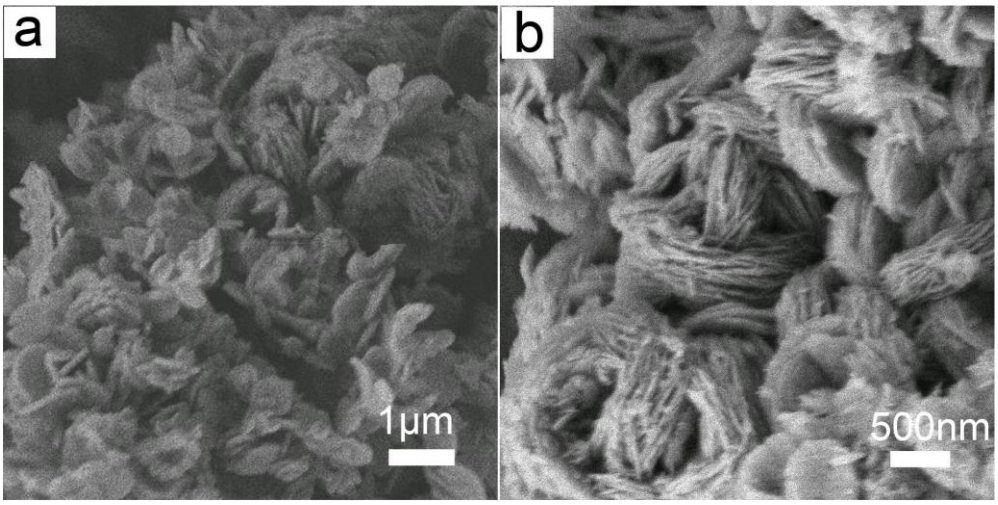

Figure S15. FE-SEM images of the $(NH_4)_2Cu(MoO_4)_2$ materials obtained at 383 K for heating time of 0.5 h in the absence (a) and presence (b) of Na_2H_2Y.

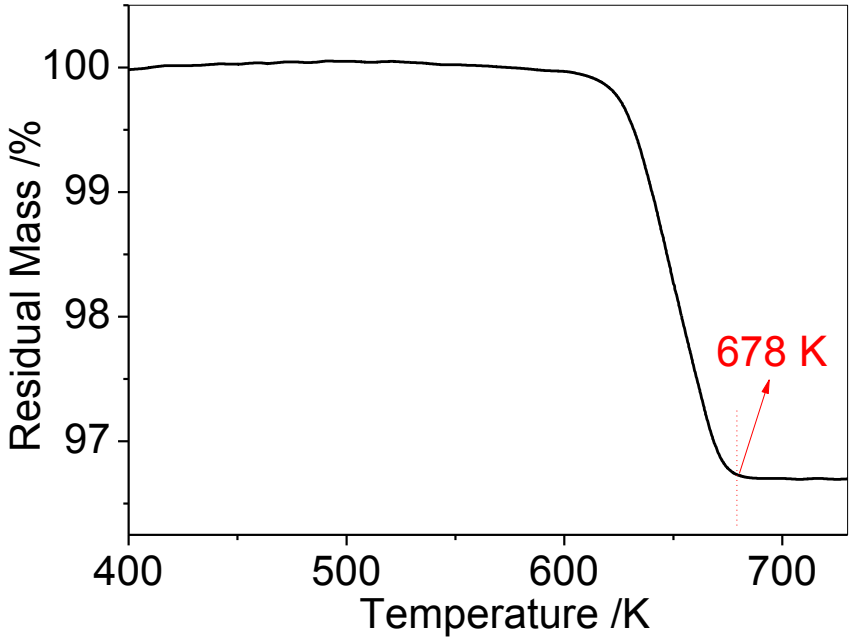

Figure S16. TG curve of the $Cu_3(OH)_2(MoO_4)_2$ microurchins in air at a heating rate of 10.0 K min^{-1}.

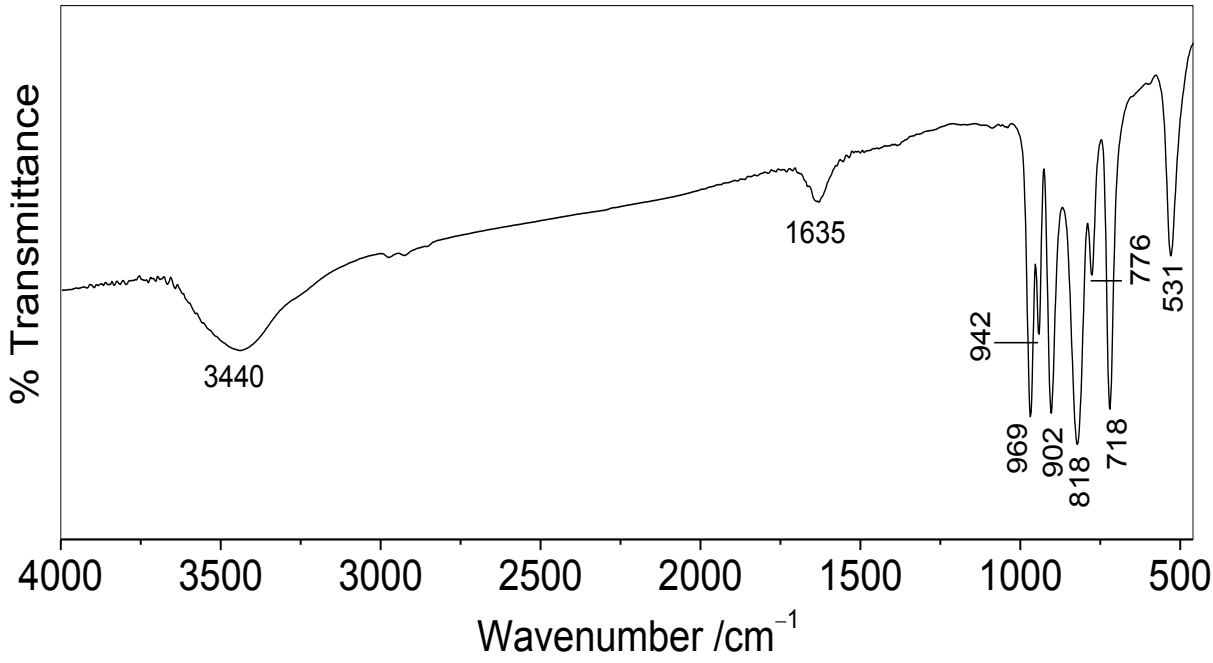

Figure S17. FTIR spectrum of the $Cu_3Mo_2O_9$ micropompons.

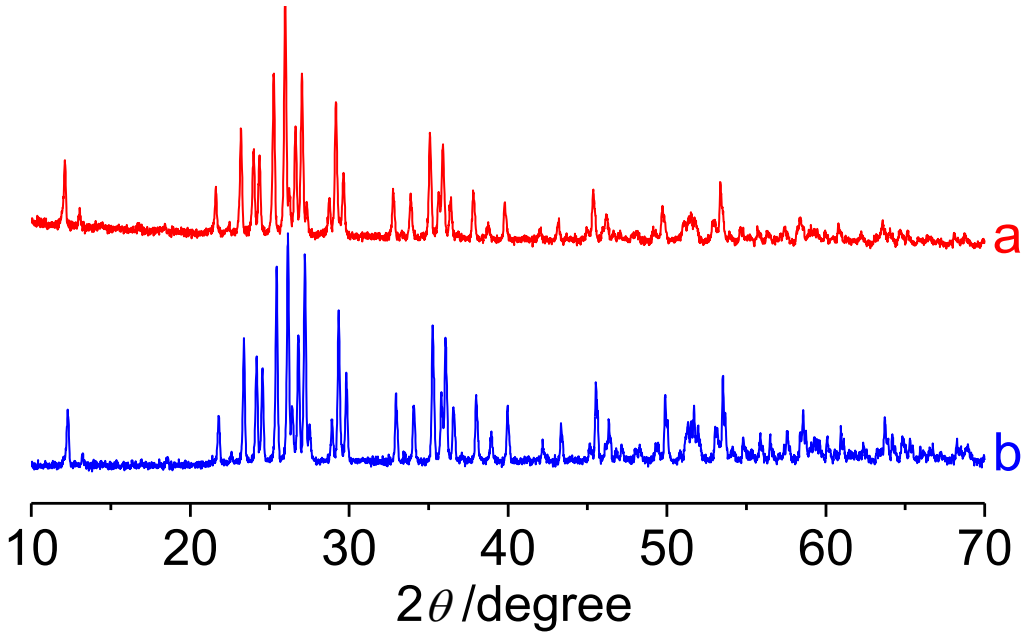

Figure S18. XRD patterns of the $Cu_3Mo_2O_9$ materials obtained by sintering the $Cu_3(OH)_2(MoO_4)_2$ microurchins at 773 (a) and 973 K (b) for 3 h under air condition.

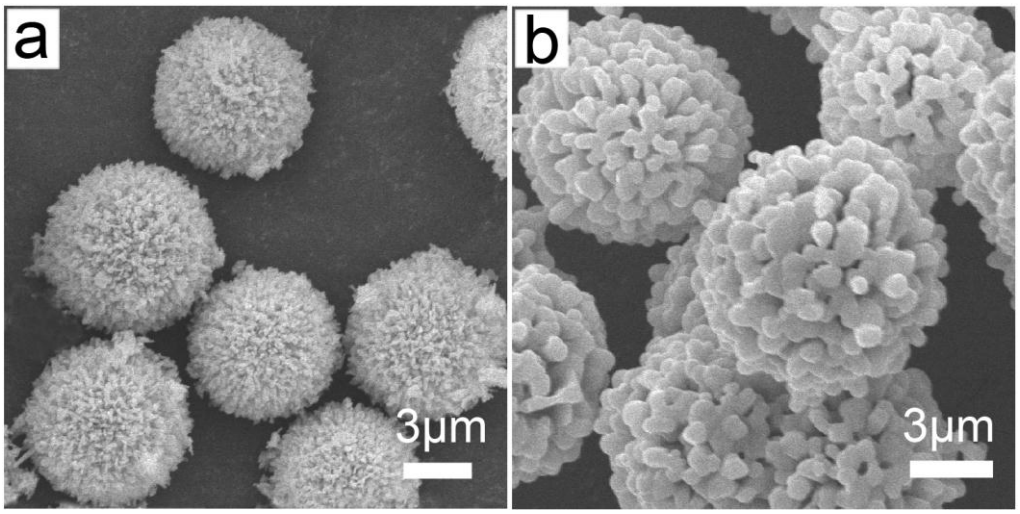

Figure S19. FE-SEM images of the $Cu_3Mo_2O_9$ materials obtained by sintering the $Cu_3(OH)_2(MoO_4)_2$ microurchins at 773 (a) and 973 K (b) for 3 h under air condition.

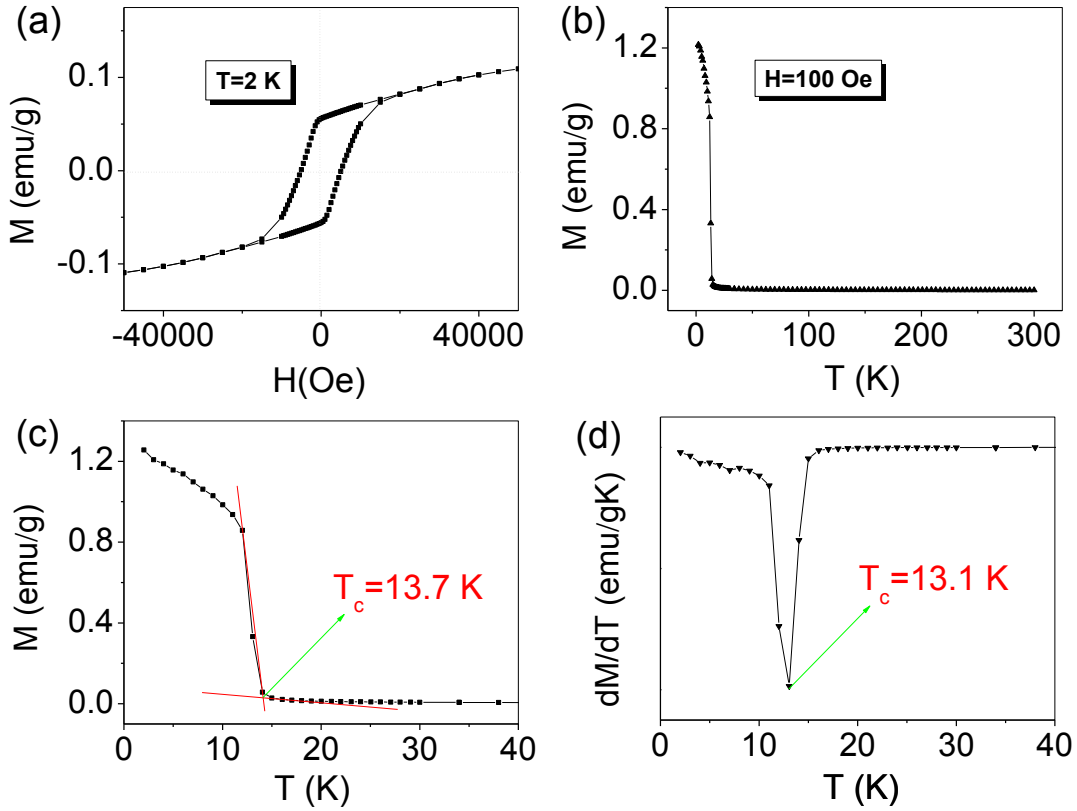

Figure S20. Field dependence of magnetization of the $Cu_3(OH)_2(MoO_4)_2$ microurchins at 2 K in the applied fields: from −50000 to 50000 Oe (a), temperature dependence of magnetization of the $Cu_3(OH)_2(MoO_4)_2$ microurchins at 100 Oe from 2 to 300 K (b), a sketch map of linear extrapolation in achieving Curie temperature (T_C) from 2 to 40 K (c), and an illustration of M/T differential coefficient method (d) in obtaining T_C from 2 to 40 K.

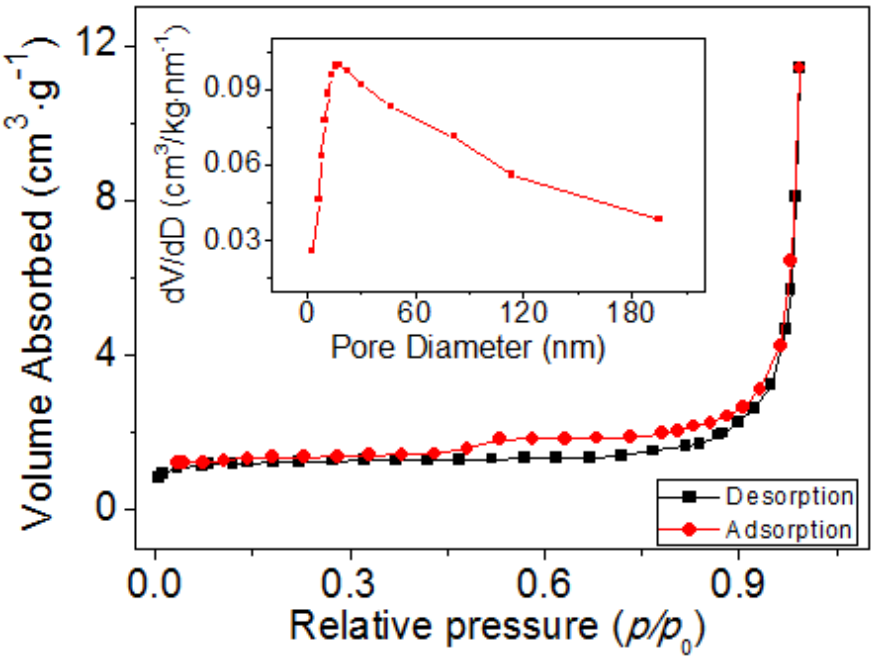

Figure S21. N_2 adsorption-desorption isotherm and pore size distribution (inset) of the $Cu_3Mo_2O_9$ micropompons.

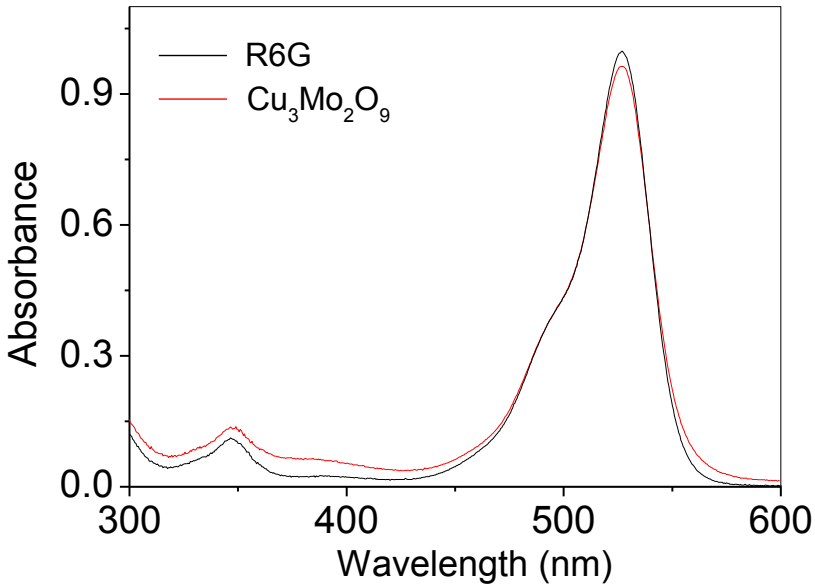

Figure S22. UV–Vis absorption spectra of the R6G solutions before and after being treated by the $Cu_3Mo_2O_9$ micropompons for 150 min.