Electronic Supplementary Material (ESI) for RSC Advances.

Metal oxide QDs based ultrasensitive microsphere fluorescent sensor for copper, chromium and iron ions in water

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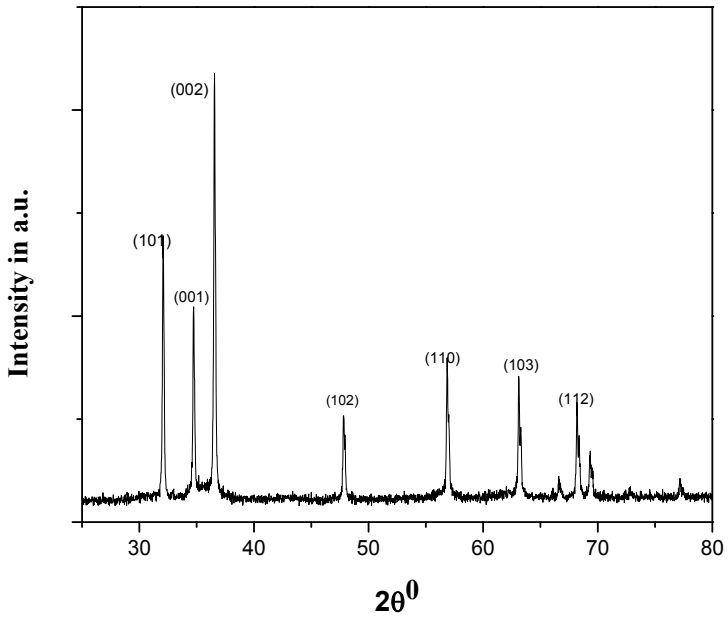


Figure S1a: XRD spectrum of synthesized ZCM microsphere

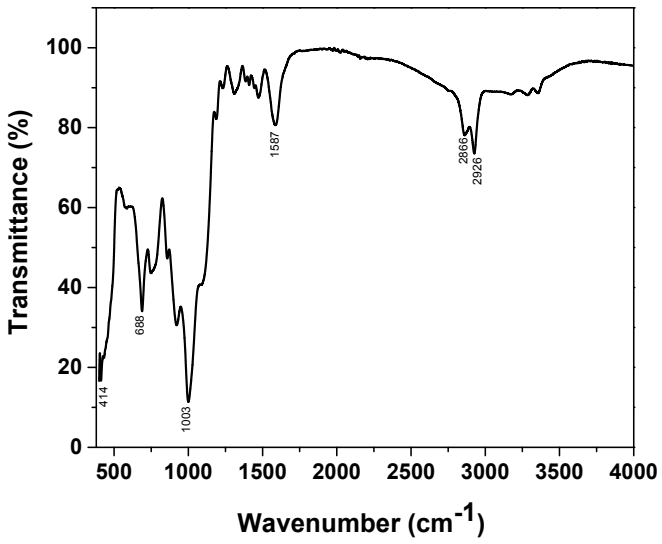
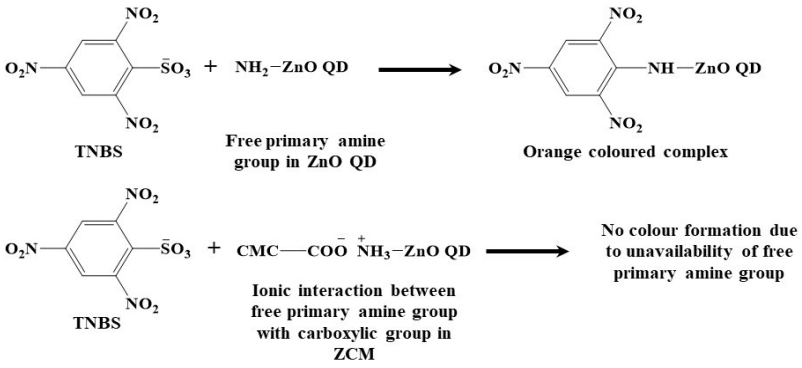


Figure S1b: FTIR spectrum of synthesized ZCM microsphere



Scheme S1: TNBS assay chemistry for ZnO QDs and ZCM

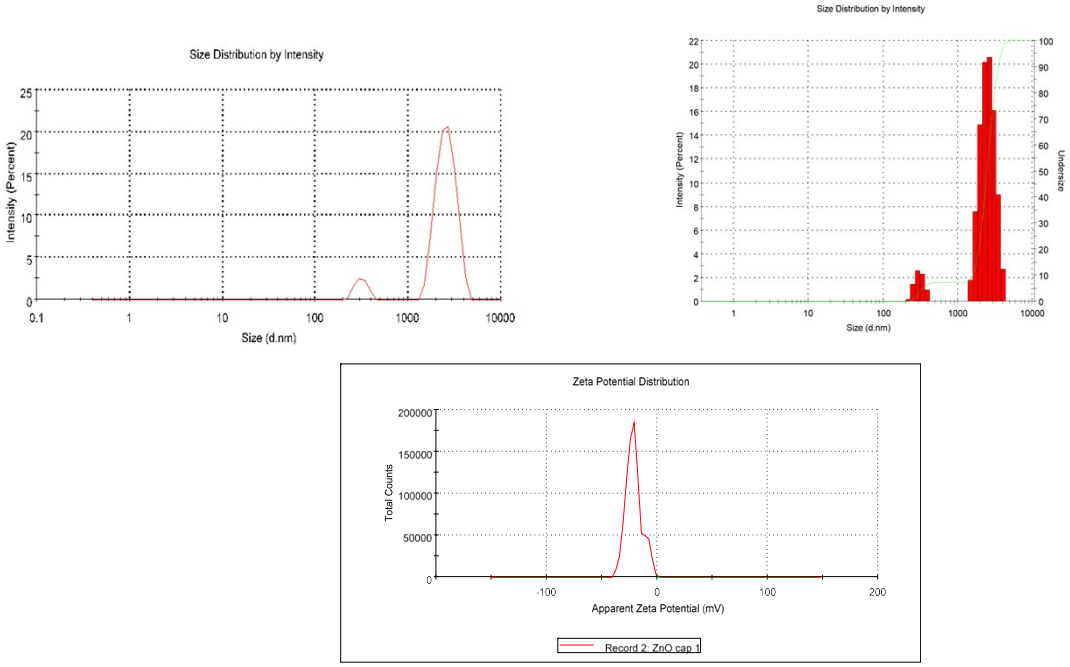


Figure S2. (a) DLS (b) Histogram of size distribution(c) Zeta potential of ZCM microsphere

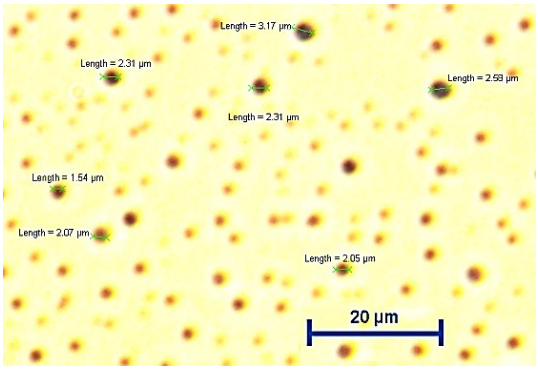


Figure S3: Fluorescence Microscopic image of ZCM microsphere

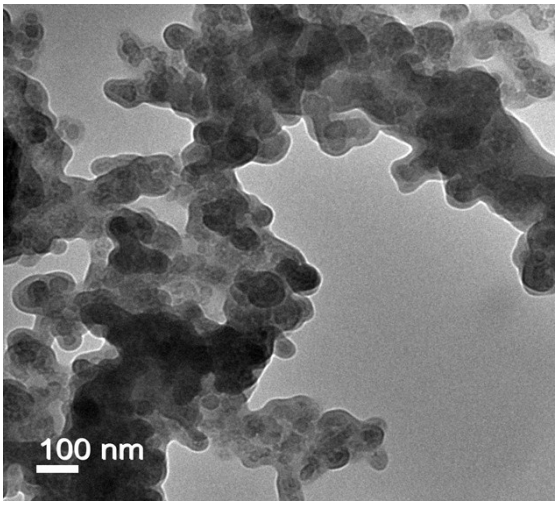
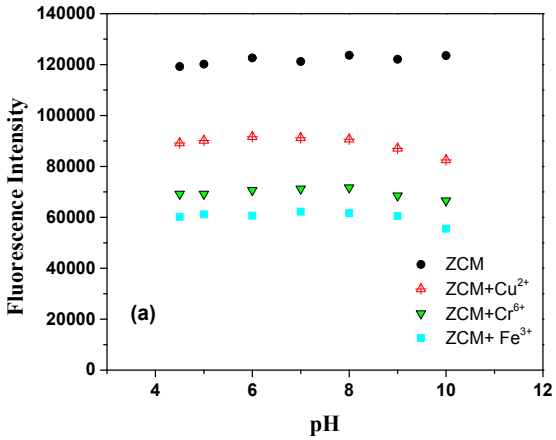
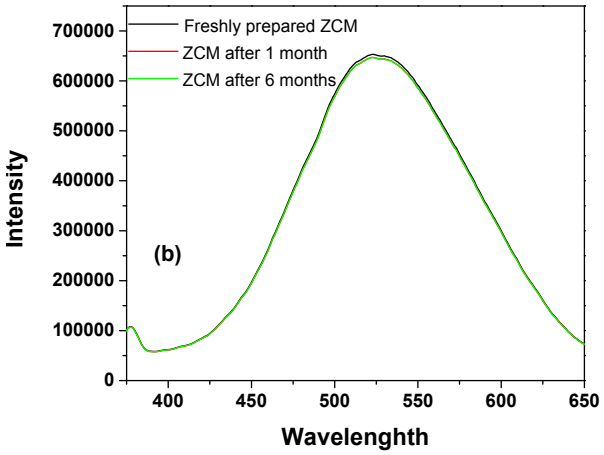


Figure S4: TEM image of ZCM microsphere (Only QDs inside microsphere are detected)





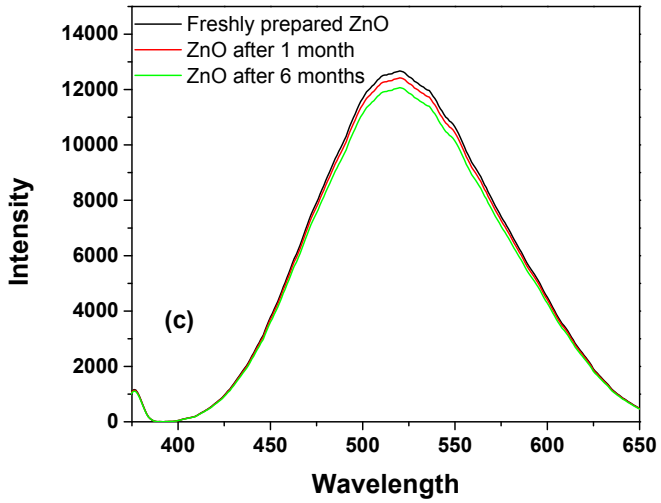


Figure S5. Fluorescence stability of as-prepared ZCM (a) in different pH solutions, (b) time scan for 6 months at 340 nm excitation. (c) time scan for ZnO QDs

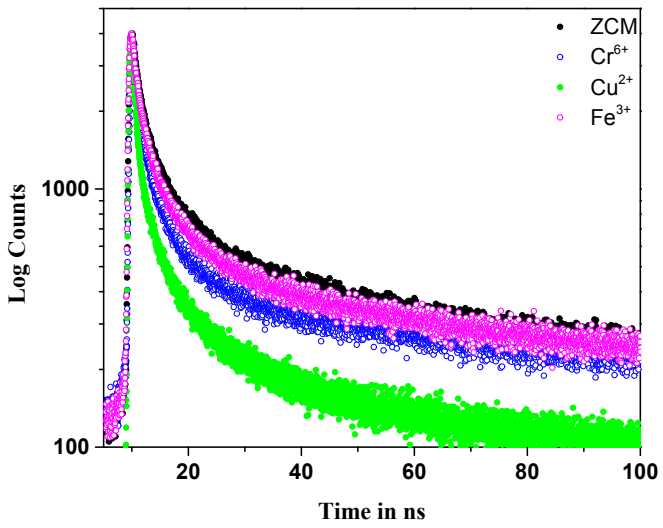
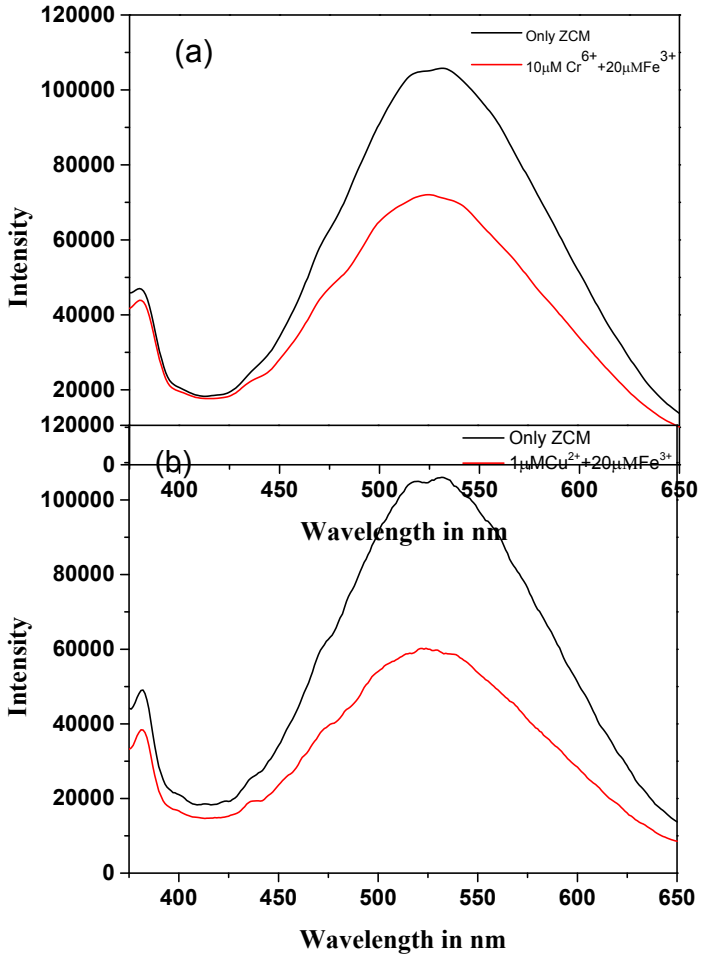


Figure S6: Time-resolved fluorescence decays of ZCM in aqueous solution and in presence of different metal ions.



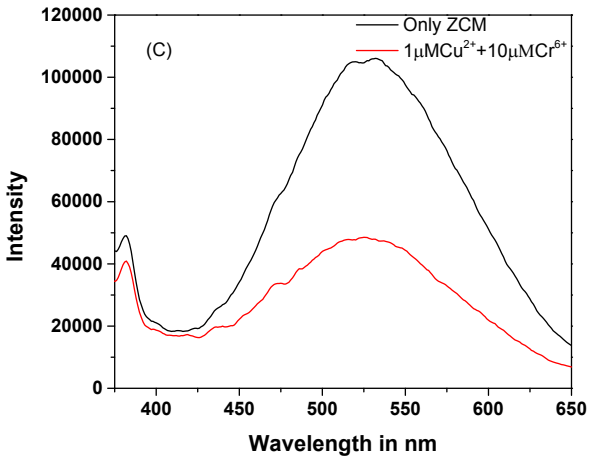


Figure S7 : Fluorescence intensity of ZCM in presence of two metal ions (a) Cr^{6+} and Fe^{3+} (b) Cu^{2+} and Fe^{3+} (c) Cu^{2+} and Cr^{6+}

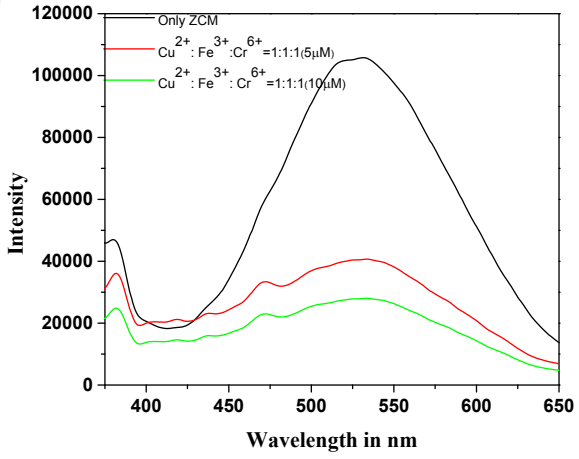


Figure S8: Fluorescence Intensity of ZCM in presence of three metal ions (Cu^{2+}, Fe^{3+}, Cr^{6+}) of different concentration.

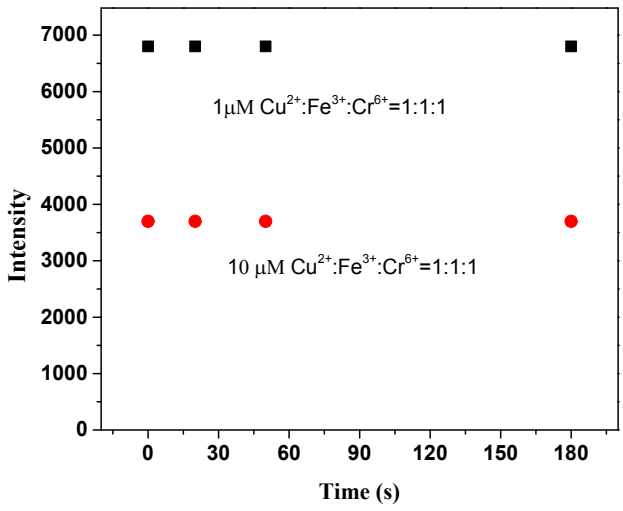


Figure S9: Fluorescence Intensity of ZCM in presence of different concentration of mixed metal ions at different time