Upcycling Waste Zirconia Blocks Dental Powders: Towards a Facile and High Selective On-Off Optical Probe for Zn²⁺ and Hg²⁺ in Aqueous Media

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Fig. S1. DLS analysis of ZrO₂ and ZrO₂-8-HQS



Fig. S2. Zeta potential analysis of ZrO₂-8-HQS



Fig. S3. Normalized absorption spectra of HQS, ZrO₂+HQS, and ZrO₂-HQS+Zn²⁺



Fig. S4. The titration plot of ZrO₂-8-HQS through the addition of Zn^{2+} in $\lambda_{ex} = 270$ nm.



Fig. S5. Time response of ZrO_2 -8-HQS in the presence of Zn^{2+} .



Fig. S6. The titration plot of ZrO_2 -8-HQS- Zn^{2+} through the addition of Hg^{2+} in $\lambda_{ex} = 270$ nm.



Fig. S7. Time response of ZrO_2 -8-HQS- Zn^{2+} in the presence of Hg^{2+} .



Fig. S8. Studies effects of a wide range of pH on the emission intensity of the ZrO_2 -8-HQS in the presence of Zn^{2+} ion ($\lambda_{ex} = 270$ nm).