Cr (VI), Pb (II), Cd (II) adsorption property of nanostructured BiOBr microsphere and its application in continuous filtering removal device for heavy metal ions

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1.Standard curve of Cr (VI) concentration vs.bsorbance.

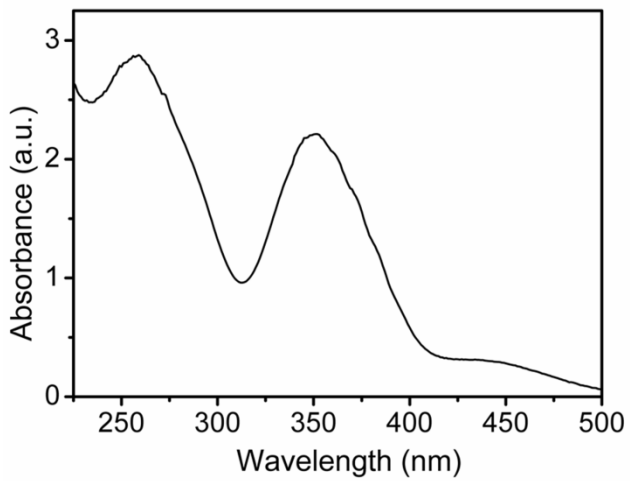

Figure S1.UV-visible spectrum of $K_2Cr_2O_7$aqueous solution.

Figure S1 shows the UV-Visible spectrum of Cr (VI) aqueous solution with a concentration of 35 mg/L. It can be seen that there is a characteristic absorption peak at 353nm. By testing the absorbance of Cr (VI)aqueous solution with different concentrations, a linear relationship between the concentration and the absorbance was established and is shown in Figure S2.

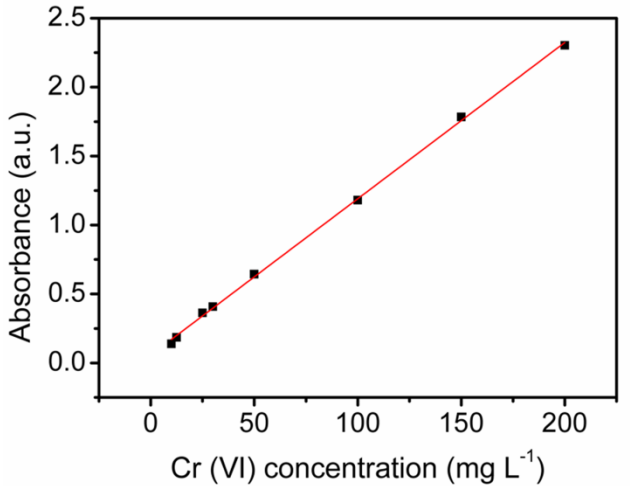

Figure S2. Absorbance of aqueous Cr (VI) solution as a function of aqueous Cr (VI) concentration.

2. XPS spectra of the as-prepared BiOBr microspheres

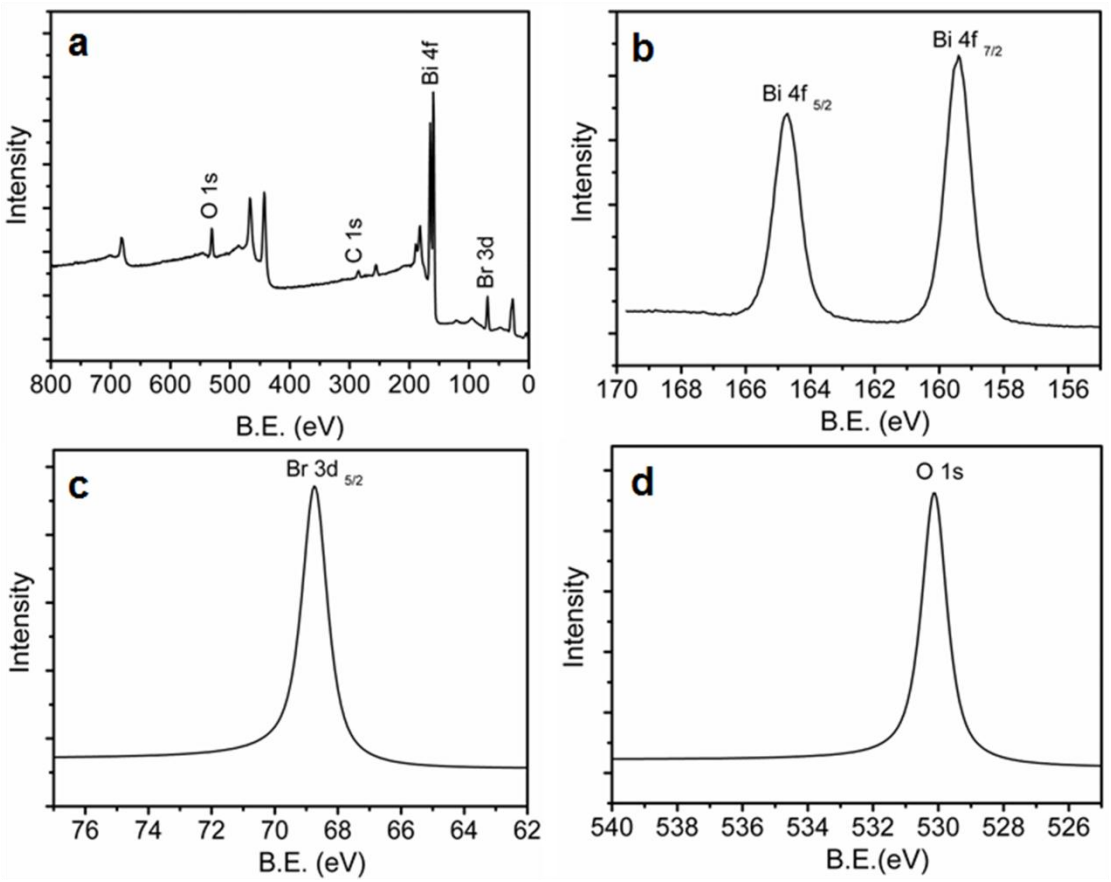

Figure S3. XPS spectra of the as-prepared BiOBr microspheres before adsorption of heavy metal ions.

3. Zeta potential of BiOBr nanostructures

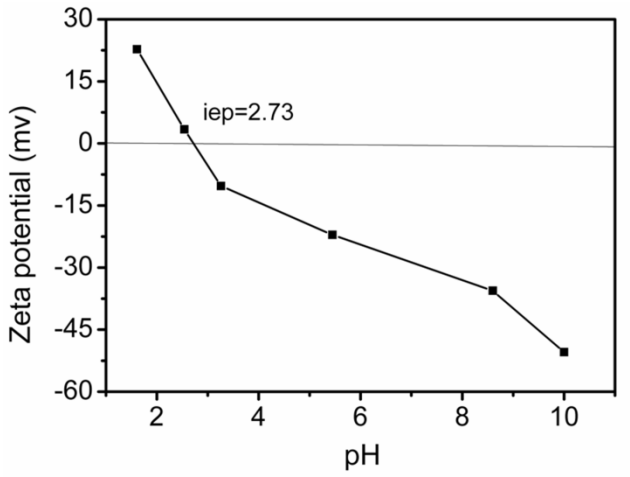

Figure S4. Zeta potential of BiOBr nanostructured microspheres with Bi to Br ratio of 1:5.

4. Cyclic utilization of the adsorbent

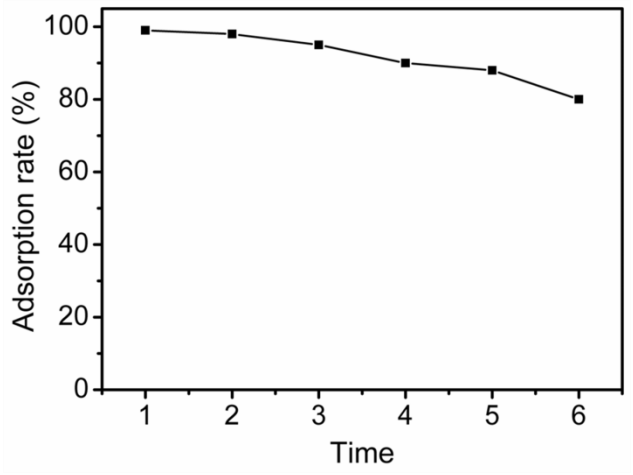

Figure S5. Cyclic utilization of the adsorbent for the adsorption of Cr (VI).

5. Adsorption of Pb (II) and Cd (II) ions

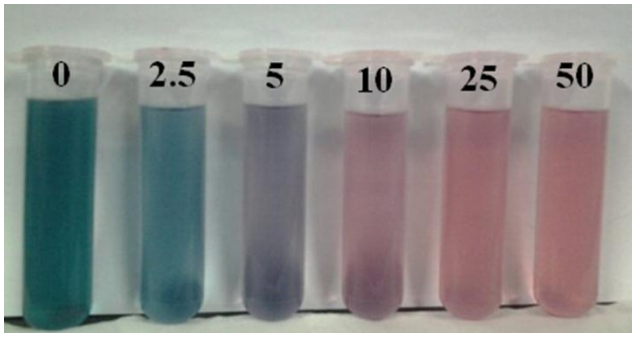

Figure S6. Appearance of dithizone and dithizone-Pb (II) complexes with different concentrations (mg/L) dissolved into chloroform.

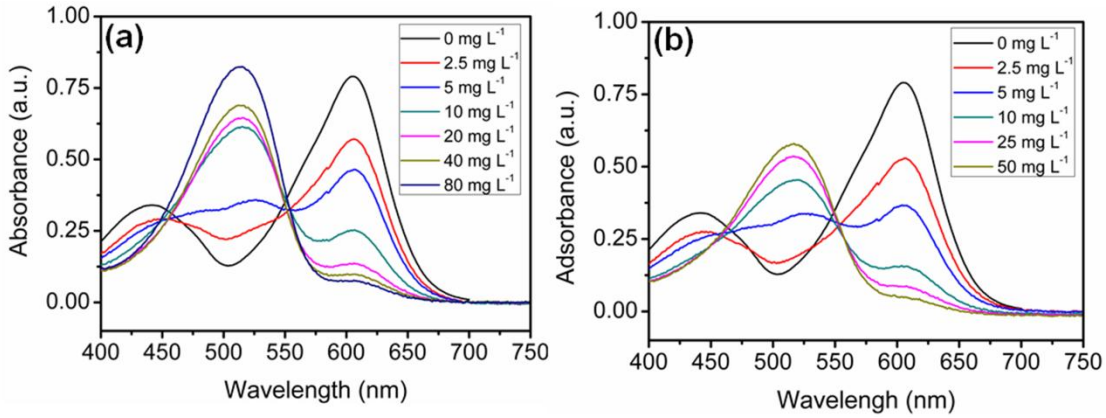

Figure S7. UV-Vis absorption spectra of different initial concentrations of (a) Cd (II) and (b) Pb (II) complexed with dithizone dissolved in chloroform.

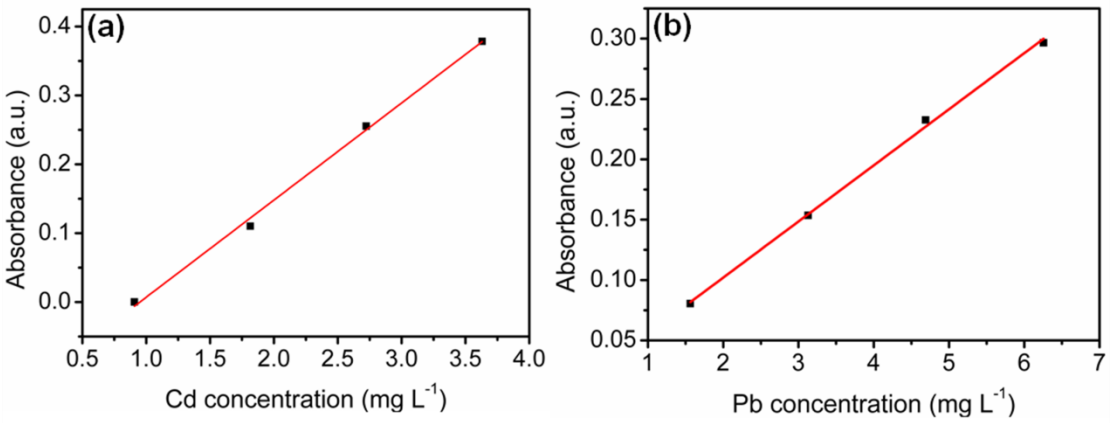

Figure S8. The relative absorbance of (a) Cd-dithizone and (b) Pb-dithizone complex after adsorption in chloroform as function of initial concentration of heavy metal ions. (R_a^2=0.997, R_b^2=0.997)