Novel Metal Imprinted Microsphere Prepared by Precipitation Polymerization and Its Application to Chromatographic Separations

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Molecular imprinting has now been successfully applied to the creation of special recognition site in synthetic polymers for a variety of small organic molecules, inorganic ions and even biological macromolecules. In this study, we have prepared a novel molecular imprinted adsorbent to remove heavy metal ions with high selectivity. Molecular imprinted polymers with using novel monomer-Copper methacrylate were prepared by precipitation polymerization; the formed microspheres are spherically well-defined particles. These Cu(II) imprinted microbeads were used in the adsorption-desorption of copper(II) ions from metal solutions. Adsorption equilibrium was quickly achieved in about 15 minutes, adsorption of copper ions onto imprinted microbeads was about 80% from solution of metals. The imprinted microbeads showed excellent selectivity for target moleculars. These feature make imprinted microbeads very good candidate for selective removal of copper ions at high adsorption capacity, this imprinted polymers has been utilized as stationary phases for chromatographic separations of molecules.