

عنوان مقاله:

Toward the medical-grade 90Y through ion-imprinted polymers

محل انتشار:

یازدهمین سمینار بین المللی علوم و تکنولوژی پلیمر (سال: 1393)

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خلاصه مقاله:

The ion-imprinted polymer (IIP) was prepared by atom transfer radical copolymerization of acryl amide (as a functional monomer) and N,N -methylenebisacrylamide (as a crosslinking agent) in the presence of 2,2-bis(2-bromo-2-methylpropanoate)propane-1,3-disuccinate as the initiator and chelator for Y(III) ion that is capable of extracting and preconcentrating traces of Y(III) ion. The effects of potentially interfering ions were investigated. The imprinting effect of analyte is clearly demonstrated by the fact that only the IIP is capable of quantitative retention of Y(III) ions. The maximum uptake capacity of this material and that of the non-imprinted polymer are 56.8 and 26.3 mg g⁻¹, respectively. Recovery exceeds 95% and is complete within 5 min. The relative selectivity factor for Y(III)/Sr(II) and Y(III)/Zr(II) are 78.3, and 82.6, respectively. The relative standard deviation is <2.5%, the detection limit is 0.54 µg L⁻¹ (3σ). The sorbent was effectively was coupled to inductively coupled plasma atomic emission spectrometry to selectively separate and determine trace levels of Y(III) in water and sediment samples with satisfactory results.

کلمات کلیدی:

Yttrium(III) - solid phase extraction – ion imprinted polymer - selective separation

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