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Radiochemical separation of arsenic from selenium and its potential usage in generator isotope production.

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The potential usage of arsenic isotopes for nuclear medicine has been reported recently. One of the way for obtaining appropriate radioarsenic species is using radionuclide generator, where As is formed by the radioactive decay, eg. $^{72}\text{Se} \rightarrow ^{72}\text{As}$. A new radiochemical separation scheme based on extraction chromatography for isolation As from Se is presented. The distribution coefficients of As and Se on prepared sorbents (selected aromatic o-diamines supported on polystyrene adsorbents) were determined in order to find the best condition for separation of both elements. Batch experiments were verified by column studies. Elaborated radiochemical separation scheme insures high selectivity and radionuclide purity of separated arsenic fraction, whereas examined sorbents have been found to have a very high selectivity with reference to selenium (IV). Arsenic is easily eluted by diluted HCl and NaCl solutions. The present separation scheme based on extraction chromatography, which could be used to designing a new $^{72}\text{Se}/^{72}\text{As}$ generator.

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