

Selective removal of Hg (II) ions from aqueous solution using molecularly ion-imprinted silica (MIS)-based electrospun nanofiber

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Wastewater containing Hg-ions are still improperly released in large amounts by different industrial facilities. Therefore, it is conducive to at least lessen the amounts of Hg<sup>2+</sup> from water prior to disposal. Thus, nanofiber (NF) adsorbent for Hg (II) ion removal was prepared by incorporating ion-imprinted silica in the presence of a dithizone ligand, embedded in electrospun nanofiber (NF) polysulfone (PSF) as a polymer support matrix. Results showed that the static adsorption of the MIS/PSF NF adsorbent was found to follow non-linear methods of Langmuir-type and pseudo-second order. Moreover, it presents excellent selective Hg-separation capability; good stability, and reusability, which demonstrates its practical application for Hg<sup>2+</sup> sequestration for pre-treatment of wastewater. This research was supported by the National Research Foundation of Korea (NRF) funded by the Ministry of Science and ICT (No. 2017R1A2B2002109 and No. 2018R1D1A1B07047503) and by the Ministry of Education (No. 22A20130012051(BK21Plus)).