Monohydroxydibenzo-13-, Dihydroxy-15-, Dihydroxy-17- and Dihydroxy-19-thia-crown-4 Ether Impregnated Polypropylene Membranes for Selective Recovery of Precious Metals

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Adsorbents composed of thiacrown ethers (thia-CEs) as metal-specific ionophores and polypropylene membrane (PPM) as support material were synthesized via impregnation and cross-linking for precious metal selective recovery. Thia-CEs were synthesized via intermolecular cyclization of bulky epoxides with 1,2-benzenedithiol. Thia-CE intermediates, thia-CEs, and thia-CE@PP were characterized by high-resolution spectroscopic methods. Current works are focused on adsorption properties of thia-CE@PP for selective recovery of mentioned metals. Preliminary results proposed the strong potential of thia-CE@PP as selective Au^{3+}, Pd^{2+} and Ag^{+} ions. This work was supported by NRF funded by the Korea government funded by the Ministry of Science and ICT (2017R1D1A1B03028102 and 2017R1A2B2002109) and Ministry of Education (2009-0093816 and 22A20130012051 (BK21Plus)).