

## Thia-crown Ether Functionalized Mesoporous Silica Composite Adsorbent for Selective Recovery of Gold ( $\text{Au}^{3+}$ ) Ions from Electronic Wastes

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Selective recovery of individual precious metal from e-wastes has been a big challenge due to its low concentration in the matrix. Here, highly selective adsorbent was developed for gold ( $\text{Au}^{3+}$ ) recovery. The adsorbent is composed of thiocrown ether (TCE) as  $\text{Au}^{3+}$ -specific ionophore and mesoporous silica (SBA-15) as support material. The composite adsorbent (TCE/SBA-15) was prepared through immobilization of TCE onto the surface of SBA-15. TCE was synthesized by intermolecular cyclization of bulky epoxide with 1,2-benzenedithiol. The products were characterized by high-resolution spectroscopic methods. Adsorption results reveal the high selectivity of the composite adsorbent towards  $\text{Au}^{3+}$  ions. This work was supported by National Research Foundation of Korea (NRF) funded by the Ministry of Science and ICT (2017R1D1A1B03028102 and 2017R1A2B2002109) and Ministry of Education (2009-0093816 and 22A20130012051 (BK21Plus)).