H_2TiO_3 composite nanofibers for lithium recovery from aqueous resources

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Composite nanofibers (NF) with H_2TiO_3 ion sieves were synthesized and characterized for its feasibility in lithium (Li^+) recovery from aqueous solutions. Different polymeric (PAN, PSf, PVC, and PVDF) supports with varied H_2TiO_3 loading were electrospun to produce the NFs. The composite NFs were characterized by SEM, UTM mechanical test and applied as Li^+ adsorbent. Results reveal that PAN/HTO NFs had the highest Li^+ adsorption (q_e=31.4 mg g^{-1}) and superior mechanical property. It retained up to 93.6% of the capacity of H_2TiO_3 powder (q_e=33.6 mg g^{-1}). This research was supported by Basic Science Research Program through the National Research Foundation of Korea (NRF) funded by the Ministry of Science, ICT and future Planning (2015R1A2A1A15055407) and 2015 Research Fund of Myongji University.