

Enhanced performance and antifouling of MOF membranes of cellulose acetate with hydrophilic nanoparticles of MIL-100 (Fe) for textile wastewater treatment

GNANASEKARAN GNANASELVAN, G. Arthanareeswaran¹, 목영선^{2,†}

Jeju National University; ¹National Institute of Technology, India; ²제주대

(smokie@jejunu.ac.kr[†])

In this study, hydrophilic MIL-100 (Fe) was incorporated into the cellulose acetate to fabricate a tailored nanofiltration membrane for textile wastewater treatment. The increasing the pure water flux from 14.8 to 30.8 L/m² h, and decreasing the water contact angle from 64.7° to 45.4° of the composite membranes were deep-rooted that MIL-100 (Fe) incorporation enhances the hydrophilicity and pore size. Moreover, the CA/MIL-100 (Fe) membranes shown a high rejection percentage (>99%) of dyes, salts, and dye/salt mixture with an exciting anti-fouling performance, which all proves that MIL-100 (Fe) incorporated composite membranes are promising materials for water purification of textile wastewater.