J Membra Sci Technol 2017, 7:2 (Suppl)
DOI: 10.4172/2155-9589-C1-003

Synergy between anti-adhesion and antimicrobial effects of Ag doped mesoporous carbon PES UF membrane

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An investigation of advanced antifouling polyethersulfone (PES) ultrafiltration membrane containing 0.20 wt.% of mesoporous carbon doped with different loadings silver nanoparticles (Hereafter Ag) have been presented (MPCAg). The effect of incorporation of Ag on fouling mitigation and performance of the composite membrane was examined through bacterial adhesion resistance. The membrane's morphology, structure and surface chemistry were also studied. The composite membrane containing 0.20 wt.% MPCs doped with the Ag ratio of 1:99 (w/w) exhibited the highest antifouling and bacterial attachment inhibition property. The combination of the Ag doped MPCs into the membranes presents a desirable synergy between anti-adhesion and antimicrobial effects which have proved via flow cytometry analysis.

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