Supporting Information

Preparation of wood-based hydrogel membranes for efficient purification of complex wastewater using a reconstitution strategy

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Table S1. Comparison of RWPM with other similar membranes used for purifying wastewater.

Membranes	Preparation cost	Separation test	Recycle time	Separation efficiency	Ref
Cellulose-TA-PVA-PVDF membrane	low	Oil-water mixture	10	99.7%	(Gao et al., n.d.)
		Oil-in-water emulsion	1	99.9%	
		Dye	--	--	
PVA/TA-Fe^{3+}	middle	Oil-water mixture	30	97%	(Wang et al., 2023)
		Oil-in-water emulsion	--	--	
		Dye	--	--	
PTPU/CDs	high	Oil-water mixture	--	--	(Ma et al., 2023)
		Oil-in-water emulsion	1	99.6%	
		Dye	--	--	
Ch-D	middle	Dye	1	34.7 mg/g	(Şen and Şenol, 2023)
ChNFs/CMCNFs	middle	Dye	5	95.8%	(Jung et al., 2023)
PAN/PVDF@PVDF-MTES	high	Oil-water mixture	20	94%	(Xiao et al., 2023)
		Oil-in-water emulsion		90%	
		Dye	--	--	
RWPM	low	Oil-water mixture	10	99.98%	This study
		Oil-in-water emulsion	10	99.75%	
		Dye	1	90.12%	

"--" means not mentioned in the article.

Video S1. The anti-stick properties of RWPM were tested

Video S2. The self-cleaning performance of RWPM membrane.

Video S3. Separation process for oil-water mixtures.

References

Gao, J., Wang, J., Xu, Q., Wu, S., Chen, Y., n.d. Green and eco-friendly regenerated cellulose strongly adhered by supramolecular adhesive onto PVDF membrane for highly efficient oil/water separation. Green Chemistry.

Jung, S., Kim, J., Bang, J., Jung, M., Park, S., Yun, H., Kwak, H.W., 2023. pH-sensitive cellulose/chitin nanofibrillar hydrogel for dye pollutant removal. Carbohydrate Polymers 317, 121090.

Ma, Y., Pan, L., Jiang, K., Wang, Q., Zhu, Z., Tian, Y., 2023. Hydrophobic Carbon Dots Modified Porous Thermoplastic Polyurethane for Effective and Durable Oil/Water Separation. Chemical Engineering Journal Advances 100557.

Şen, N.E., Şenol, Z.M., 2023. Effective removal of Allura red food dye from water using cross-linked chitosan-diatomite composite beads. International Journal of Biological Macromolecules 253, 126632.

Wang, P., Fang, S., Li, H., Feng, S., Yu, Y., Zhang, H., Liu, Y., Guo, J., 2023. Application of PVA/TA-Fe3+ submerged superoleophobic hydrogel coating in oil-water separation. Reactive and Functional Polymers 192, 105700.

Xiao, Y., Xiao, F., Ji, W., Xia, L., Li, L., Chen, M., Wang, H., 2023. Bioinspired Janus membrane of polyacrylonitrile/poly (vinylidene fluoride)@poly (vinylidene fluoride)-methyltriethoxysilane for oil-water separation. Journal of Membrane Science 687, 122090.