Supplementary Information (SI) for Journal of Materials Chemistry A. This journal is © The Royal Society of Chemistry 2025

## **Supporting Information**

For

## Facile Modification of Nylon Filter via Vacuum Coating with Chitosan@MCM-41/GO for Efficient Oily Wastewater Treatment

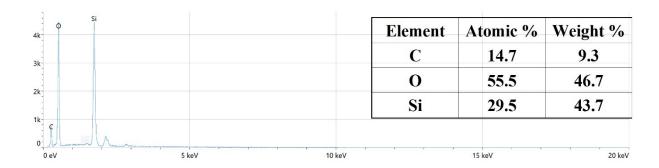
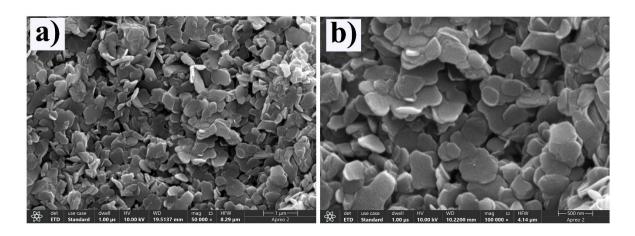
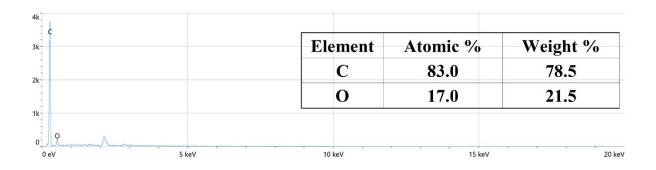


Figure S1: Elemental mapping results of MCM-41 prepared by sol gel method.



**Figure S2:** SEM image of the GO at low and high magnification synthesized by the modified Humors method.



**Figure S3:** Chemical composition results of GO.

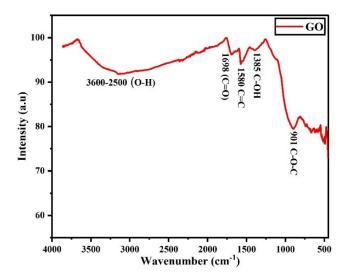


Figure S4: FTIR spectrum of GO.

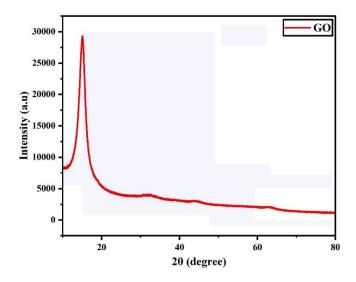
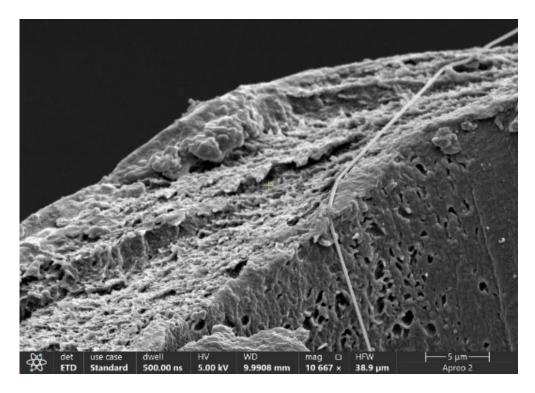


Figure S5: XRD results of synthesized GO.



**Figure S6:** SEM images of cross-sectional area of 2-CH@MCM-41/GO-NF.

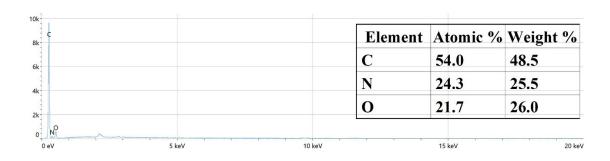


Figure S7: EDX results of pristine NF.

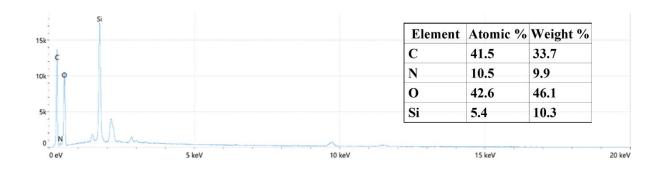


Figure S8: Chemical composition spectrum of 2-CH@MCM-41/GO-NF

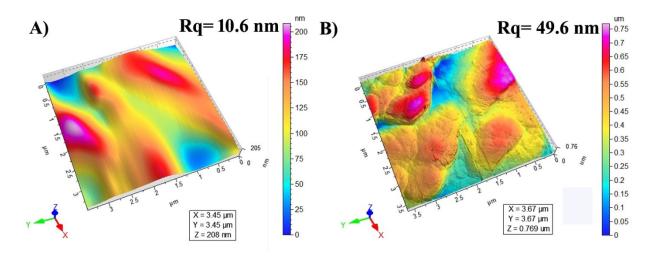


Figure S9: AFM images of (A) pristine NF and CH@MCM-41/GO-NF.

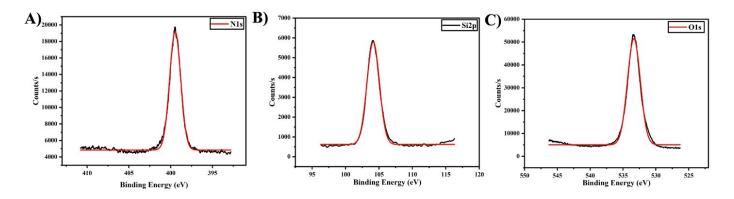


Figure S10: Deconvolution XPS spectrum of N1s, Si2p, and O1s.

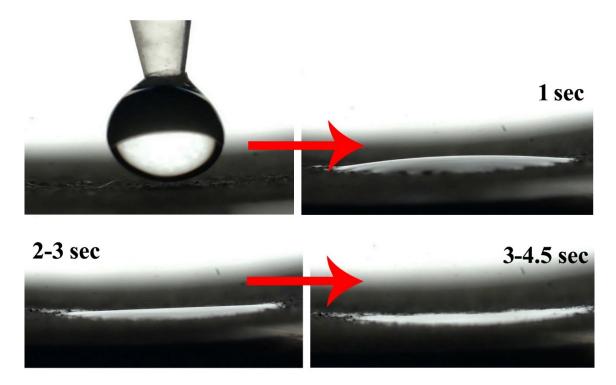


Figure S11: Behavior of water droplet over selected modified NF with respect to time.

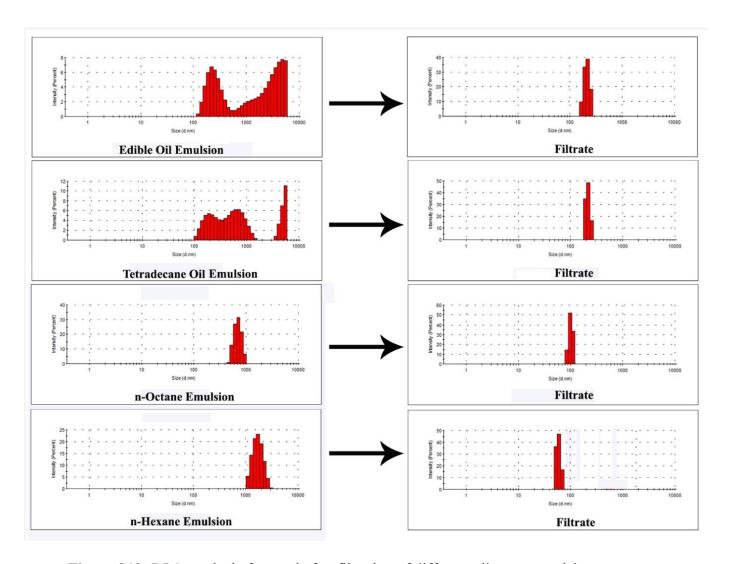


Figure S12: DLS results before and after filtration of different oil-water emulsions.