# Supplementary Information

# Kinetics-Bolstered Catalytic Study of a High Performance Lipase-Immobilized Nanofiber Membrane Bioreactor

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**Table S.1** Chemical composition of the PANCAA nanofiber membrane surface during immobilization reactions.

| | $C_{1s}$ (mol%) | $O_{1s}$ (mol%) | $N_{1s}$ (mol%) |
|---|---|---|---|
| PANCAA membrane | 67.57 | 8.85 | 23.58 |
| EDC/NHS activated membrane | 63.89 | 10.51 | 25.60 |
| Lipase-immobilized membrane | 56.37 | 13.45 | 30.18 |

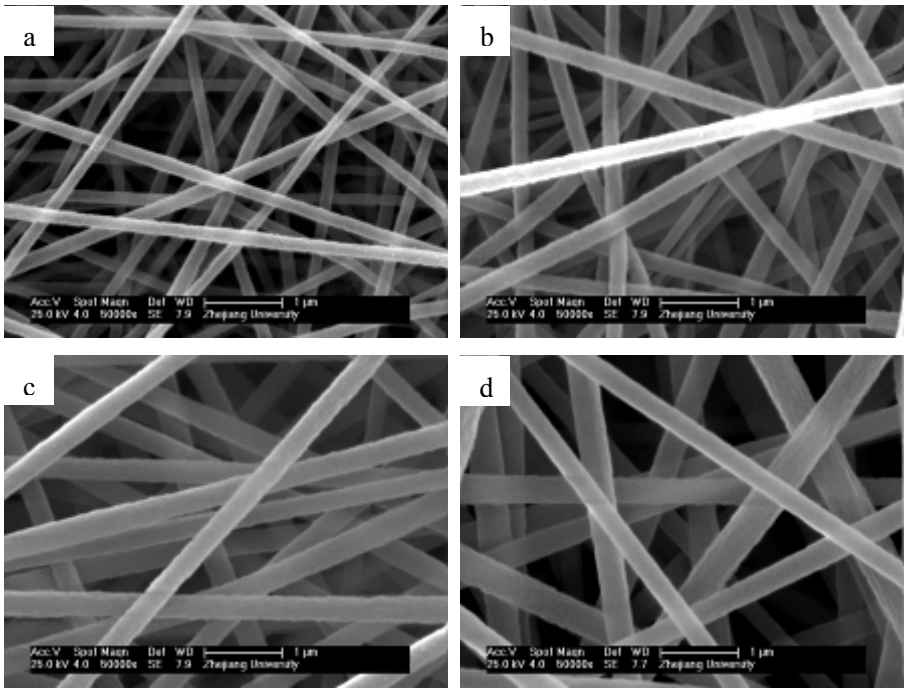


**Fig. S.1** Scanning electron microscope (SEM) micrographs of the nanofiber membranes with different fiber diameters.

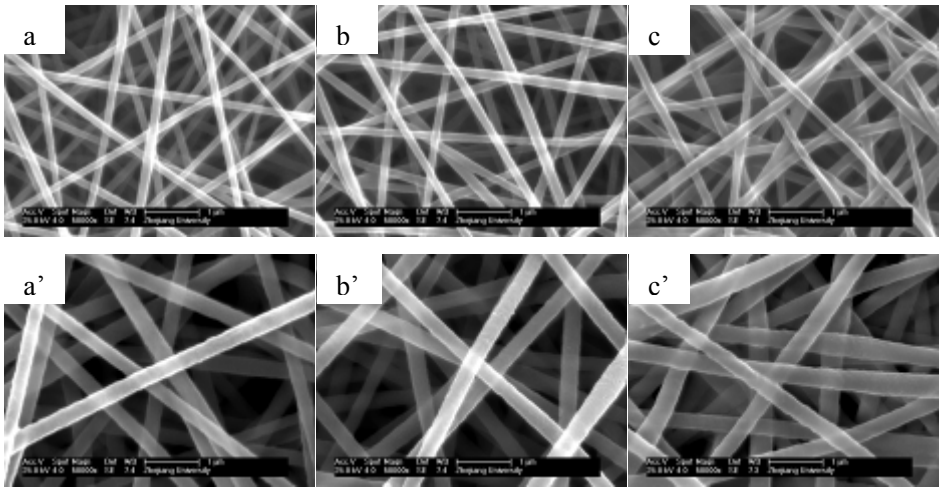


**Fig. S.2** SEM micrographs of the nanofiber membranes during reactions in the bioreactor. Nanofiber membrane with a fiber diameter of 156.1±23.3 nm after activation (a), lipase immobilization (b) and olive oil hydrolysis (c) processes. Nanofiber with a fiber diameter of 271.2±30.3 nm after activation (a'), lipase immobilization (b') and olive oil hydrolysis (c') processes.

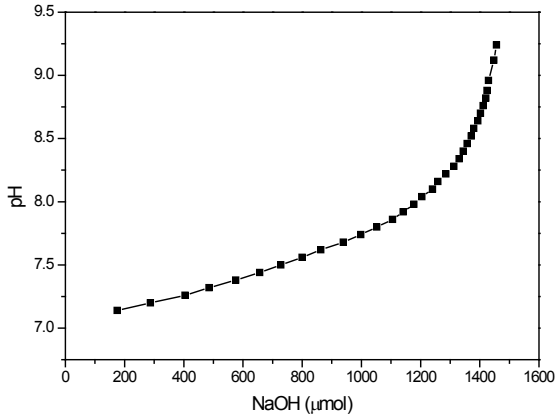


**Fig. S.3** Titration of PBS (0.05 M, pH 7.0) with NaOH.