Electronic Supplementary Information

Degradable dual superlyophobic lignocellulosic fibers for high efficiency oil/water separation

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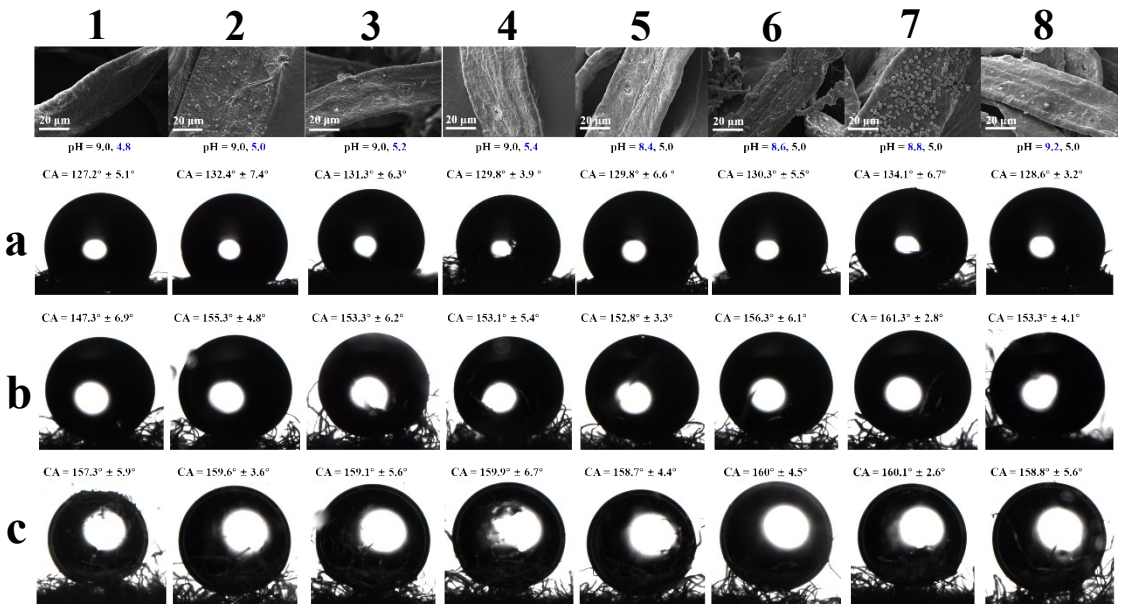

Fig. S1 Contact angle of DSMFL fiber under different preparation conditions: (a) water droplets in air, (b) oil (tetrachloroethylene) droplets underwater, (c) water droplets underoil (hexadecane).

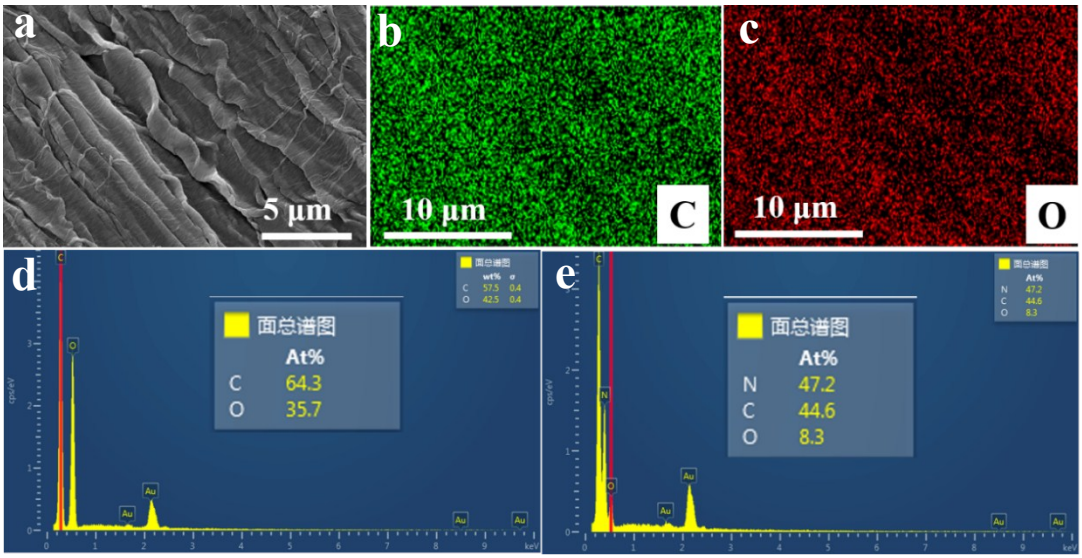

Fig. S2 (a) FESEM of lignocellulosic fiber, (b-c) EDS mapping; EDS spectrum of (d) lignocellulosic fiber, and (e) DSMFL fiber.

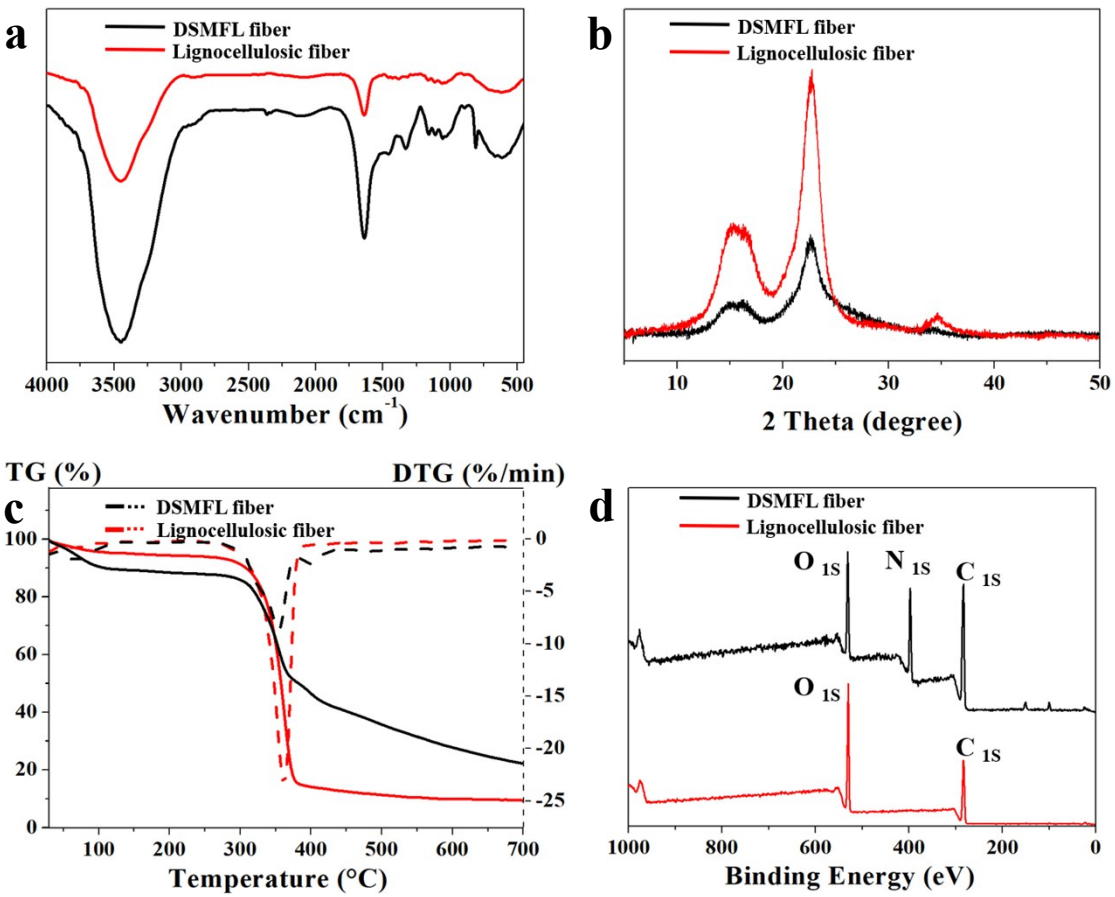

Fig. S3 (a) FT-IR spectra, (b) XRD patters, (c) TG-DTG, and (d) XPS of lignocellulosic fibers and DSMFL fibers.

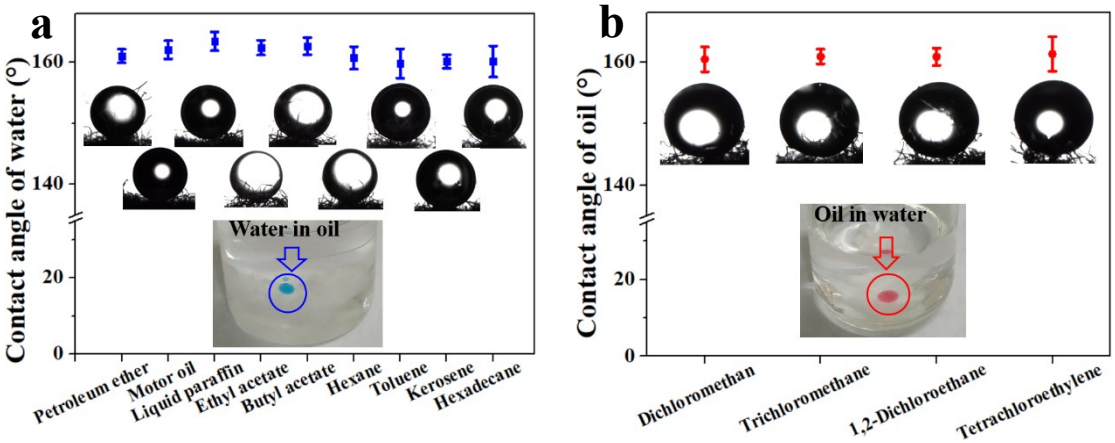

Fig. S4 (a) The contact angles of water droplets under several types of light oils on the DSMFL fibers; (b) The contact angles of several types of heavy oils droplets under water on the DSMFL fibers.

Table S1: Zero-span tensile strength (ZSTS) of lignocellulosic fibers and DSMFL fibers under different preparation processes.

Num.[a]	Raw fiber	1	2	3	4
ZSTS (kN/m)	9.21 ± 0.59	3.74 ± 0.77	5.01 ± 0.18	5.12 ± 0.37	4.7 ± 0.31
Num.	--	5	6	7	8
ZSTS (kN/m)	--	4.99 ± 0.37	5.03 ± 0.35	5.12 ± 0.21	5.16 ± 0.29

[a] Num. 1 - 8 corresponds to the serial number of the fibers in Fig. S1.

Move S1

The lignocellulose fibers were stained (blue) when contacted with the aqueous phase after oil wetting.

Move S2

The DSMFL fibers would not be dyed by water, only light oil can be absorbed.

Move S3

Water (blued) quickly flowed through the DSMFL fibers to the beaker at the bottom of the equipment, while the kerosene remained in the funnel above the water-prewetted DSMFL fibers.

Move S4

Dichloromethane (red) quickly passed through the DSMFL fibers to the beaker below, while the water remained in the funnel above the DCM-prewetted DSMFL fibers.