

Supporting Information

Biomimetic fabrication of superhydrophobic loofah sponge: robust for highly efficient oil-water separation at harsh environment

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Movie S1. Video of pristine loofah sponge swell in water.

Movie S2. Video of methylene blue dyed water droplets roll off from the as-prepared loofah surface.

Movie S3. Video of selective removing a layer of oil red dyed n-hexane on top of water using as-prepared loofah sponge.

Movie S4. Video of selectively absorbing the oil red dyed chloroform from the bottom of water using as-prepared loofah sponge.

Movie S5. Video of selectively separation oil microdroplets from surfactant-free oil-in-water emulsions using as-prepared loofah sponge.

Movie S6. Video of selectively separation of oily red dyed chloroform/n-hexane in 1M HCl solution using as-prepared loofah sponge.

Movie S7. Video of selectively separation of oily red dyed chloroform/n-hexane in 1M NaOH solution using as-prepared loofah sponge.

Movie S8. Video of selectively separation of oily red dyed chloroform/n-hexane in saturated NaCl solution using as-prepared loofah sponge.

Movie S9. Video of selectively separation of oily red dyed chloroform/n-hexane in hot water with higher than 95°C using as-prepared loofah sponge.

Movie S10. Video of sandpaper-abrasion test of as-prepared loofah sponge.

Movie S11. Video of finger-wipe test of as-prepared loofah sponge.

Movie S12. Video of anti-fouling and self-cleaning performances of as-prepared loofah sponge and the pristine loofah sponge.

Table.S1 XPS elements contents of loofah, WPU@loofah and SiO₂@WPU modified

loofah

Sample	XPS (atomic %)			
	C	O	N	Si
loofa	59.75	40.25	0	0
WPU@loofa	77.24	18.78	3.98	0
SiO ₂ @WPU@loofa	75.97	18.31	3.26	2.46

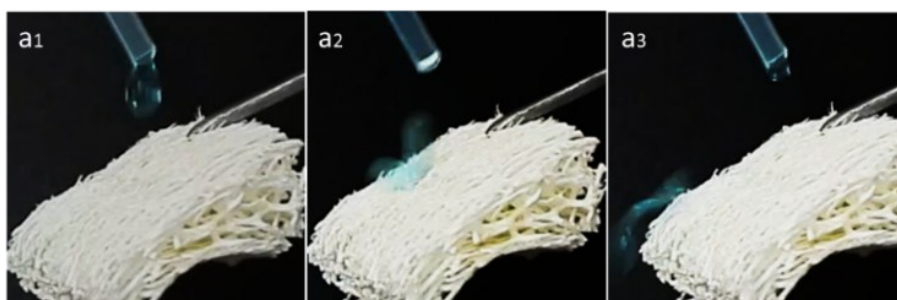


Fig. S1 Optical photos of a methylene blue dyed water droplet roll off from the as-prepared loofah surface



Fig.S2 Optical image of superhydrophobicity loofah sponge after 5 cycled oil-water separation

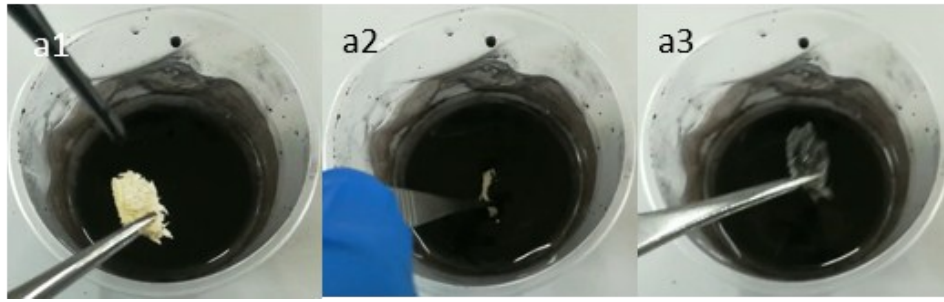


Fig.S3 Optical pictures of the anti-fouling performances of the pristine loofah sponge