

## **Supplementary Information for New Journal of Chemistry**

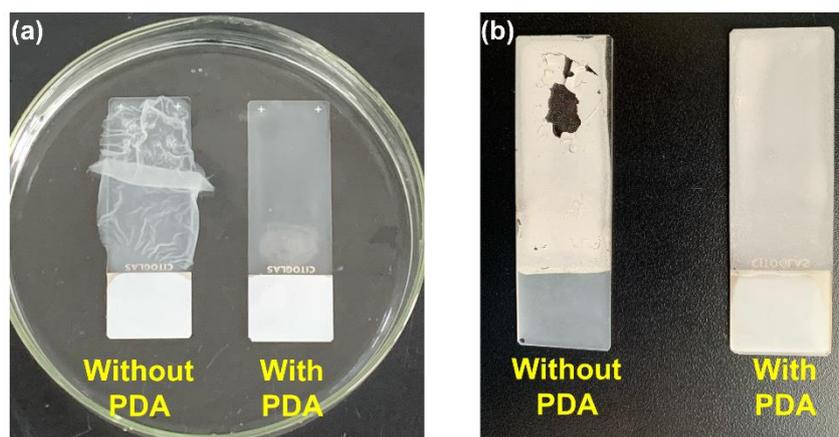
**Bioinspired superhydrophilic/underwater superoleophobic  
surfaces with robust wax prevention, self-cleaning and oil/water  
separation function**

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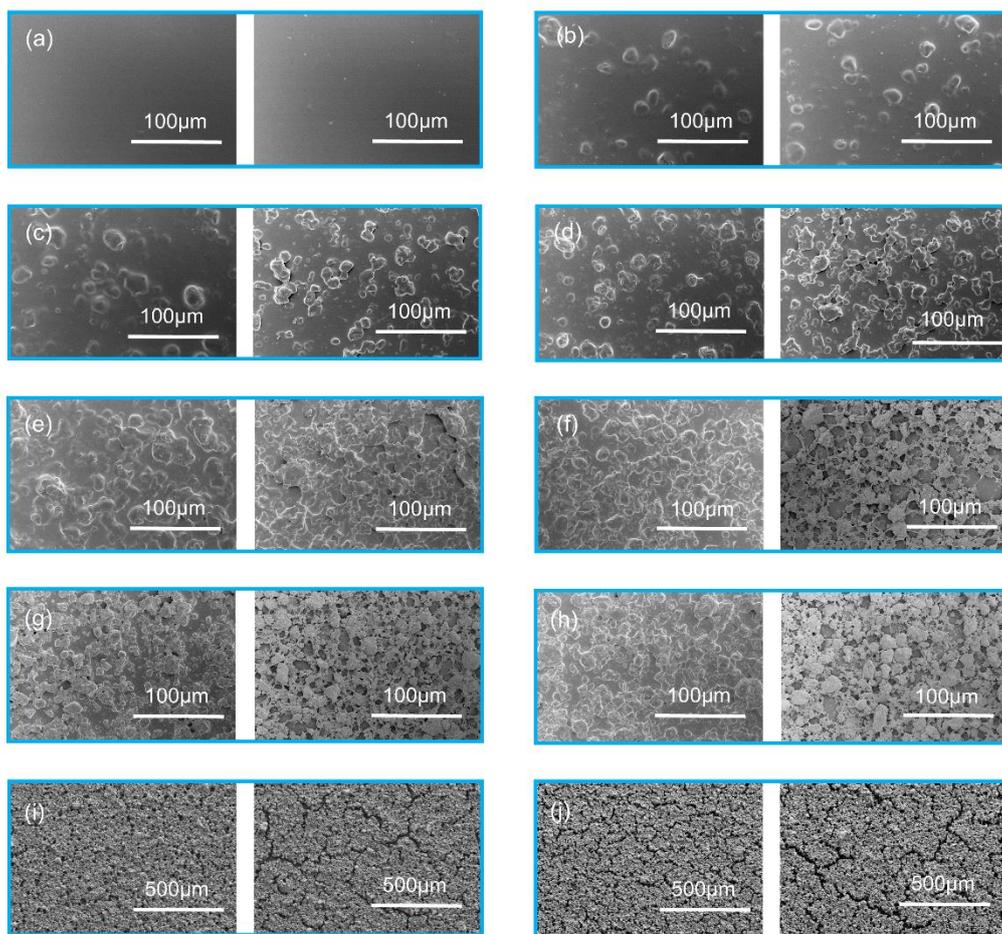
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**Fig. S1.** PVA/MMT (70) surface on blank glass and PDA modified glass (a) immersed in water and (b) dried in air.

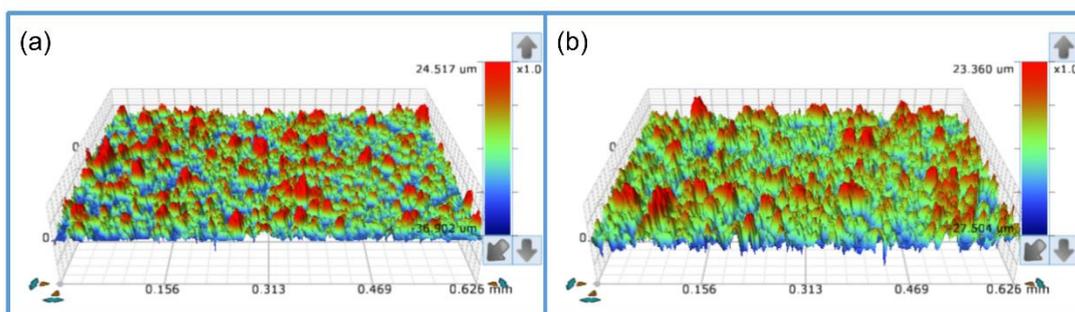
Substrate	Picture	WCA	UOCA
Tinplate		2.88°	157.7° 
PVC		2.69°	154.38° 
Stainless steel mesh		0°	158° 

**Fig. S2.** Photographs of appearance, WCAs and UOCAs of PVA/MMT (70) surface on (a) tinplate, (b)PVC and (c) stainless steel mesh substrates.



**Fig. S3.** SEM images of PVA/MMT surface before (left) and after (right) crosslinking.

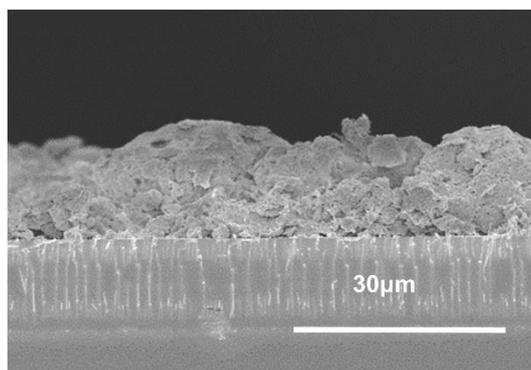
(a) PVA, (b) PVA/MMT (10), (c) PVA/MMT (20), (d) PVA/MMT (30), (e) PVA/MMT (40), (f) PVA/MMT (50), (g) PVA/MMT (60), (h) PVA/MMT (70), (i) PVA/MMT (80), (j) PVA/MMT (90).



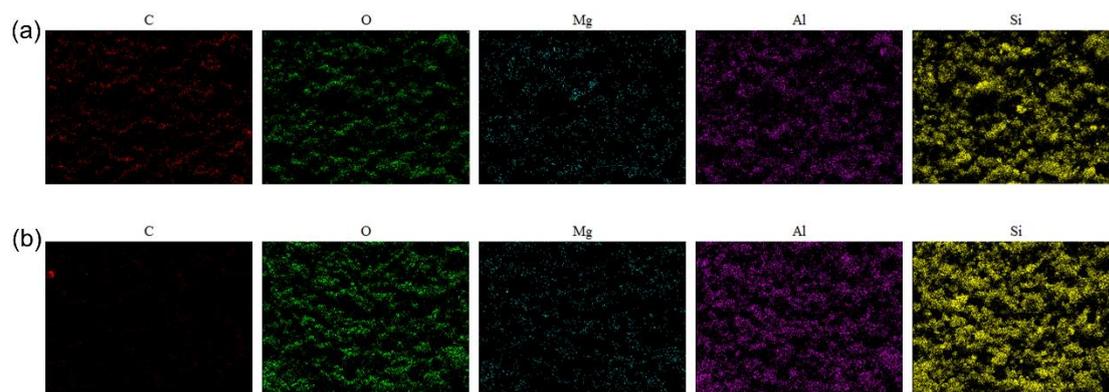
**Fig. S4.** 3D surface profile images of (a) uncross-linked and (b) cross-linked PVA/MMT (70) surface.

**Table S1.** The surface roughness results measured by 3D surface profiler

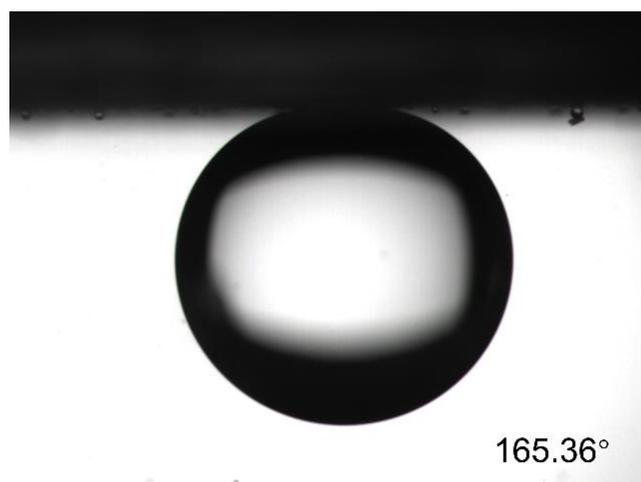
Type	Ra( $\mu\text{m}$ )	Rq( $\mu\text{m}$ )
uncross-linked PVA/MMT (70)	3.264	4.165
cross-linked PVA/MMT (70)	4.186	5.187



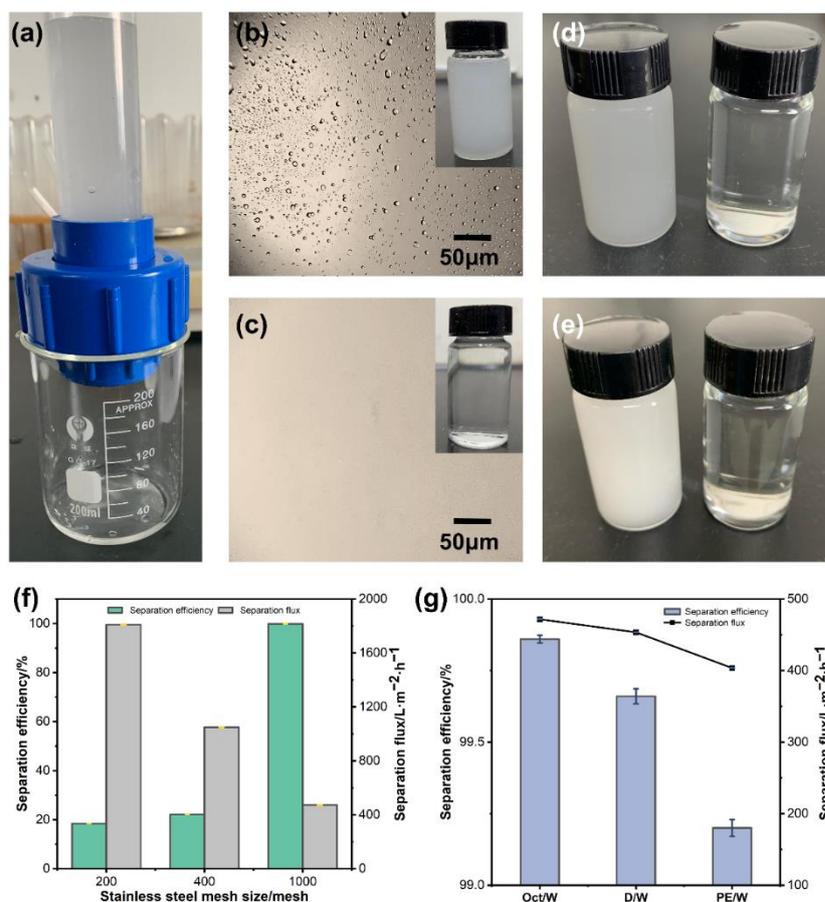
**Fig. S5.** SEM image of the cross-sectional view of cross-linked PVA/MMT (70) surface.



**Fig. S6.** EDS mapping images of PVA/MMT (70) surface (a) before and (b) after crosslinking.



**Fig. S7.** UOCA of PVA/MMT (70) surface for liquid paraffin.



**Fig. S8.** (a) Photograph of octane-in-water emulsion separation by PVA/MMT (70) coated mesh. Photographs and optical microscope images of Oct/W emulsion (b) before and (c) after separated by PVA/MMT (70) coated stainless steel mesh of 1000 mesh size. Photographs of (d) D/W and (e) PE/W emulsions before and after separated by PVA/MMT (70) coated stainless steel mesh of 1000 mesh size. (f) Variation of separation efficiency and separation flux with the mesh size of stainless steel mesh. (g) Oct/W, D/W and PE/W emulsions separation of PVA/MMT (70) coated stainless steel mesh of 1000 mesh size.