

Electronic Supplementary Information (ESI):

**Bio-inspired Anisotropic Micro/nano Surface from a Natural Stamp:  
Grasshopper Wings**

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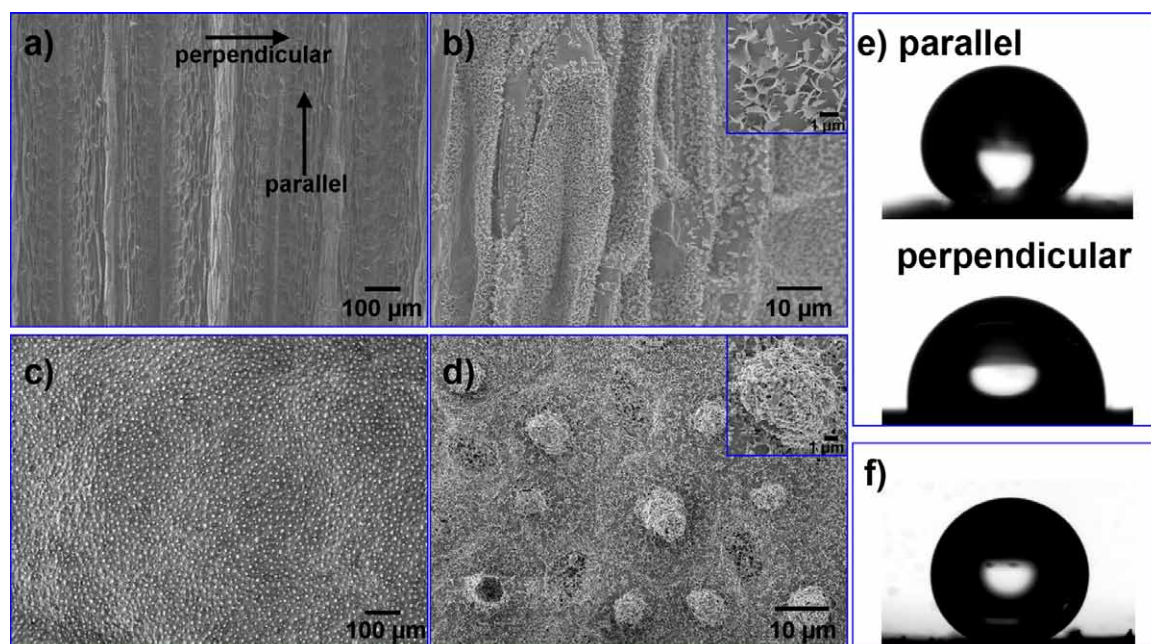
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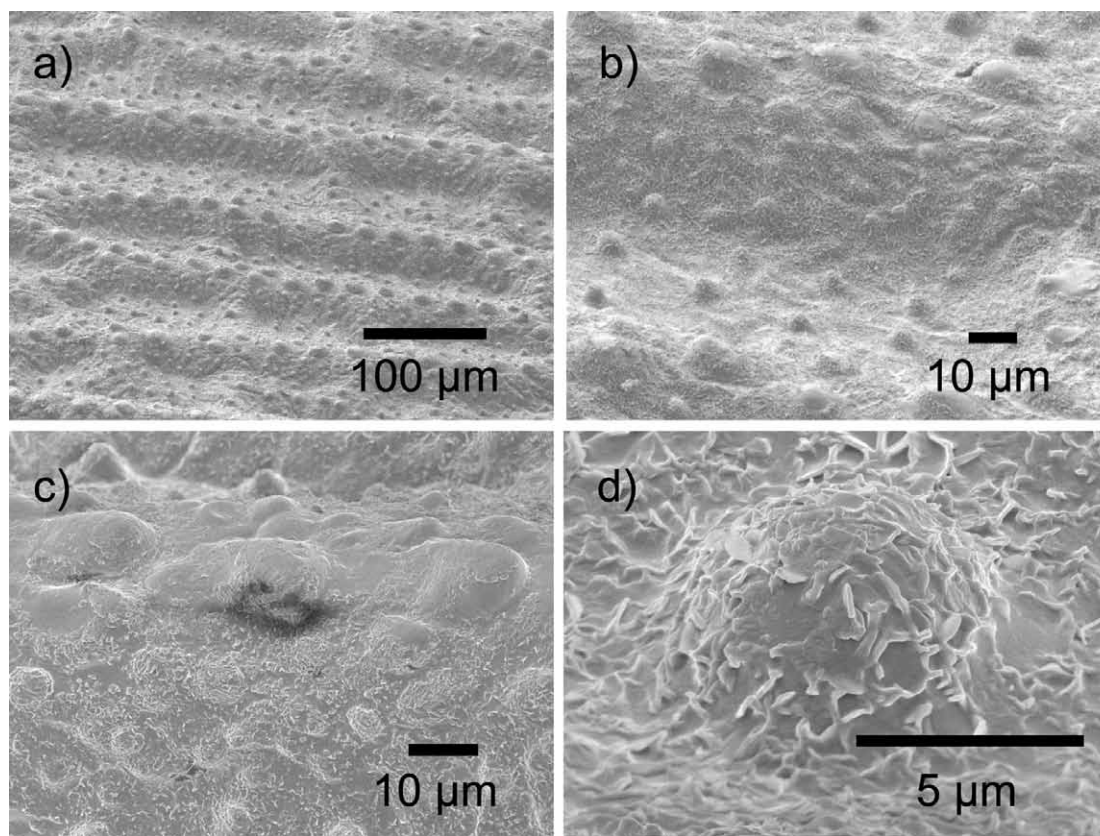
## *Experimental*

*Instruments and Characterization:* SEM images of the samples were obtained using a field-emission scanning electron microscope (JSM-6700F, Japan). Contact angles were measured on an OCA20 machine (DataPhysics, Germany) at 20°C. Deionized water droplets (about 2  $\mu$ L) were dropped carefully onto the surface. The average contact angle value was obtained by measuring at five different positions of the same sample. The reflectance spectra were examined with Hitachi U-4100 Spectrophotometer equipped with an integrating sphere and a 5° reflective component.

*Replication of PDMS:* Firstly, OWG were pasted onto the bottom of a container as a mold. PDMS prepolymer and its curing agent were thoroughly mixed in a 10:1 weight ratio. After degassing the prepolymer mixture through a vacuum pump, the mixture was poured onto the mold. Then it was cured at 80°C for 2h. Finally the PDMS replica was peeled from the mold easily.



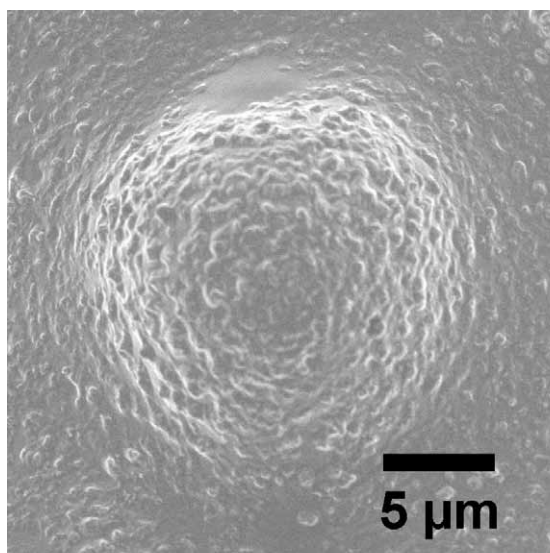
**Figure S1.** SEM and water droplets CA images of grass (*Poa annua*) leaf and lotus leaf. a) Low magnification image of grass leaf with oriented micro grooves and ridges on it. b) High magnification image of grass leaf. There are nanosheets on and between the micro ridges. The insert shows the details of nanosheets. c) Low magnification image of lotus leaf with random micro papillae on it. d) High magnification images of lotus leaf and the branch-like micro/nano structure on papillae can be seen. The insert shows the details of a single papilla. e) Anisotropic high hydrophobicity of grass leaf. CA measured from parallel direction is  $136.4 \pm 8.9^\circ$  and CA measured from perpendicular direction is  $96.3 \pm 12.1^\circ$ . f) Isotropic superhydrophobicity of lotus leaf. CA is  $153.4 \pm 1.2^\circ$ .



**Figure S2.** 60° inclined SEM images of the papilla and ridge on OWG. a) 60° inclined SEM image of large area OWG. b) Low magnification 60° inclined SEM image of single ridge. c) High magnification 60° inclined SEM image of single ridge. d) High magnification 60° inclined SEM image of single papilla.



**Figure S3.** Droplet CA image of flat PDMS. The CA of flat PDMS is  $110.2 \pm 1.4^\circ$ .



**Figure S4.** SEM image of single papillae of second-step positive replica.