Electronic Supplementary Material (ESI) for Journal of Materials Chemistry A.

Supporting Information

Dual-action smart coating with a self-healing super-hydrophobic surface and anti-corrosion properties

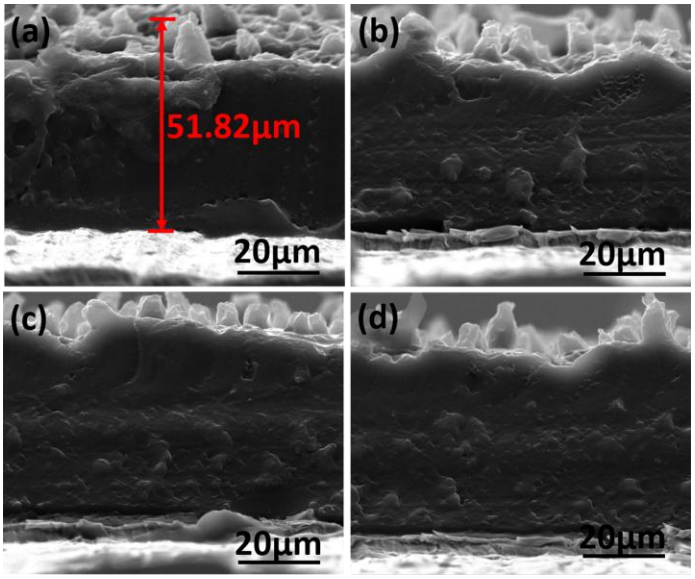

Fig. S1 The cross-section SEM images of the superhydrophobic coatings: (a) BTA-free coating, (b) BTA-1% coating, (c) BTA-3% coating and (d) BTA-5% coating.

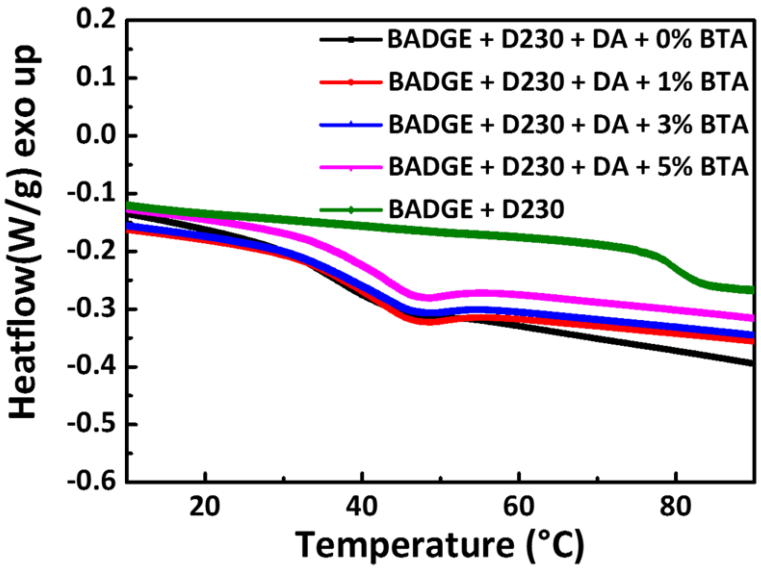

Fig.S2 DSC curves of the BTA-free coating, BTA-1% coating, BTA-3% coating, BTA-5% coating and the coating cured with only Jeffamine D230.

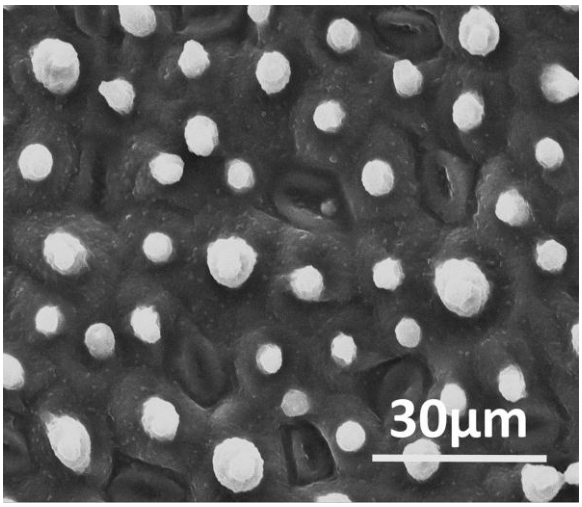

Fig.S3 SEM image of a lotus leaf surface

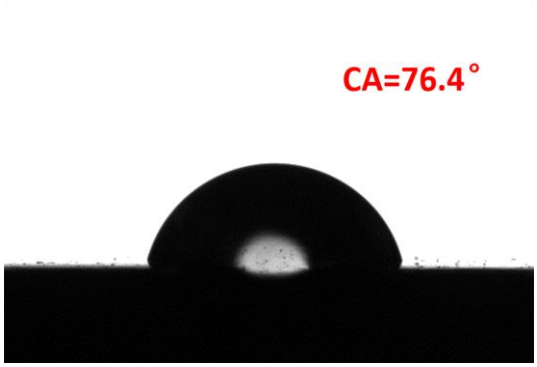

Fig.S4 The water contact angle of the regular coating without columnar microstructure

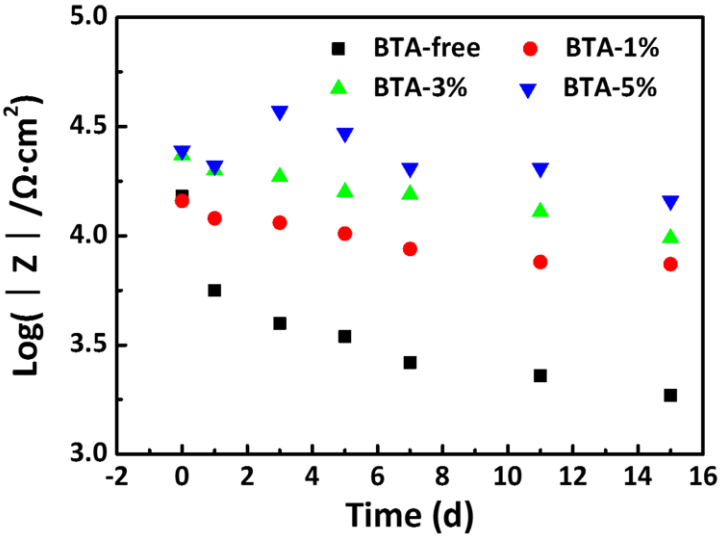

Fig.S5 The evolution of $|Z|_{0.01Hz}$ values of scratched super-hydrophobic coatings with immersion time.

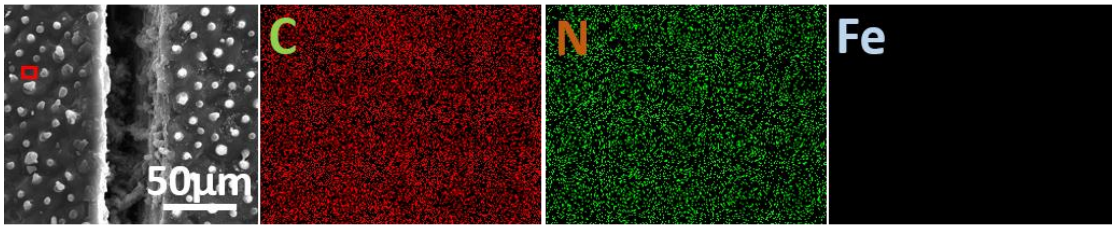

Fig.S6 EDS mapping images on the coating surface (BTA-5%).

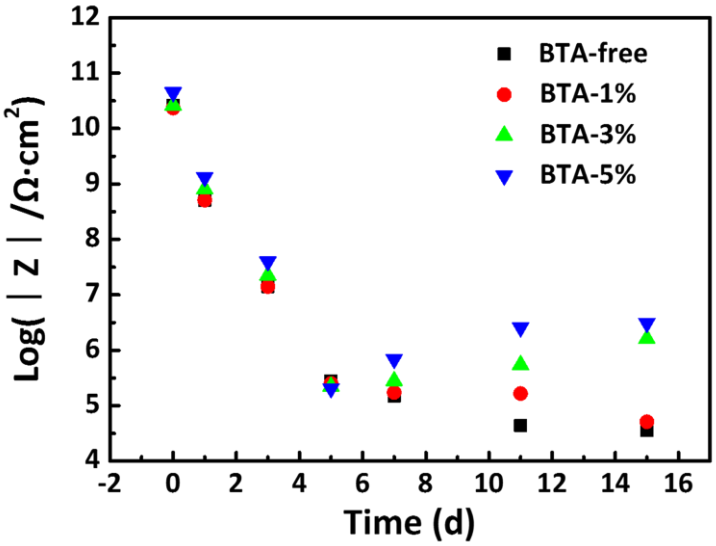

Fig.S7 The evolution of $|Z|_{0.01Hz}$ values of healed super-hydrophobic coatings with immersion time.

Table S1 The assignments of the main bands in Raman spectra.

Raman frequency (cm^{-1})	**Assignments**
558	Triazole ring bending
639	Triazole ring torsion
789	Benzene ring breathing
1046	Trizole+benzene ring mode
1153	CH in-plane bending
1200	Triazole ring+NH bending
1288	Skeletal stretch (NH) bend and (CH) bending
1393	Benzene+triazole ring stretching
1447	Skeletal stretching
1577	Benzene ring stretching

Video (a) Rolling behavior of the water droplet on the original super-hydrophobic coating surface.

Video (b) Rolling behavior of the water droplet on the crushed super-hydrophobic coating surface.

Video (c) Rolling behavior of the water droplet on the scratched super-hydrophobic coating surface.

Video (d) Rolling behavior of the water droplet on the healed super-hydrophobic coating surface.