Electronic Supplementary Material (ESI) for RSC Advances.

Supporting Information

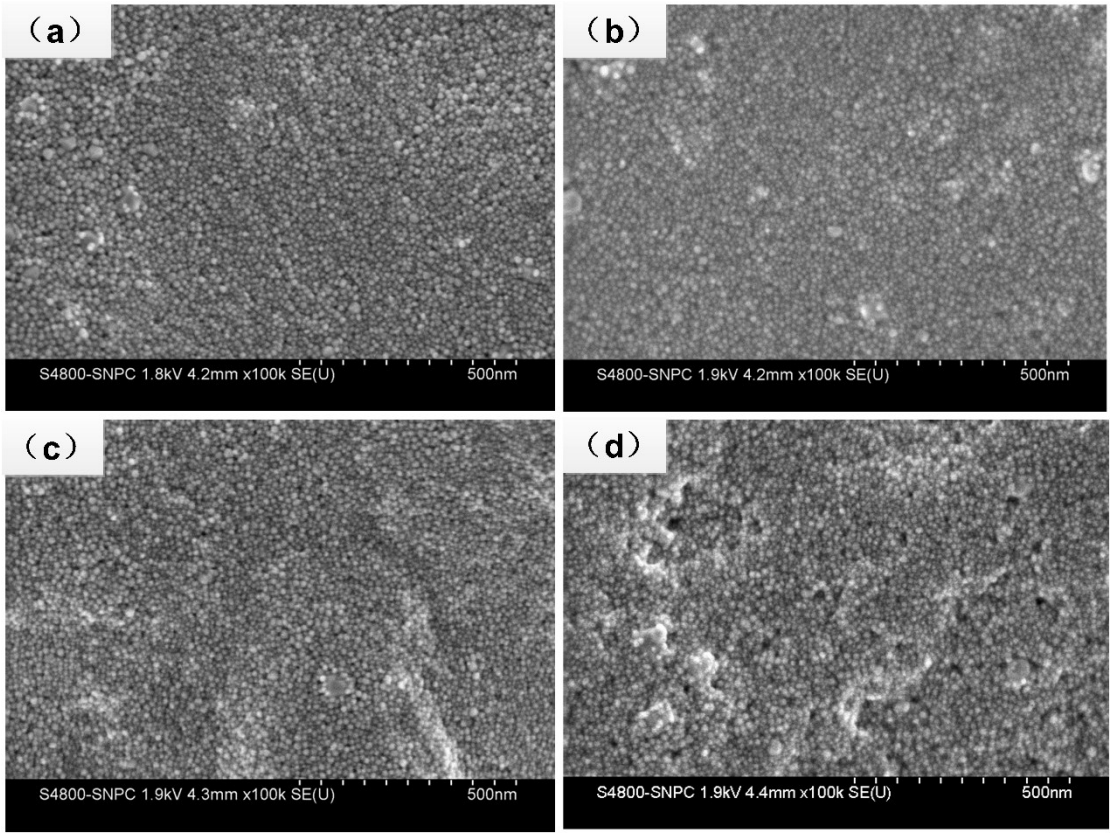


Fig. S1 (a)~(d) SEM images of the silver nanoparticles synthesized at the same condition that the mass ratio of silver nitrate to water was 1:4 and microwave treatment parameter were 700W for 1min except for the stirring time was 2h, 1h, 0.5h and 2min, respectively.

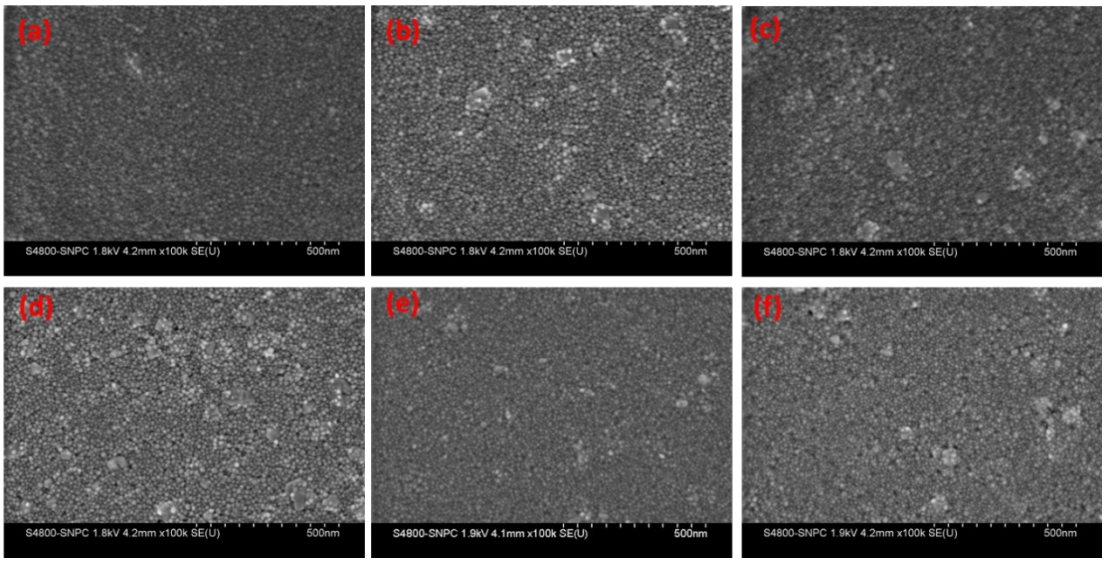


Fig. S2 (a)~(f) SEM images of the silver nanoparticles synthesized at the same condition that the mass ratio of silver nitrate to water was 1:4 and the stirring time was 2h except for the power and time of microwave treatment parameter: (210W, 3.5min), (210W, 4min), (350W, 2min), (350W, 2.5min), (560W, 1.5min) and (700W, 1min), respectively.

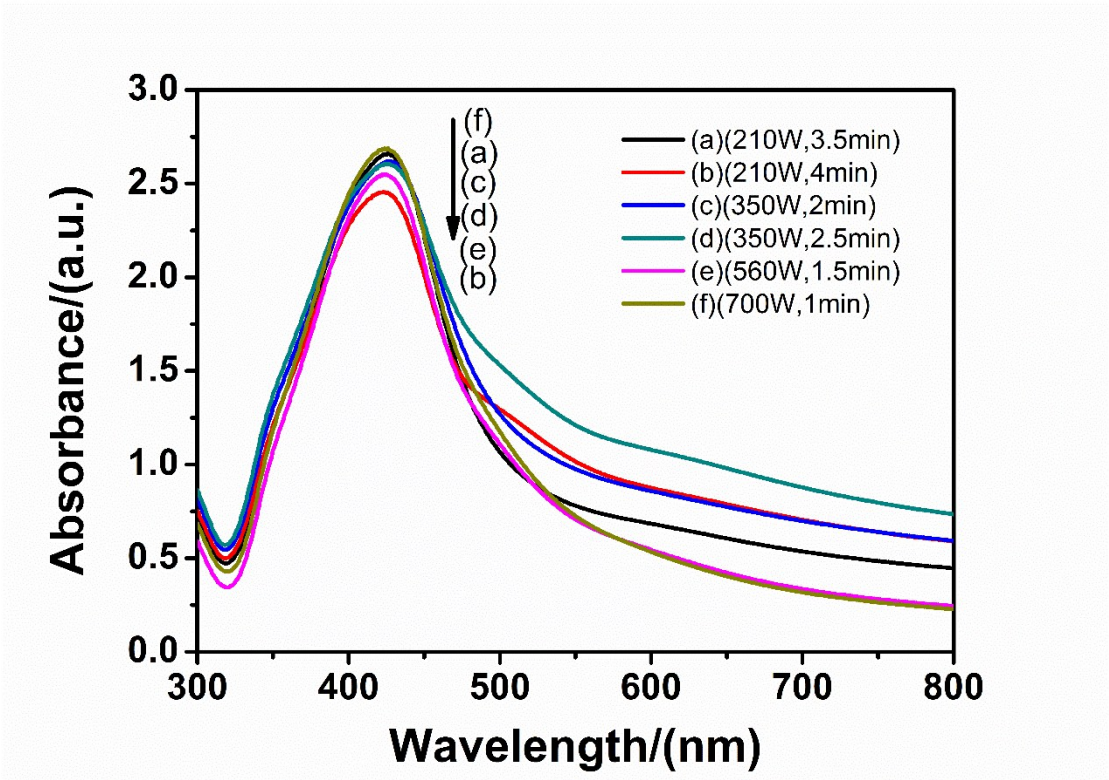


Fig. S3 (a)~(f) UV-Vis spectrums of the silver nanoparticles synthesized at the same condition that the mass ratio of silver nitrate to water was 1:4 and the stirring time was 2h except for the power and time of microwave treatment parameter: (210W, 3.5min), (210W, 4min), (350W, 2min), (350W, 2.5min), (560W, 1.5min) and (700W, 1min), respectively.

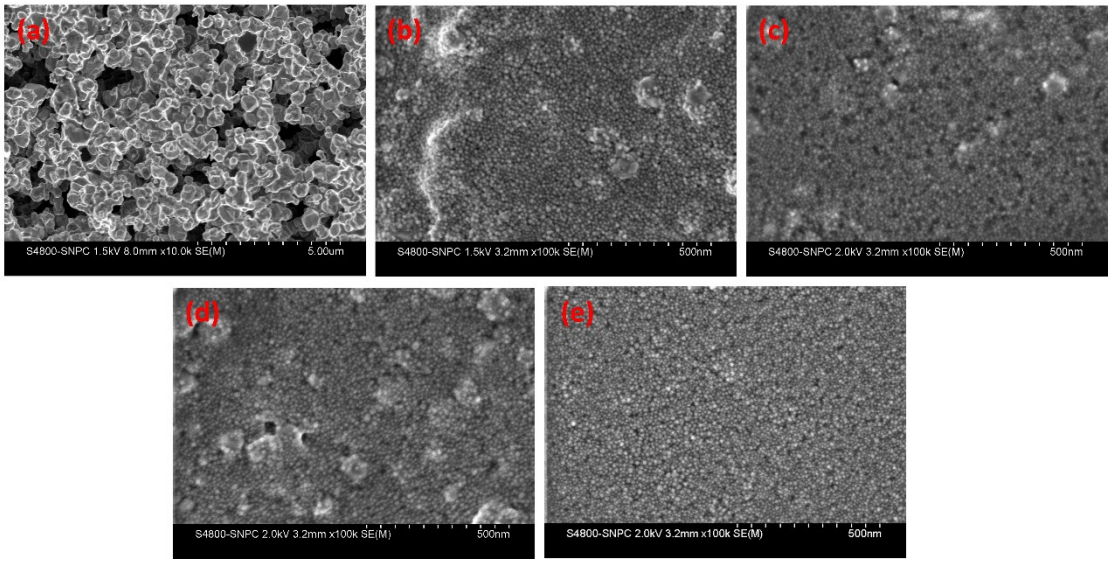


Fig. S4 (a)~(e) SEM images of the silver nanoparticles synthesized at the same condition that the mass ratio of silver nitrate to water was 1:4, the stirring time was 2h and microwave parameter were 700W for 1min except for the amount of PAA is 0, 0.2g, 0.5g, 0.7g and 1g, respectively.

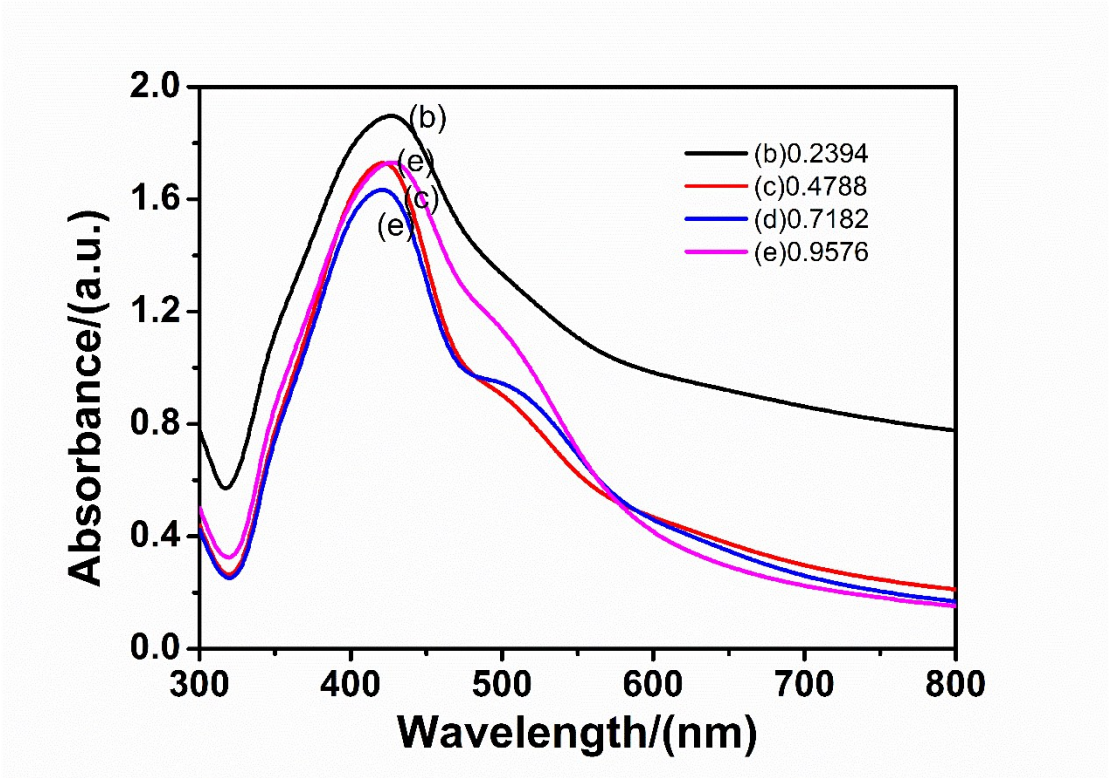


Fig. S5 (b)~(e) UV-Vis spectrums of the silver nanoparticles synthesized at the same condition that the mass ratio of silver nitrate to water was 1:4, the stirring time was 2h and microwave parameter were 700W for 1min except for the amount of PAA is 0, 0.2g, 0.5g, 0.7g and 1g, respectively.

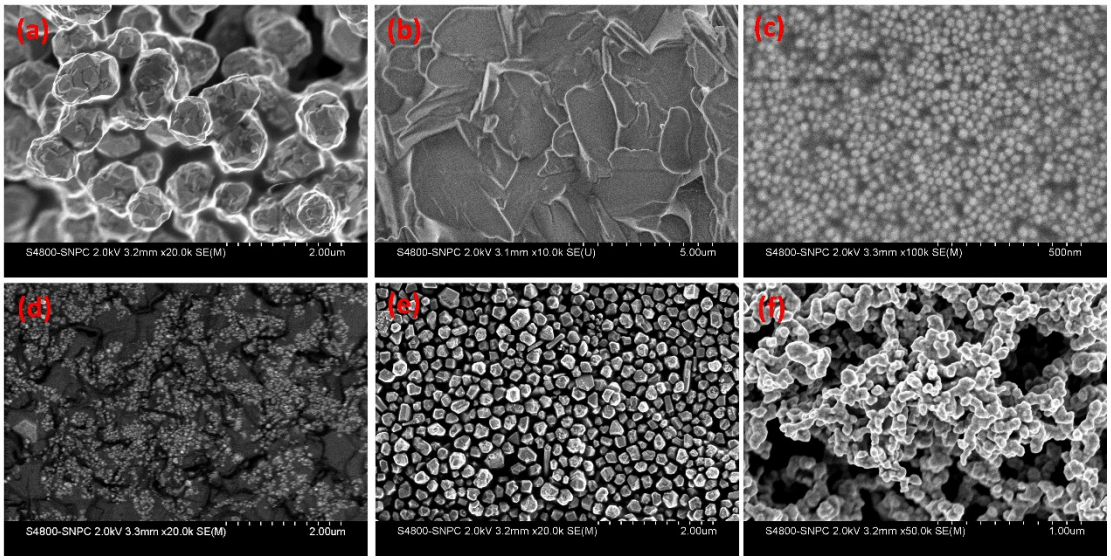


Fig. S6 (a)~(f) SEM images of the silver nanoparticles synthesized by the different surfactant: tartaric acid, lauric acid, gelatin, poly (vinyl alcohol) AH-26, poly vinyl pyrrolidone and L(+)-ascorbic acid, respectively.

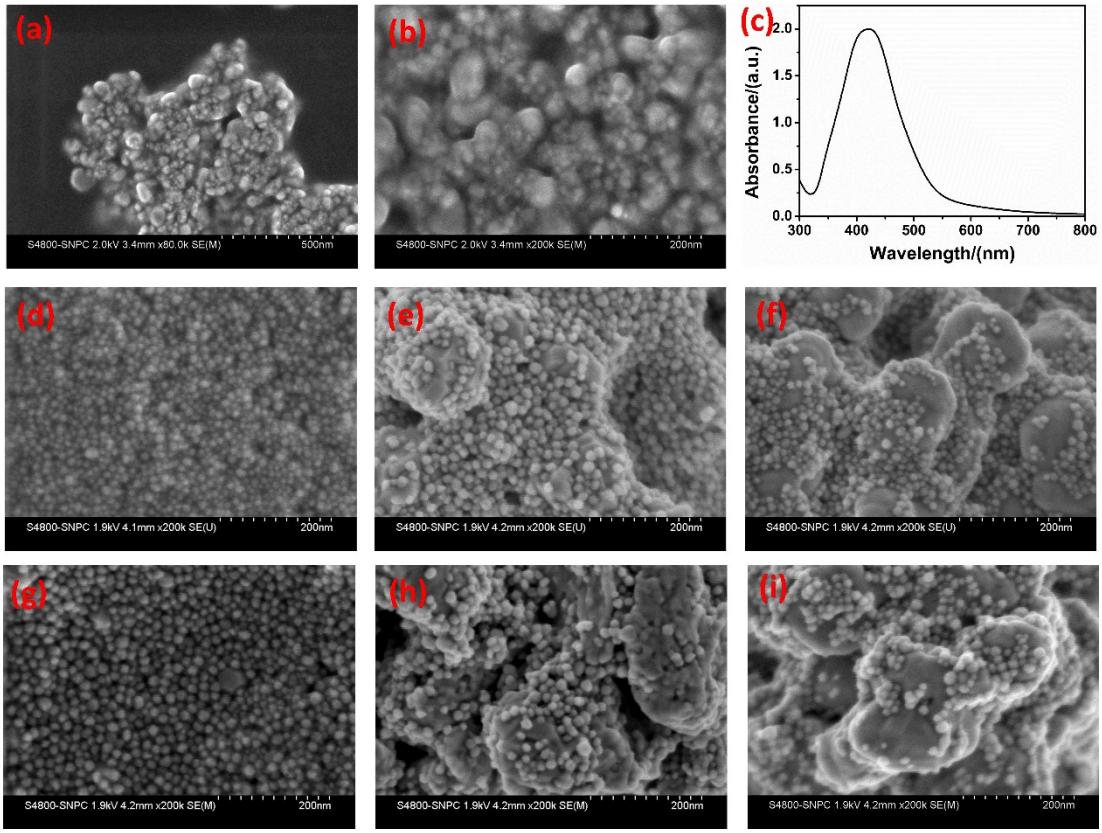
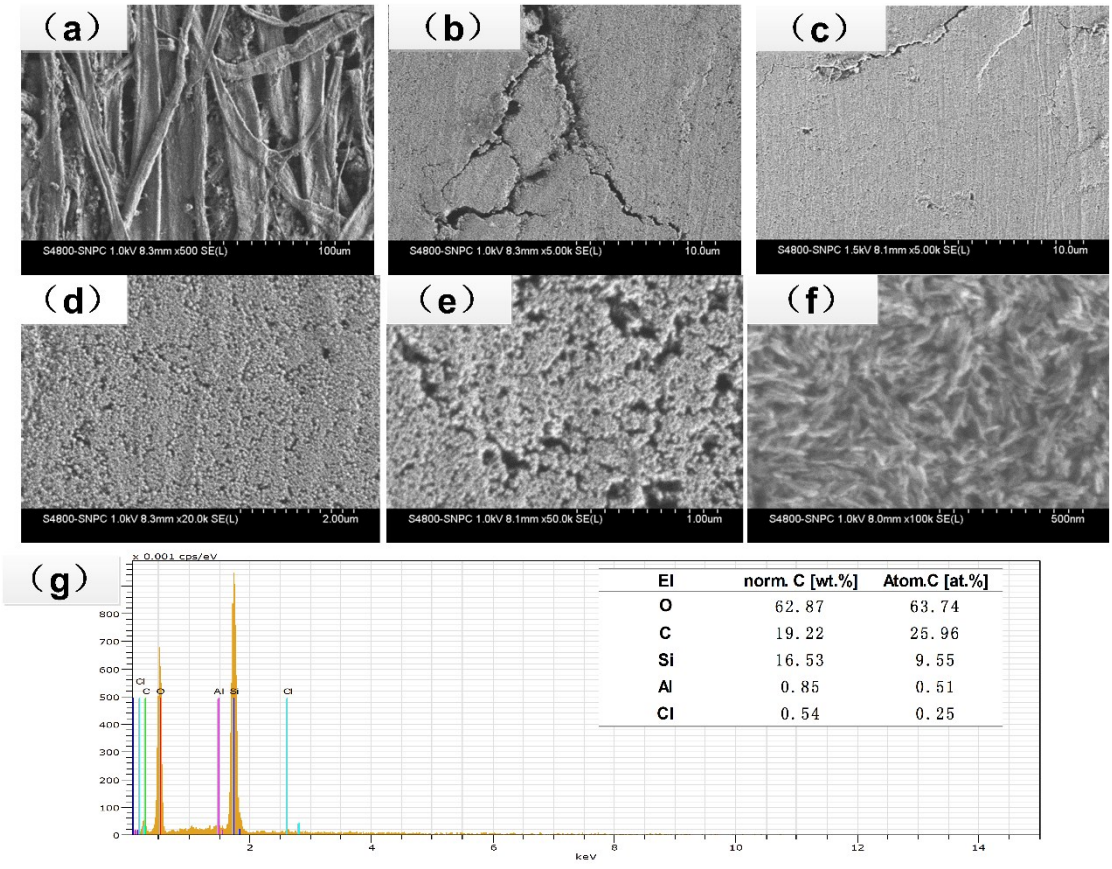


Fig. S7 (a),(b) The SEM images with different magnifications the silver nanoparticles synthesized by ultrasonic heating, and (c) is the corresponding UV-Vis spectrum; (d)~(i) The SEM images of silver particles synthesized by water bath heating: (d) 50℃, 1h, (e) 70℃, 1h, (f) 90℃, 1h, (g) 50℃, 2h, (h) 70℃, 2h, (i) 90℃, 2h.



El	norm. C [wt.%]	Atom.C [at.%]
O	62.87	63.74
C	19.22	25.96
Si	16.53	9.55
Al	0.85	0.51
Cl	0.54	0.25

Fig. S8 The SEM images of the photo paper. (a) the back of the photo paper,(b) 200g/m^{2}photopaper and (c) 240g/m^{2}photopaper, (d) and (e) is the magnified SEM images of (b) and (c), respectively, (f) Fiji Film photo paper, (g) the EDS spectrum of the 200g/ m^{2}photopaper

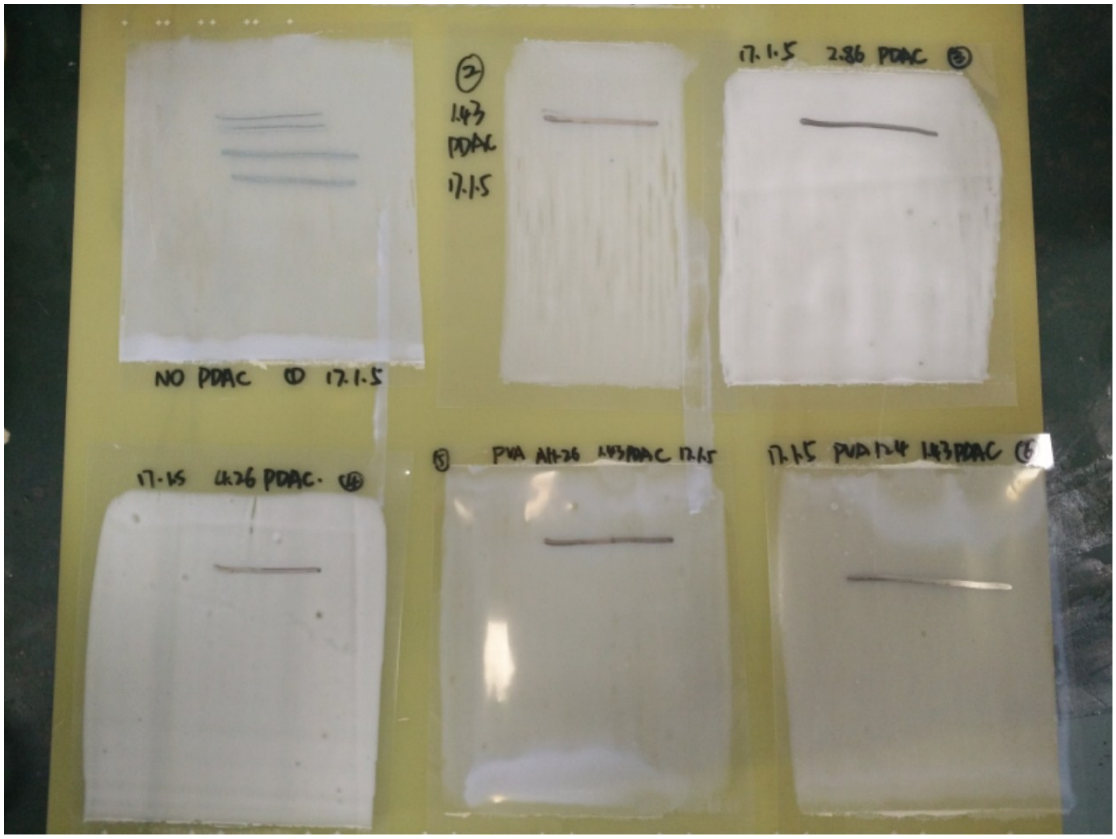


Fig. S9 the digital camera picture of silicon dioxide coating layer on the PET film with(②-⑥) or without(①) PDAC and different kinds of PVA (①-④ PVA235,⑤PVA AH-26;⑥PVA 124).

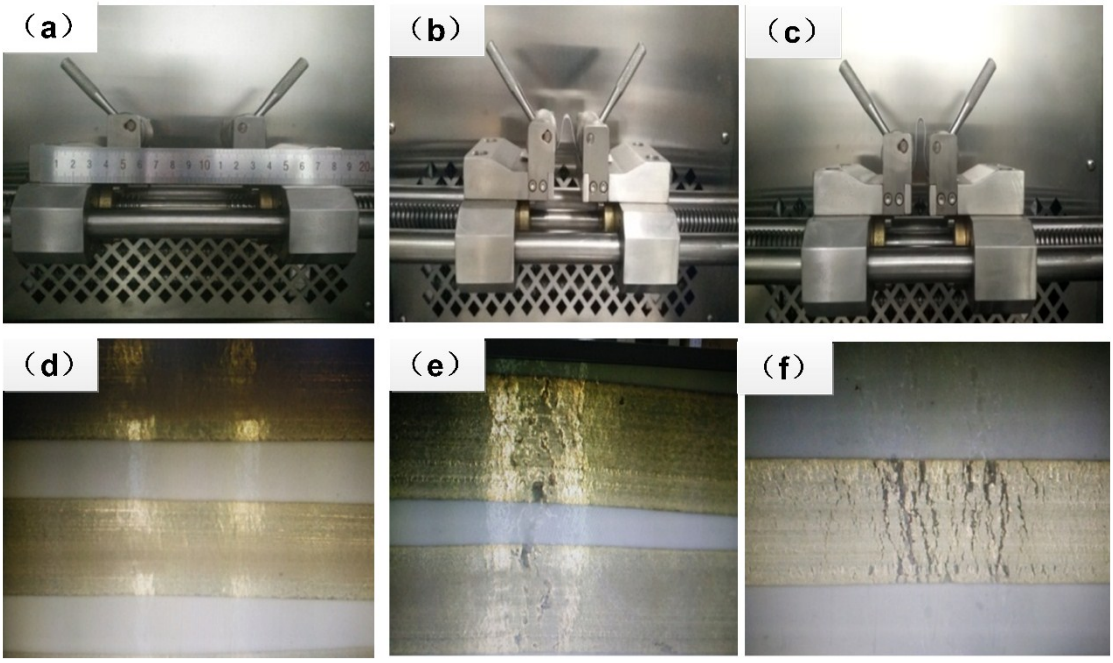


Fig. S10 (a)~(c) at no bending, 5mm radii and 2mm radii, respectively, (d) -180° after 35 folds , (e)+180° after 35 folds and (f) +180° after 55 folds.