

# Noble metal composite porous silk fibroin aerogel fibers

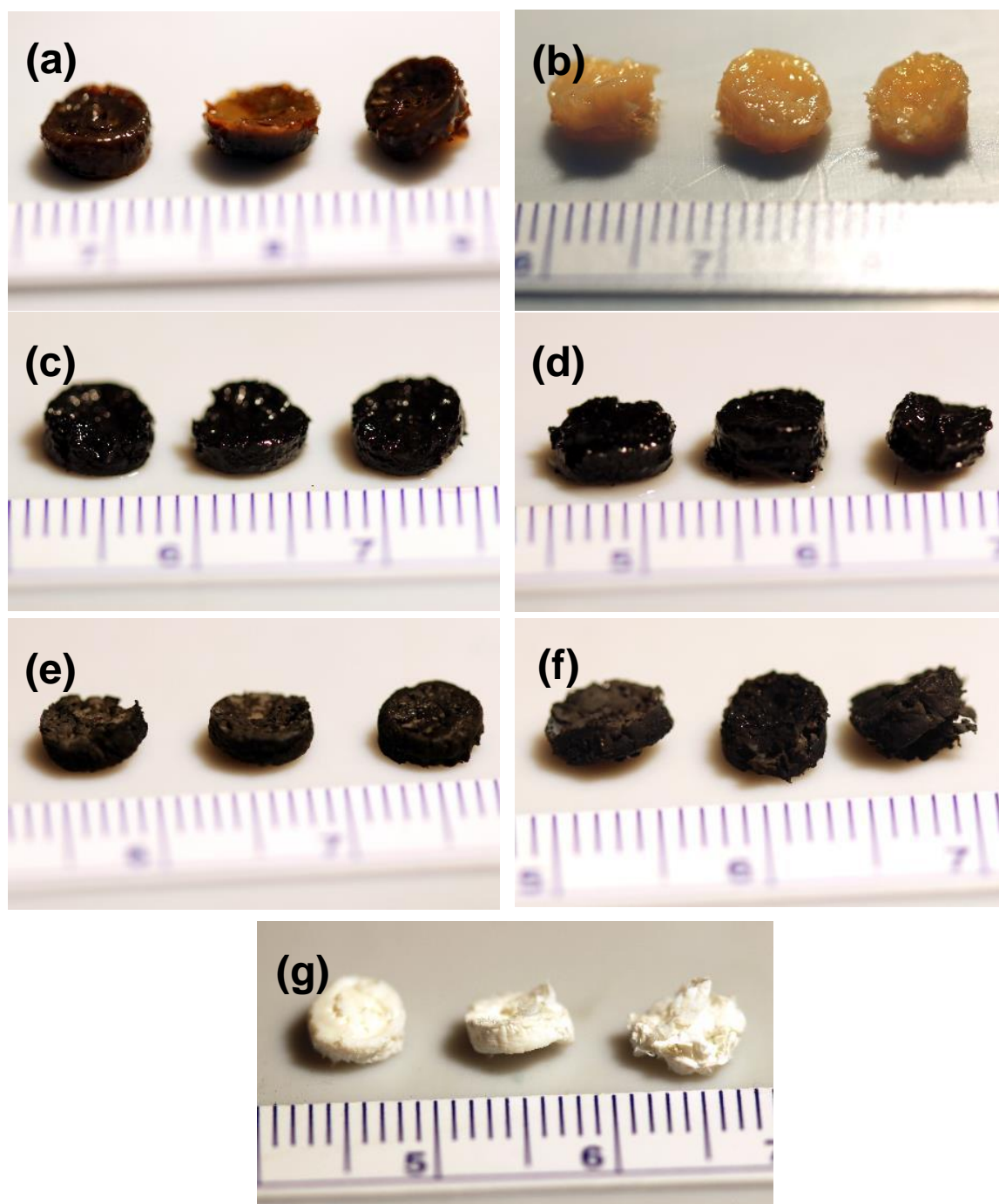
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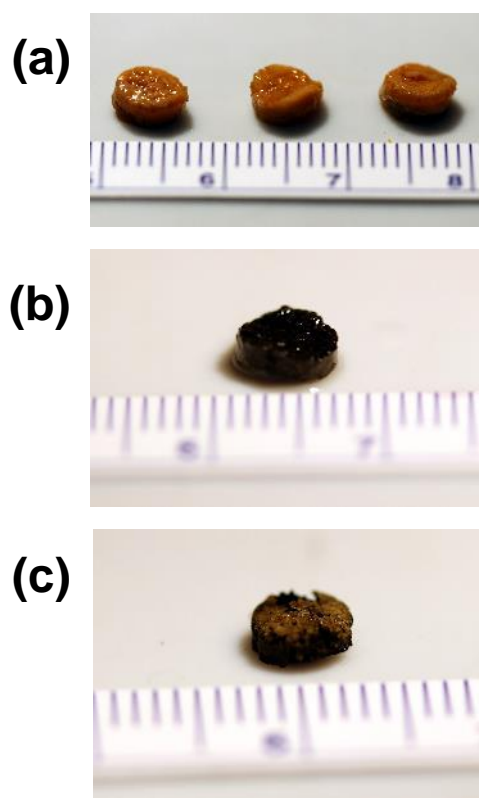
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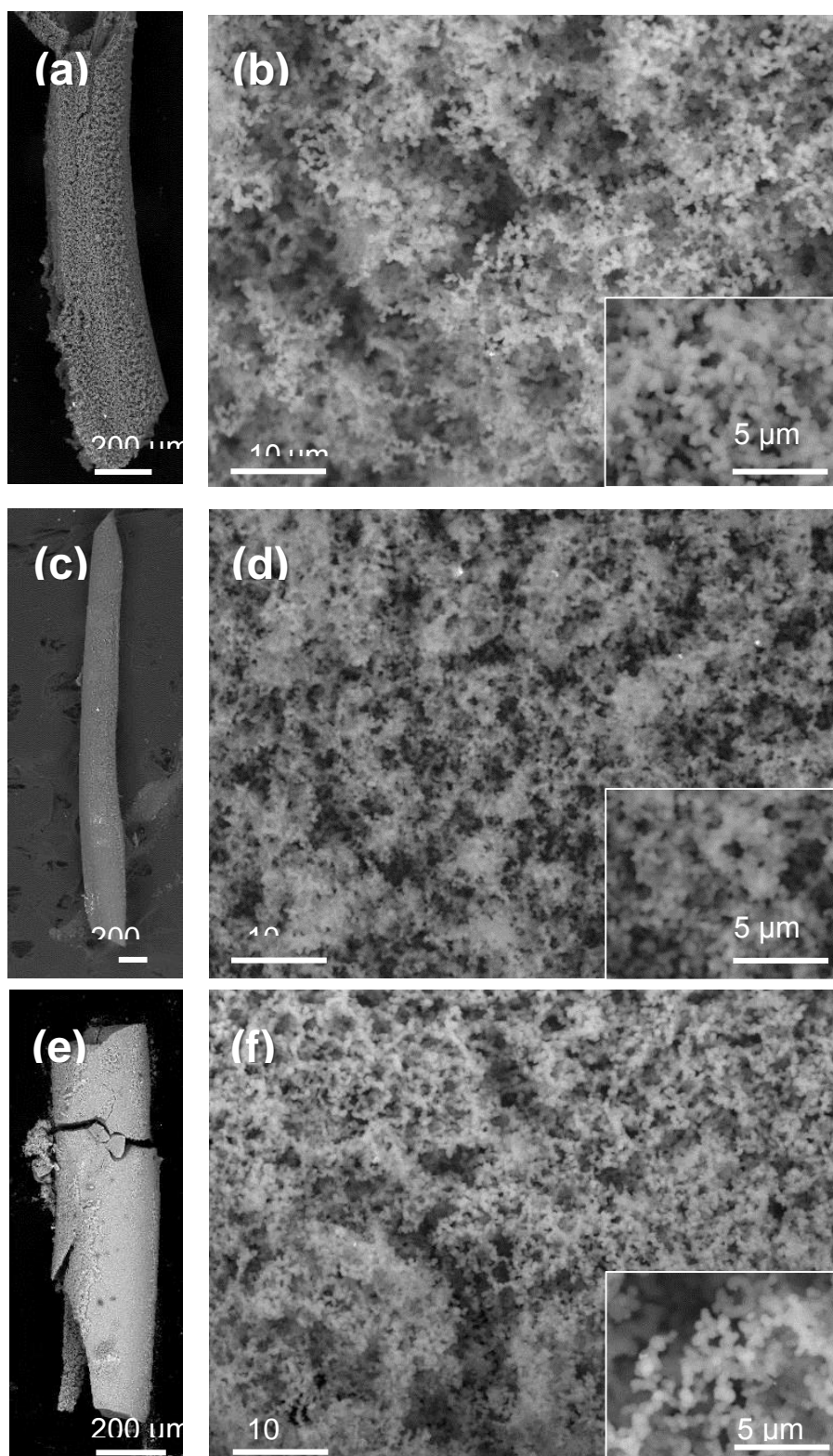
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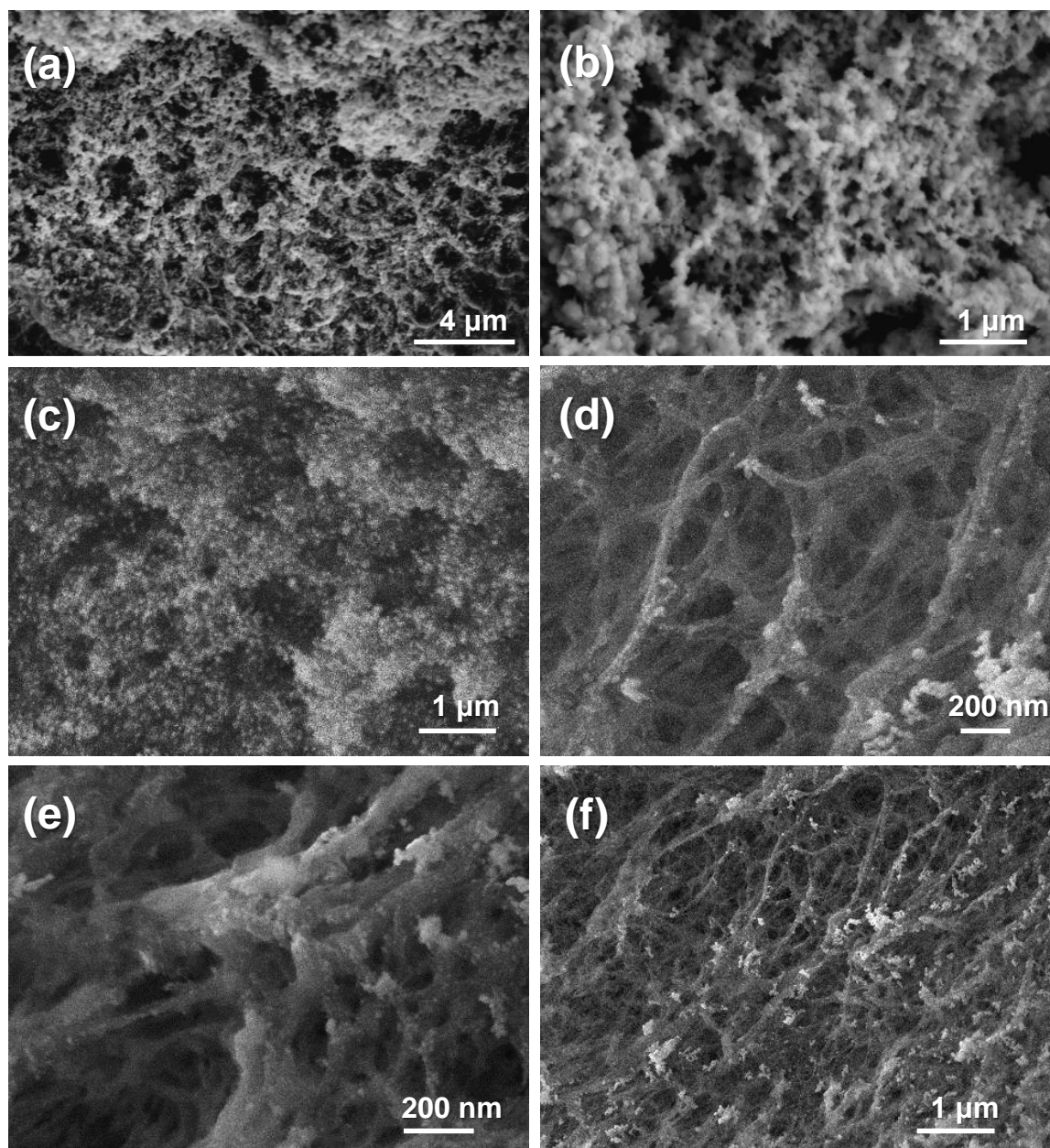
**Figure 1. Aerogel synthesis process photos.** Silk hydrogels equilibrated in (a) 100 mM  $\text{Na}_2\text{PdCl}_4$  and (b) 100 mM  $\text{K}_2\text{PtCl}_6$  (in 1:1 deionized water to ethanol solvent). (c) Hydrogel from (a) reduced with 2 M DMAB. (d) Hydrogel in (b) reduced with 2 M  $\text{NaBH}_4$ . Supercritically dried aerogels: (e) silk-palladium, (f) silk-platinum, and (g) silk only.



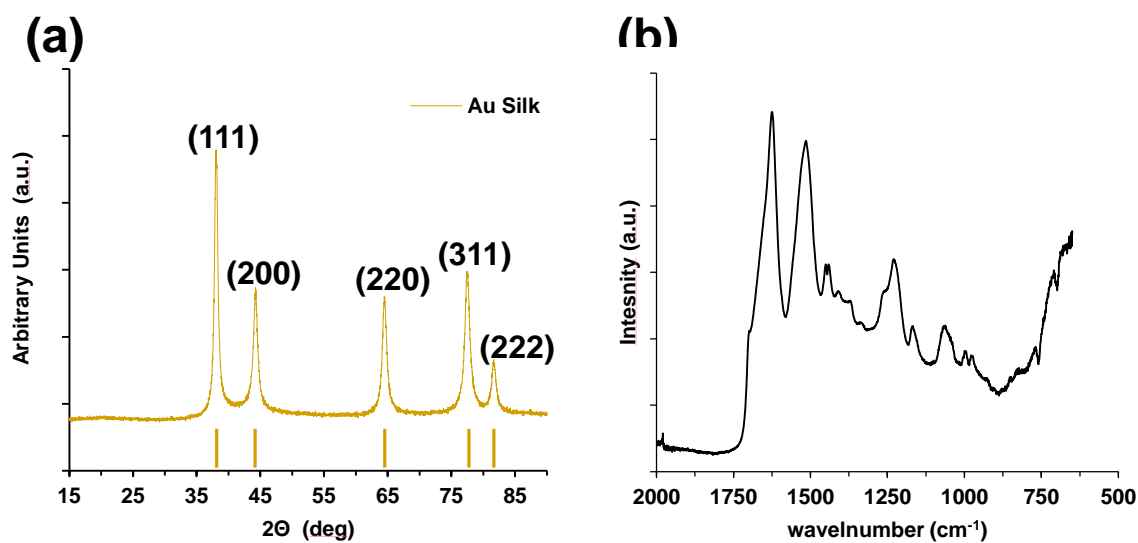
**Figure 2.** Aerogel synthesis process photos. Silk hydrogels equilibrated in (a) 100 mM  $\text{HAuCl}_4$ , (b) reduced with 2 M DMAB. (c) Supercritically dried silk-Au aerogel composite.



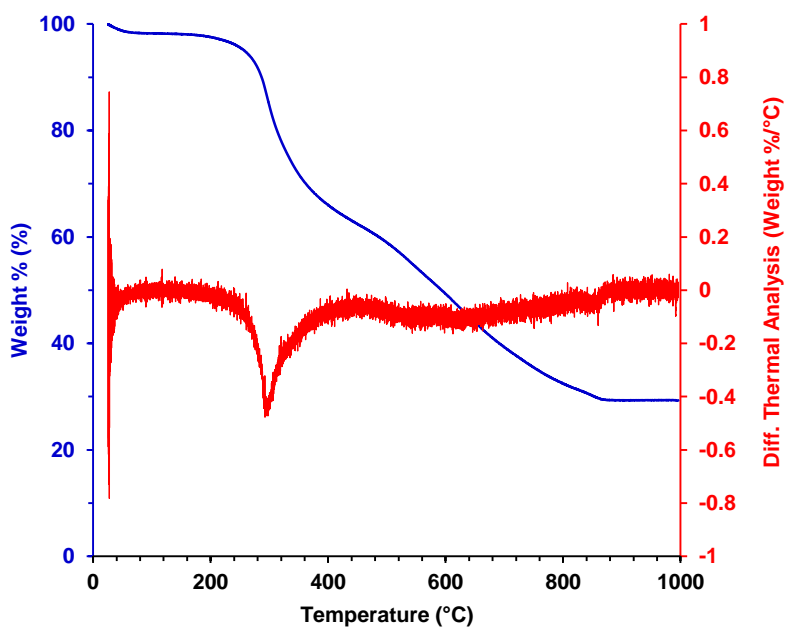
**Figure 3.** HFIP-silk noble metal fibers. (a)-(b) Silk-platinum composite aerogel fibers, (c)-(d) silk-palladium composite aerogel fibers, and (e)-(f) silk-gold composite aerogel fibers.



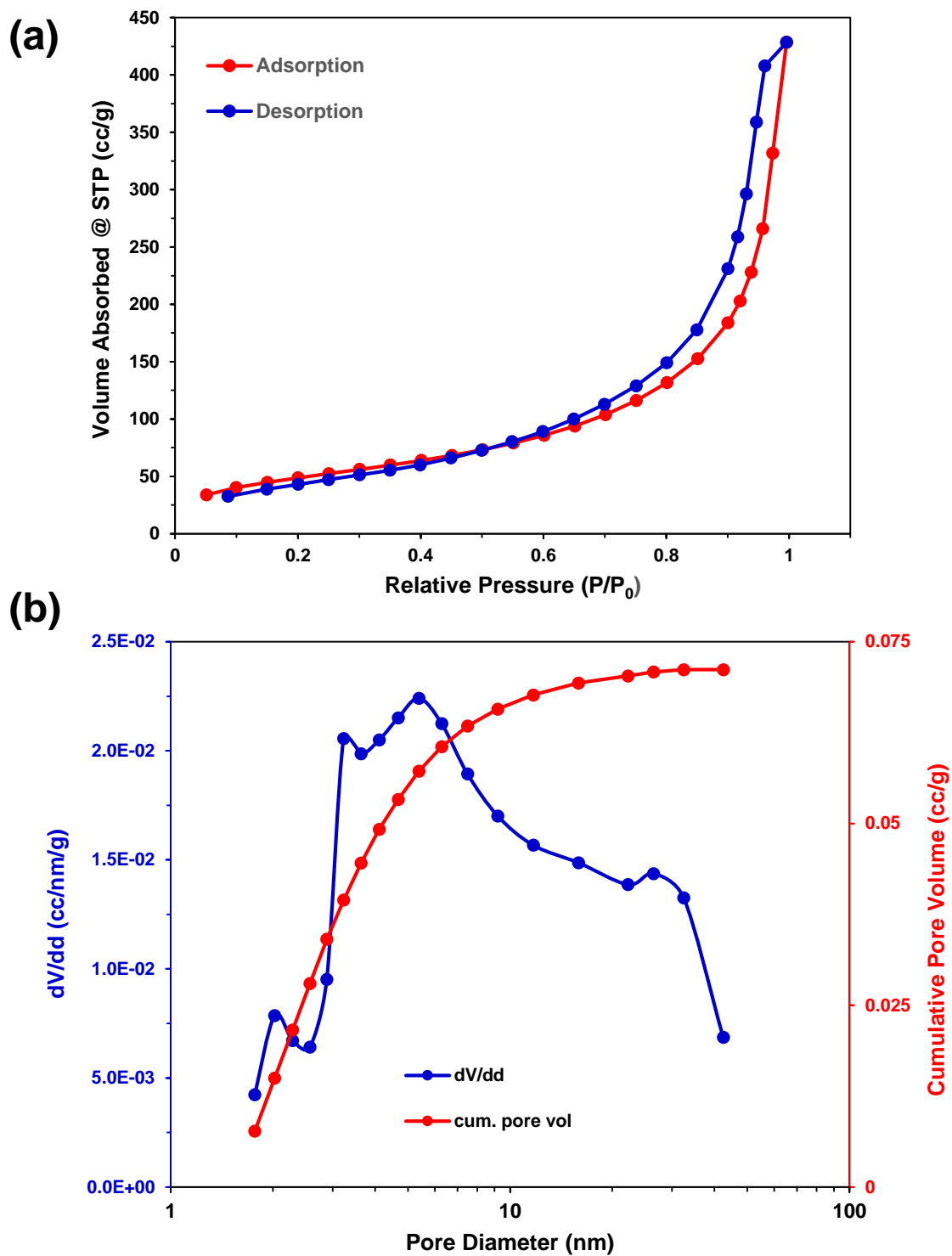
**Figure 4.** Scanning electron microscope images of (a)-(c) silk-gold composite fibers, and (d)-(f) silk-platinum composite aerogels.



**Figure 5.** (a) X-ray diffraction (XRD) spectra for silk-gold aerogels with peaks indexed to JCPDS reference 01-071-4614 for gold (gold lines). (b) Fourier transform infrared (FTIR) absorption spectra for silk-gold fiber aerogels.



**Figure 6.** Thermal gravimetric analysis (TGA) – silk gold aerogel composite.



**Figure 7.** Silk-Au composite aerogel (a) nitrogen adsorption-desorption isotherm, and (b) pore size distribution with cumulative pore volume.