

**Supplementary information**

**Fabrication of Superhydrophobic Aromatic Cotton  
Fabrics**

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To investigate where these prepared fabrics could be used for a long time, we tested the mechanical durability of the treated fabric. The abrasion resistance was investigated by using a modified procedure according to the AATCCA Test Method 8-2001. From Figure S1(a), the CA of the AG-950/nanocapsule-treated cotton fabric still remained at 152° after 500 cycles. However, when increasing the number of abrasion cycles to 2000, the CA decreased to 134.5°. This is mainly because the hydrophobic AG-950 film was worn off and the hydrophilic polyurethane film was partially exposed after a period of abrasion. Moreover, the fabric still has some aromaticity after abrasion of 2000 cycles, this is because the fibers below the surface were still tightly wrapped by aromatic nanocapsules, see in Figure S2 (a).

The laundering durability was evaluated according to AATCC Test Method 61-2003 test No. 1A with 0.37 wt% detergent. One washing cycle lasting 45 min will amount to five commercial launderings. From Figure S1(b), the CA of the AG-950/nanocapsule-treated cotton fabric still remained at 152.7° after 2 cycles. To further test the wash fastness of the fabric, increasing the number of laundering cycles to 6, the CA decreased to 138.8°. The SEM image (Figure S2 (b)) of the laundered cotton revealed that the fiber surface remained a small amount of nanocapsules after 6 cycles of laundering for AG-950/nanocapsule-coated fabric. This is mainly due to the formation of polyurethane and AG-950 film on the fiber, playing a fixing role for nanocapsule, as a result the nanocapsules are not easy to fall off in the process of laundering. This makes lemon essential oil retained, and the fabric shows some aromatic, as shown in Figure S3 showing the maintaining of lemon essential oil in

AG-950/nanocapsule-treated fabric after laundering.

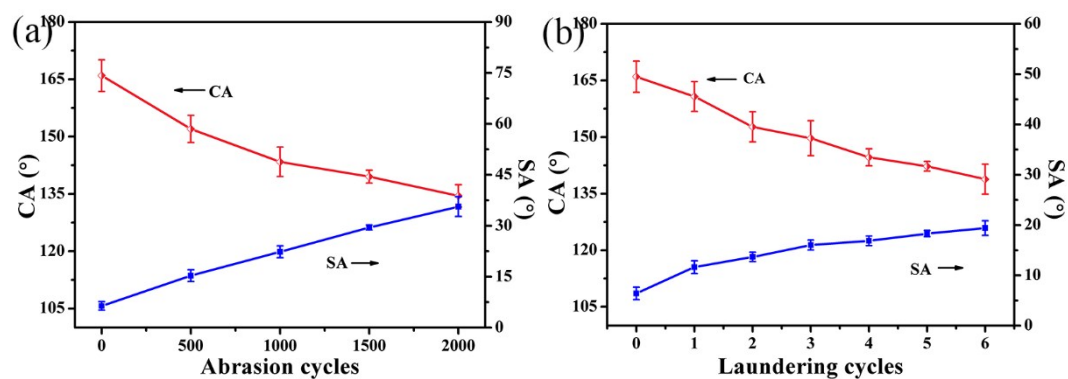


Figure S1. Changes of CA and SA of AG-950/nanocapsule-treated cotton fabric with (a) abrasion cycles and (b) laundering cycles.

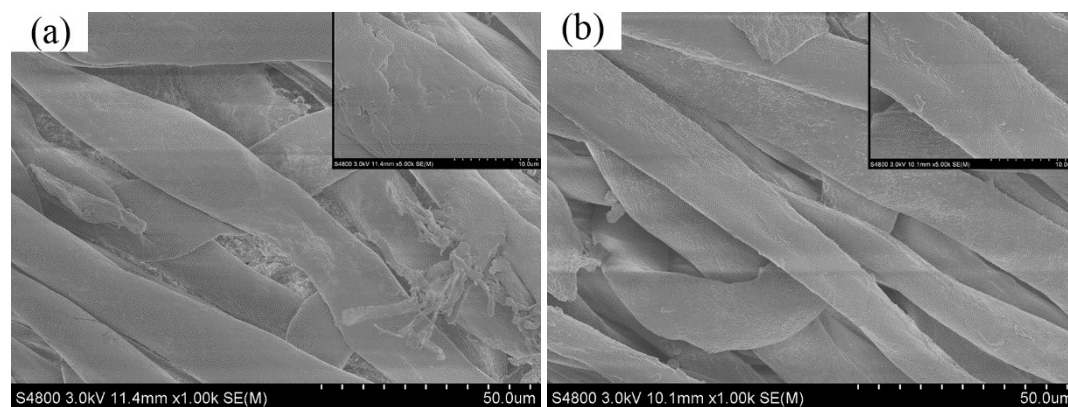


Figure S2. SEM images of AG-950/nanocapsule-treated cotton fabric after (a) a 2000-cycle abrasion test, (b) a 6-cycle laundering test.

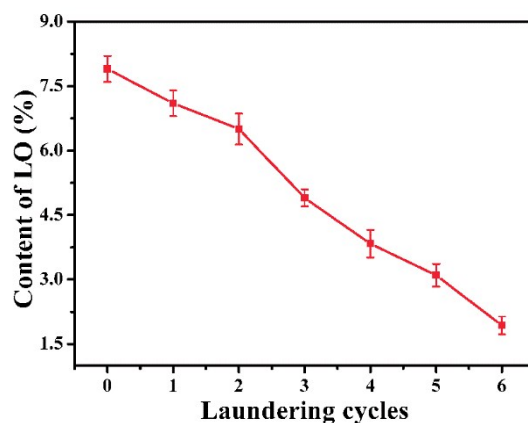


Figure S3. The residual amount of lemon essential oil in AG-950/nanocapsule-treated fabric after laundering.