

## Supporting Information

# **Flexible Multifunctional MXene@Ag Nanowires/Cotton Fabric Inspired by Transport Nutrients of Roots for Electromagnetic shielding, Infrared stealth, Joule/Solar Heating and Flame Retardancy**

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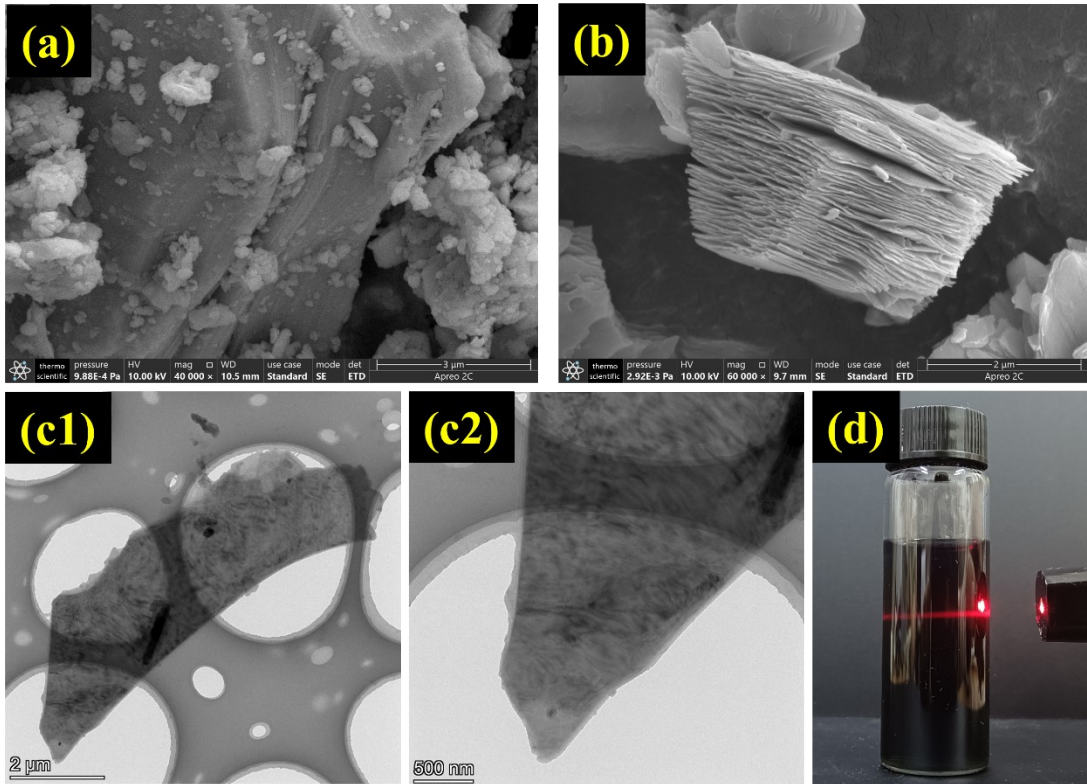
2. Yibin Industrial Technology Research Institute, Sichuan University, Yibin, Sichuan,  
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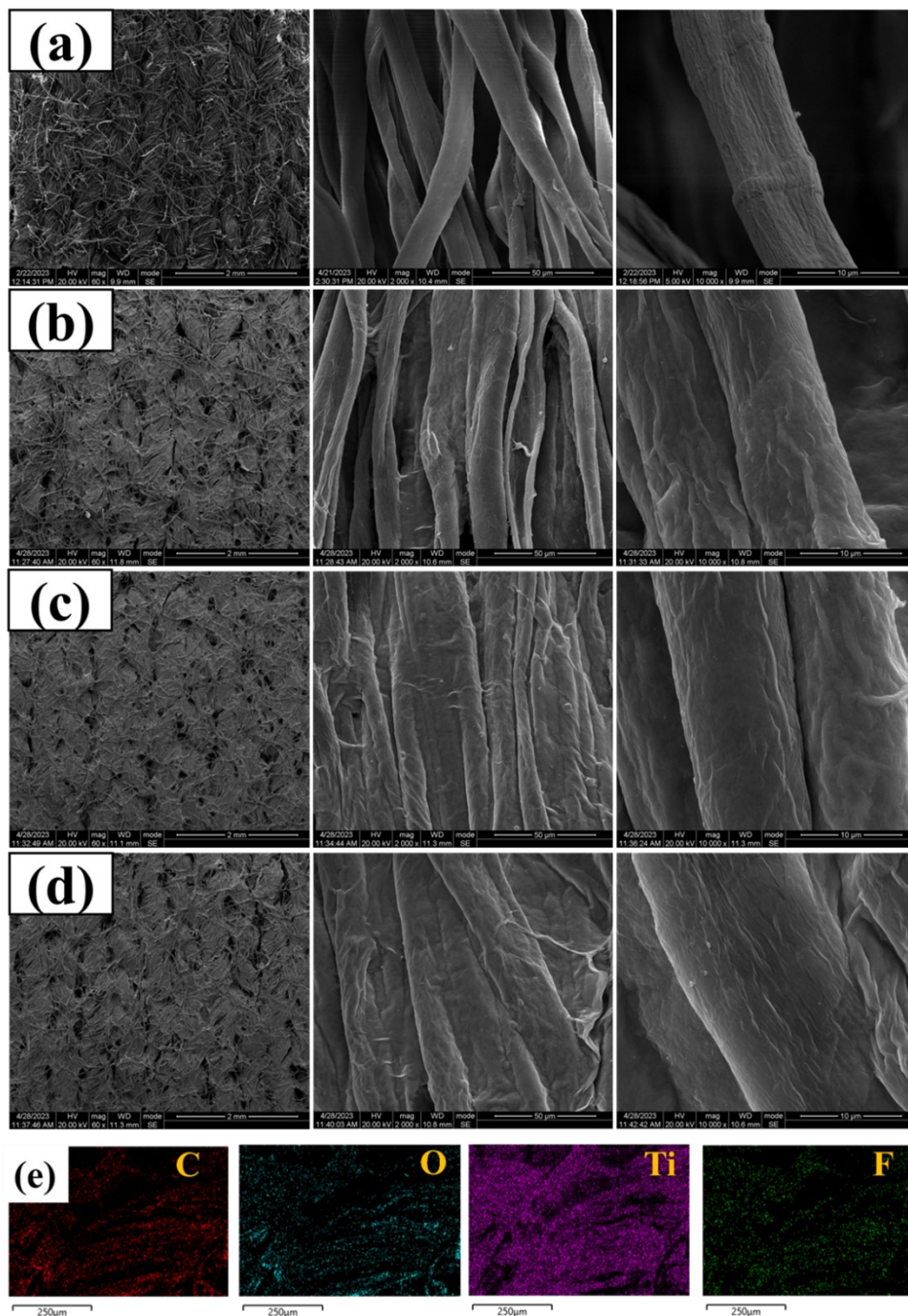
4. Shandong Huashing Innovative Textile Technology Co., Ltd

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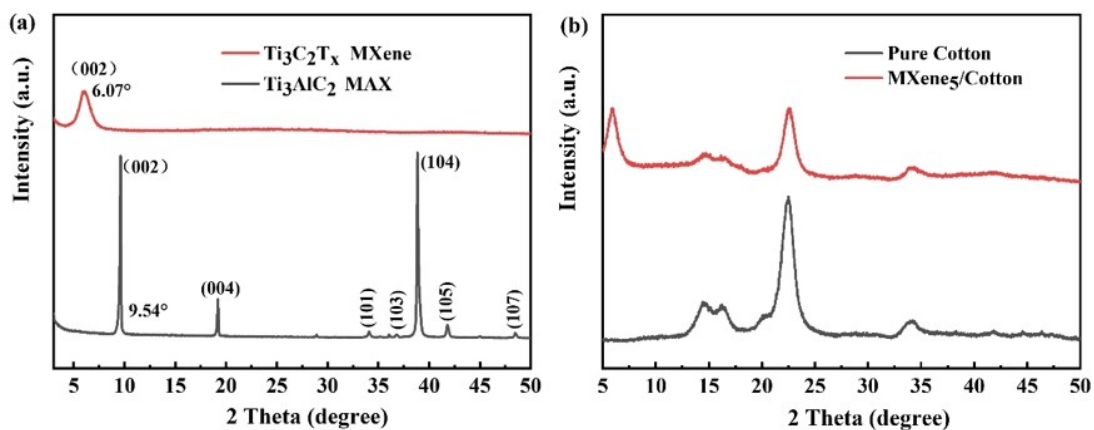
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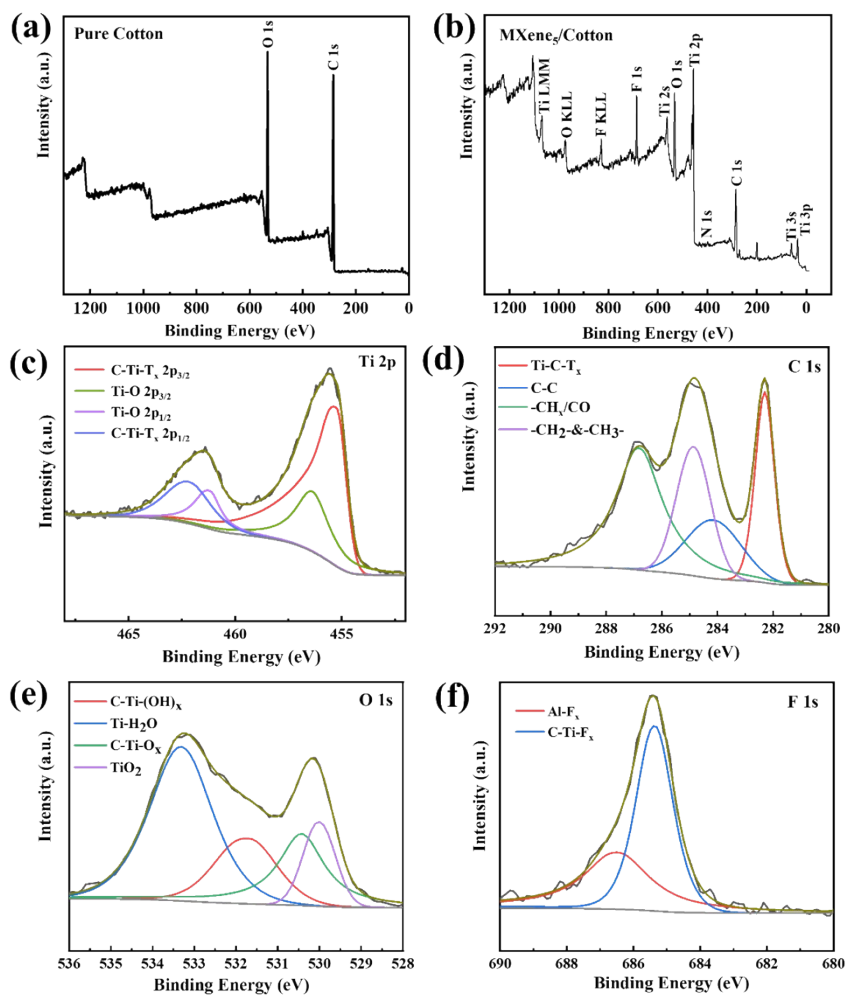
**Fig. S1.** (a) SEM images of  $\text{Ti}_3\text{AlC}_2$  ceramic phase and (b) multilayer MXene, (c1) and (c2) TEM images of few-layer MXene, (d) tindal effect of few-layer MXene solution.



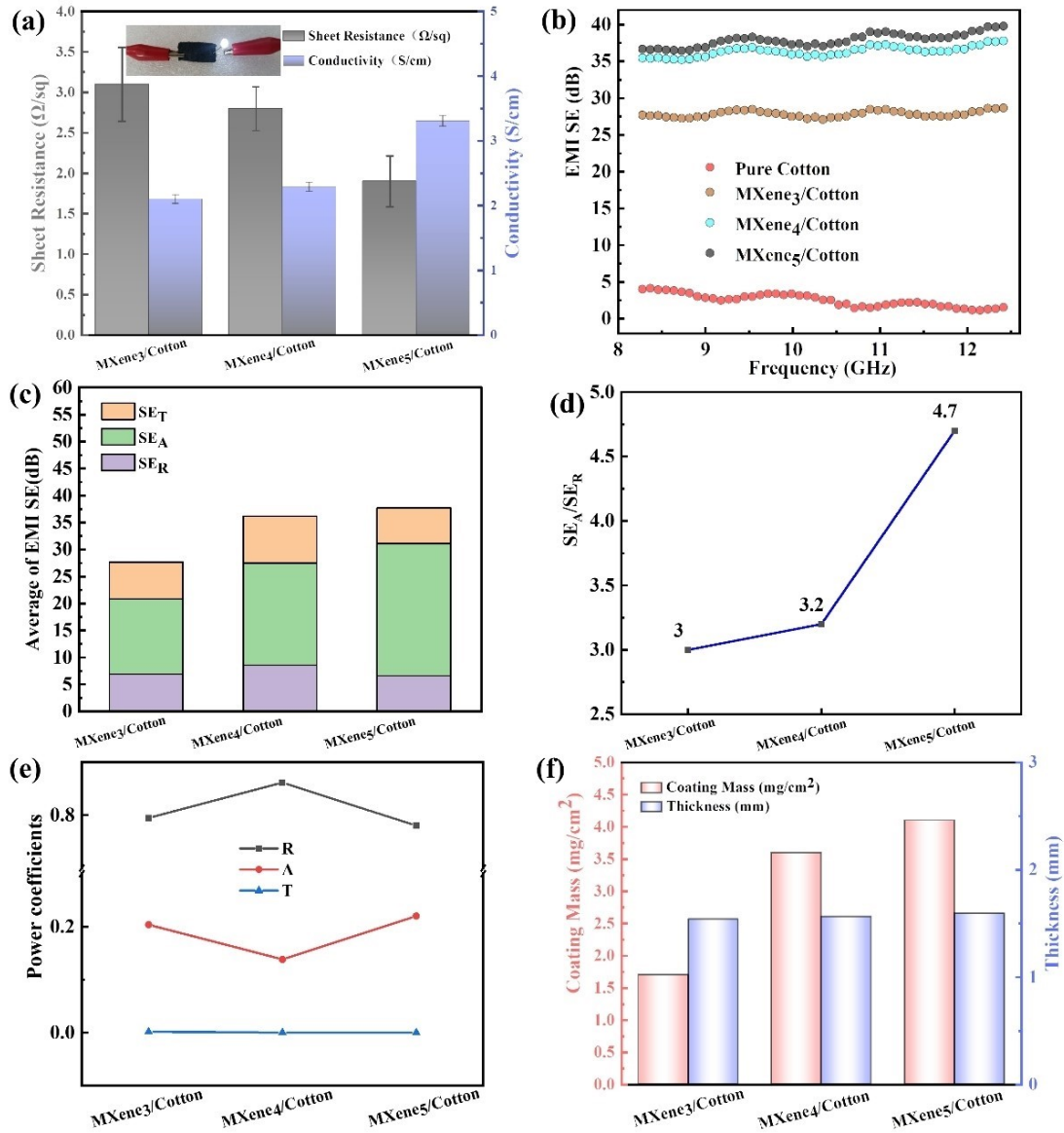
**Fig. S2.** SEM micrographs of (a) pure cotton fabric, (b) MXene<sub>3</sub>/cotton fabric, (c) MXene<sub>4</sub>/cotton fabric and (d) MXene<sub>5</sub>/cotton fabric with different magnifications, (e) SEM mapping of MXene<sub>5</sub>/cotton fabric.



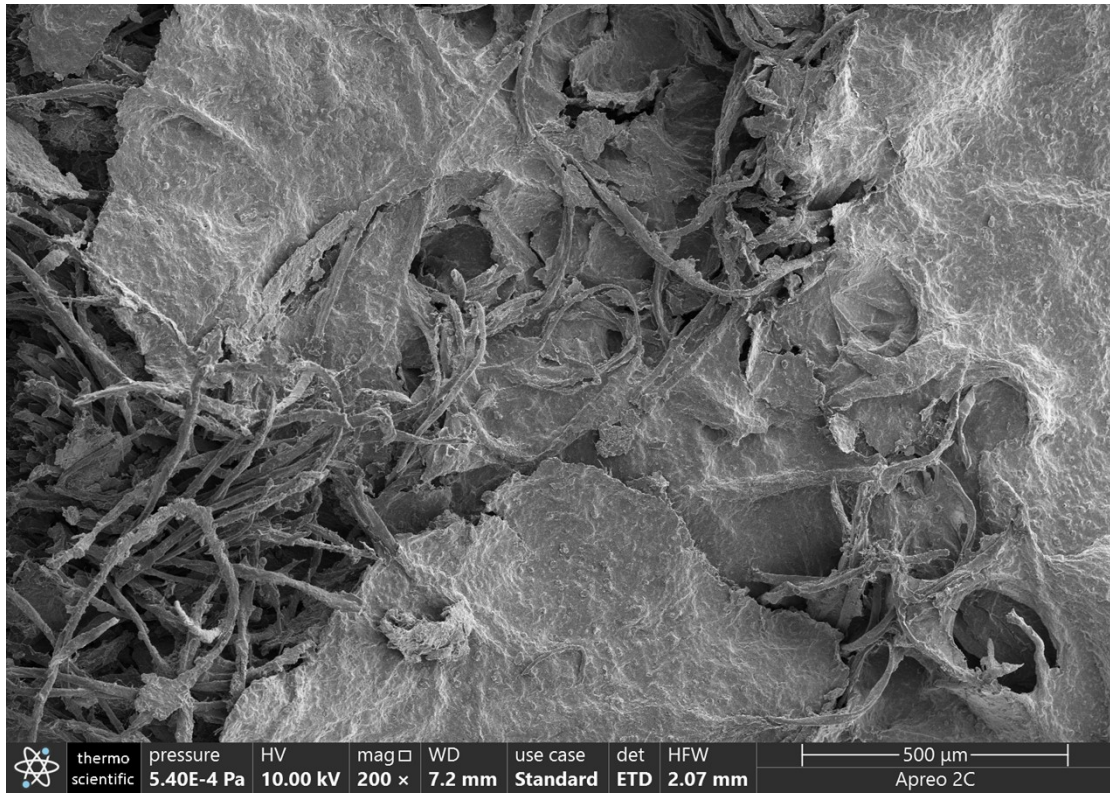
**Fig. S3.** (a) XRD patterns of MAX phase and few-layer MXene and (b) XRD patterns of pure cotton and MXene<sub>5</sub>/cotton fabric.



**Fig. S4.** Full XPS spectrum scan of (a) pure cotton fabric and (b) MXene<sub>5</sub>/cotton fabric, (c) Ti 2p, (d) C 1s, (e) O 1s, (f) F 1s regions of MXene<sub>5</sub>/cotton fabric.



**Fig. S5.** (a) electrical conductivity, (b) total EMI SE, (c) average SE<sub>A</sub>, SE<sub>R</sub> and SE<sub>T</sub>, (d) ratio of SE<sub>A</sub> to SE<sub>R</sub>, (e) power coefficients R, A and T and (f) weight gain of per unit area and thickness of MXene<sub>3</sub>/cotton fabric, MXene<sub>4</sub>/cotton fabric and MXene<sub>5</sub>/cotton fabric.



**Fig. S6.** SEM image of MXene<sub>5</sub>@AgNW<sub>1.16</sub>/cotton fabric-P.