

## Supporting Information

### **Rational Design of Electrochemical Iodine-based Redox Mediators for Water-Proofed Flexible Fiber Supercapacitors**

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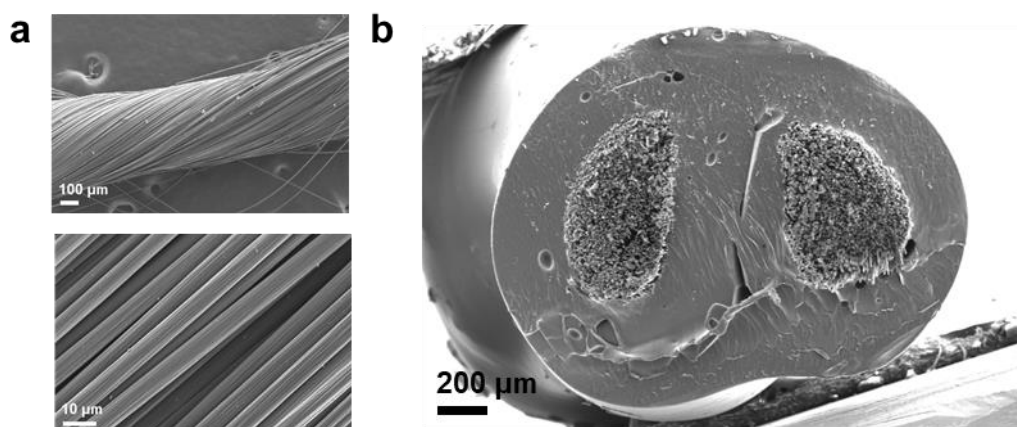
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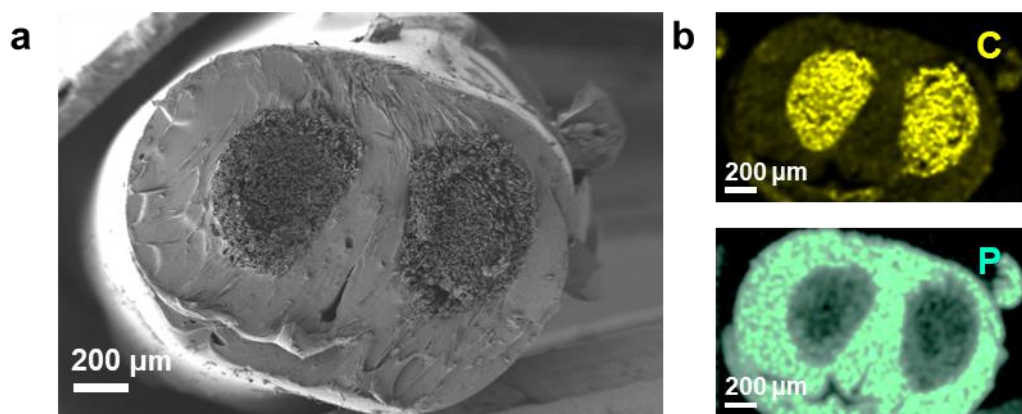
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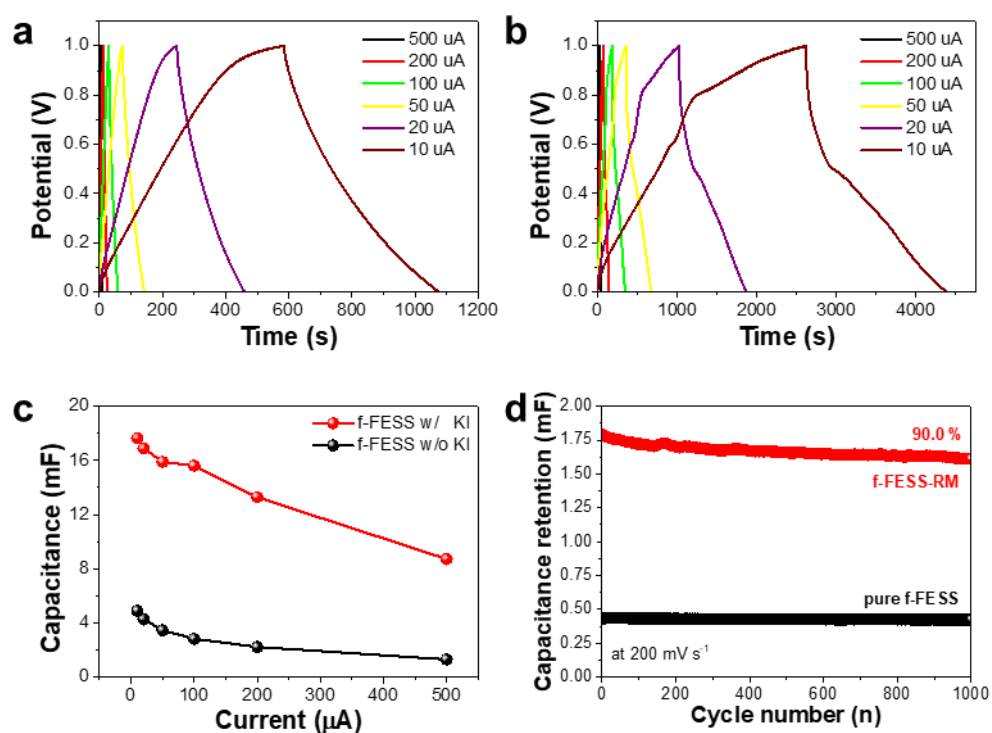
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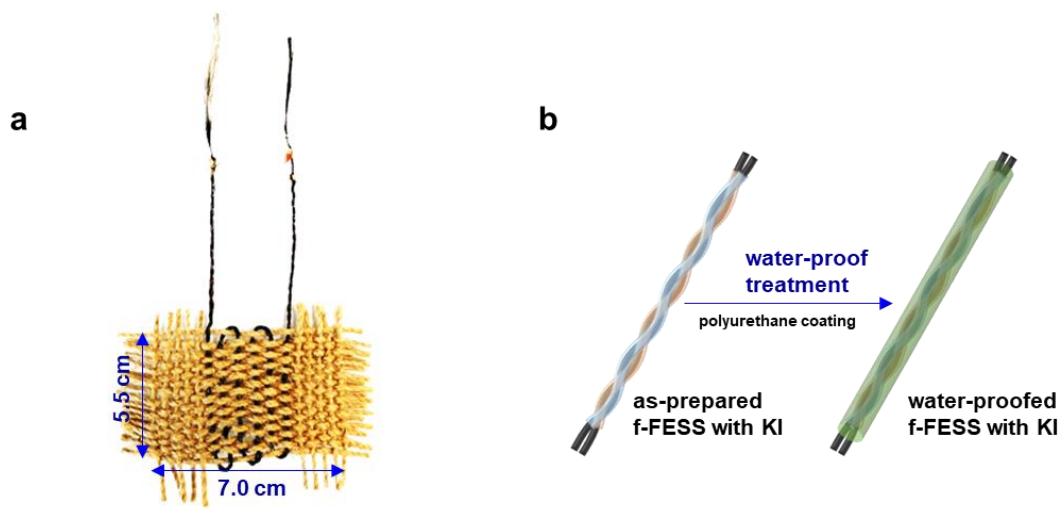
**Figure S1.** (a) SEM and HR-SEM images of the as-prepared carbon fiber yarns. (b) Cross sectional SEM image of the f-FESS with KI.



**Figure S2.** (a) Cross-sectional SEM image of the pure f-FESS. (b) EDX elemental mapping images of the pure f-FESS.



**Figure S3.** Galvanostatic charge/discharge curves of (a) the f-FESS-RM and (b) the pure f-FESS at different current ranges. Comparison of (c) capacitance and (d) cyclability for the f-FESS-RM and the pure f-FESS.



**Figure S4.** (a) Photographs of the fabricated f-FESS-RM weaved on a cross-stitch board (area of  $7.0 \times 5.5 \text{ cm}^2$ ). (b) Schematic illustration of fabrication process of the water-proofed f-FESS-RM.