Supporting Information

Fabrication and catalytic performance of a novel tubular PMIA/Ag@RGO nanocomposite nanofiber membrane

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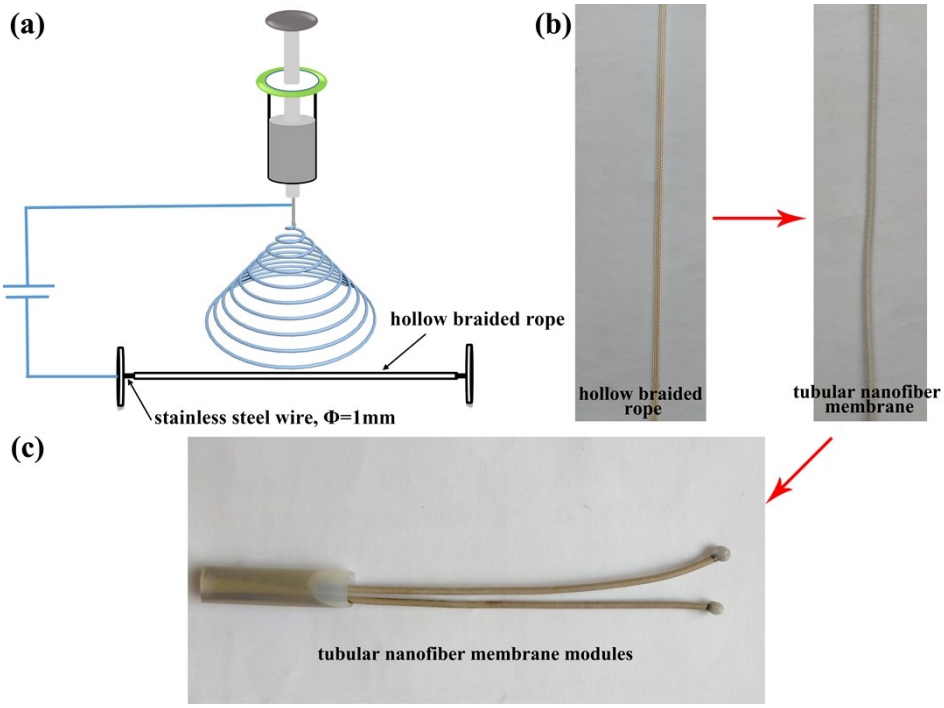

Figure S1. The schematic diagram of the process for fabrication of the novel tubular PMIA/Ag@RGO composite nanofiber membrane (a); the digital photograph of hollow braided rope and tubular nanofiber membrane (b); modules of tubular nanofiber membrane (c).

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Table S1 The parameters of electrospinning process

	Parameter
Positive voltage (kV)	20
Negative voltage (kV)	-5
Spinning distance (cm)	10
Flow rate (ml/h)	1
Rotation speed (rpm)	1200
Temperature (°C)	25
Humidity (%)	65±5
Spinning time (min)	30

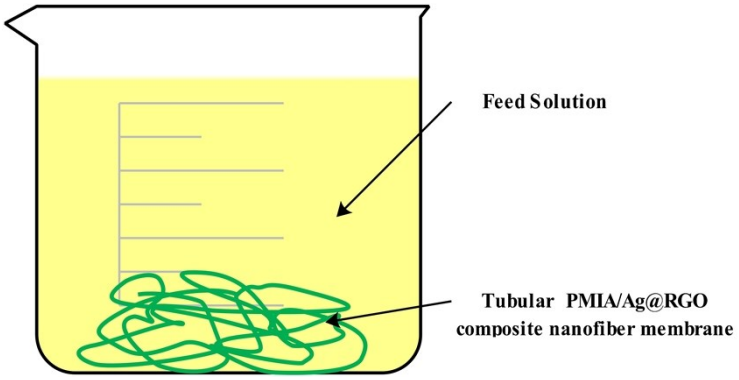

Figure S2. The schematic diagram of static catalysis process.

The tubular PMIA/Ag@RGO composite nanofiber membrane was immersed directly into the feed solution in static catalysis process.

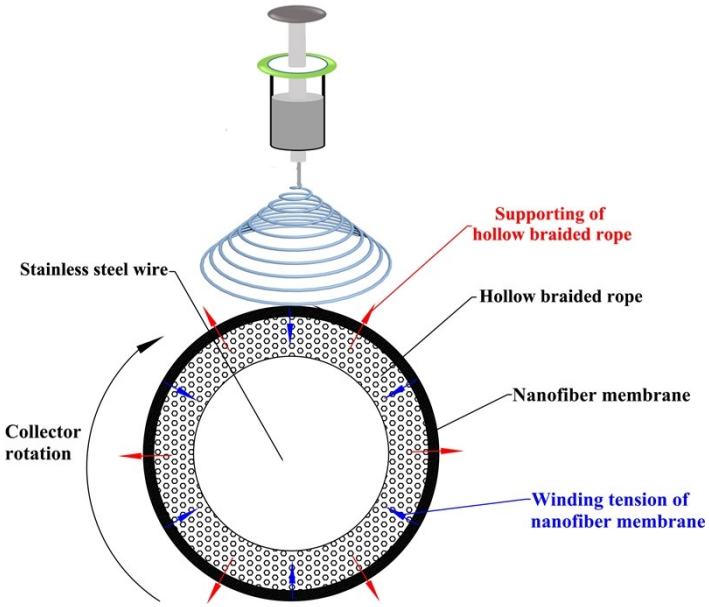

Figure S3. The reinforced mechanism of tubular PMIA/Ag@RGO composite nanofiber membrane.

The reinforced mechanism of tubular PMIA/Ag@RGO composite nanofiber membrane was shown in Figure S3. The hollow braided rope was used as support of nanofiber layer and provide high mechanical strength for the tubular nanofiber membrane. The self-supporting tension of the hollow braided rope and the winding tension of the nanofiber membrane made the nanofiber membrane and the hollow braided rope has a good interfacial adhesion. The hollow braided rope also provided high surface area for the tubular nanofiber membrane compared to flat sheet nanofiber membrane which could increase the packaging capacity. The high packaging capacity was also an important advantage of the tubular nanofiber membrane for its commercial application.

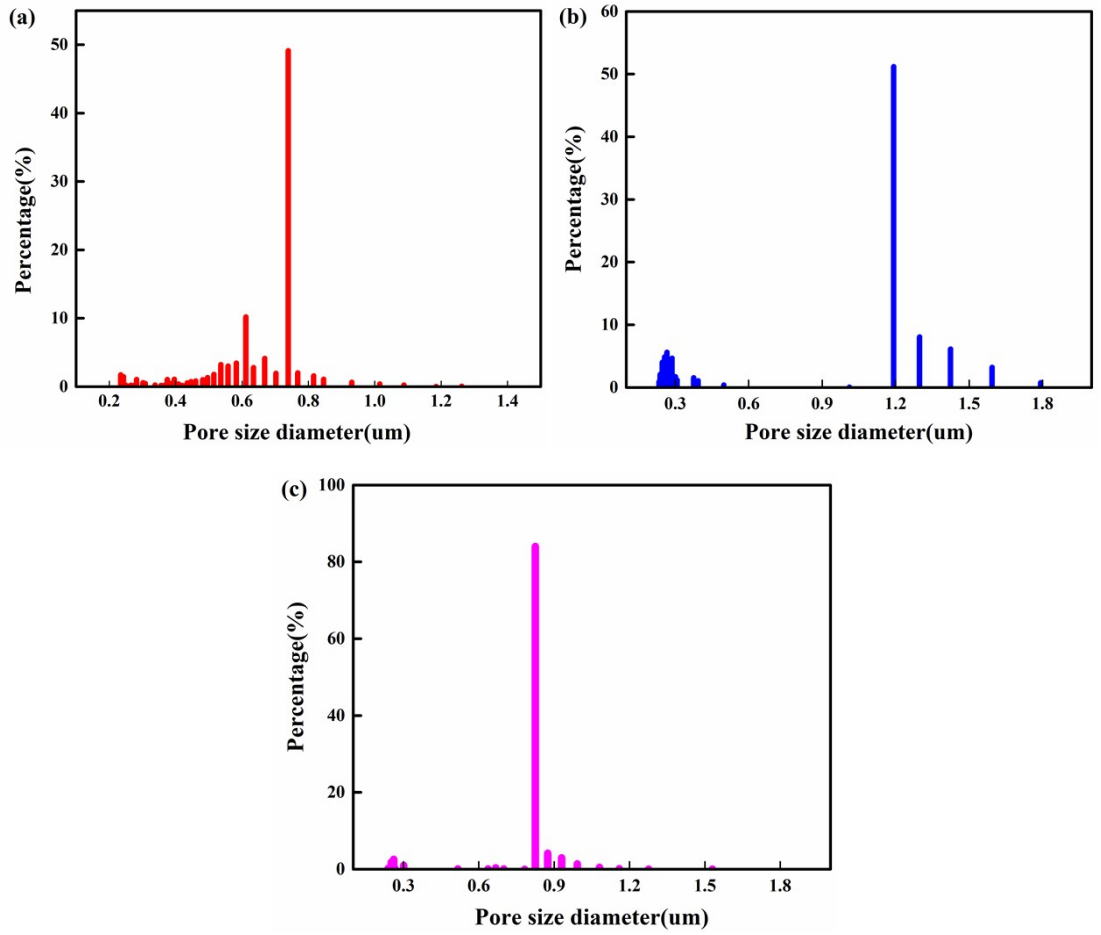

Figure S4. The pore size distribution of tubular PMIA/Ag@RGO composite nanofiber membrane：(a) Tubular PMIA/Ag@RGO0.2 composite nanofiber membrane; (b) Tubular PMIA/Ag@RGO0.6 composite nanofiber membrane; (c) Tubular PMIA/Ag@RGO1.0 composite nanofiber membrane.

The pore size and its distribution of the tubular PMIA/Ag@RGO composite nanofiber membrane were examined using automated capillary flow porometer (Porolux 1000, Porometer, Belgium).