

Electronic Supplementary Information

1. SEM images of paper and graphite coated electrodes

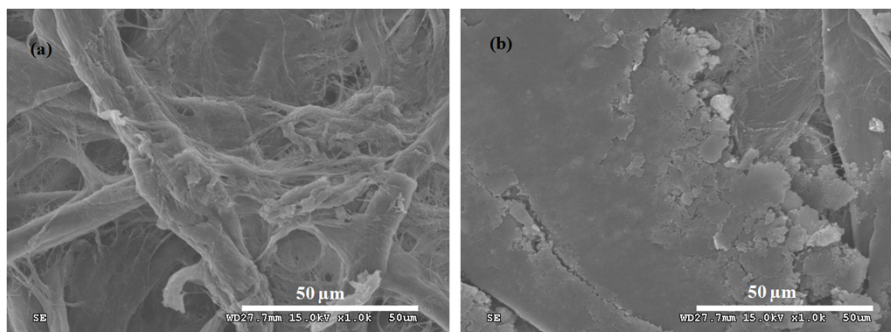


Figure S1: Scanning electron microscopic image of the paper (a) before and (b) after stroking with Hb pencil ($k = 35$) to be used as graphite electrodes.

2. CO₂ gas bubble removal from the paper surface during re-dox reaction

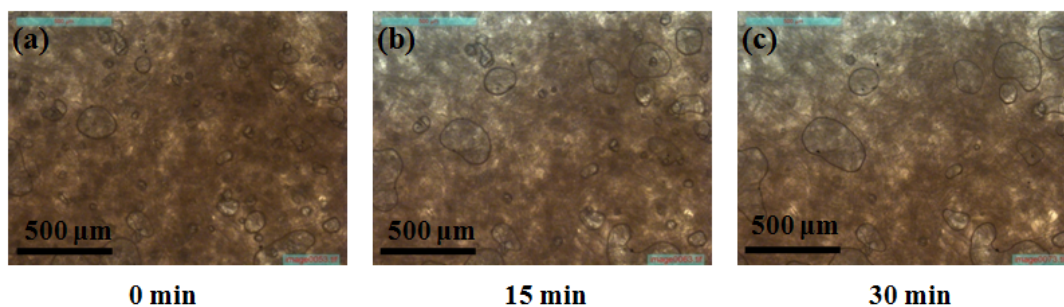


Figure S2: Microscopic images of paper fuel cell showing removal of CO₂ gas bubbles to the atmosphere with respect to time.

3. Interface development between the fuel and electrolyte solutions and the proton concentration gradient

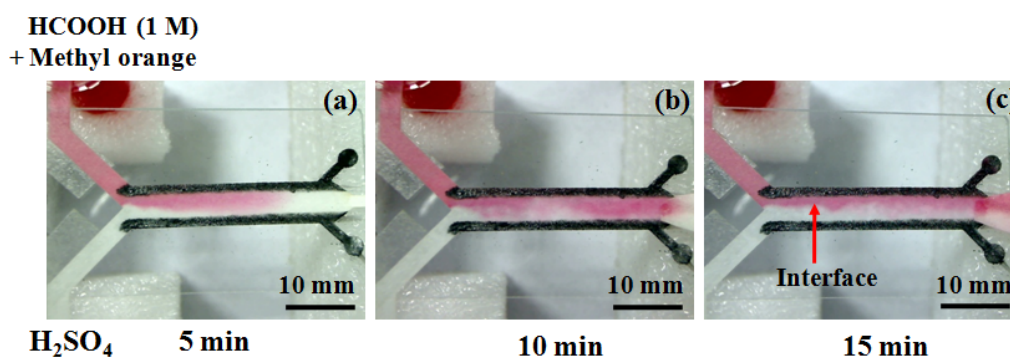


Figure S3: Snapshots of interface development after (a) 5 min, (b) 10 min and (c) 15 min in paper fuel cell and proton concentration gradient due to the interfacial transfer.

4. Open circuit potential of the paper fuel cell to show its energy generating capacity for long time

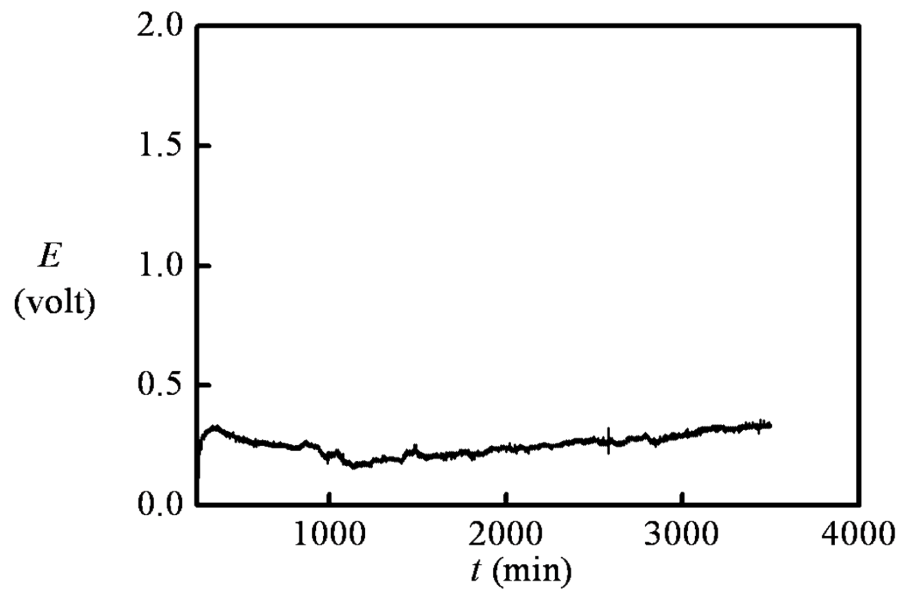


Figure S4: The open circuit potential (E) is measured with respect to time (t) = 3500 minutes at the consumption of ~ 2.5 ml fuel. The outlet paper reservoir ($5\text{ cm} \times 2\text{ cm}$) is replaced after 1000 minutes to ensure the fresh supply of the fuel and electrolyte solutions.