

## Electronic Supplementary Information (ESI)

**Acid catalysed cross-linking of poly vinyl alcohol (PVA) by glutaraldehyde: Effect of crosslink density on the characteristics of PVA membrane used in single chambered microbial fuel cell**

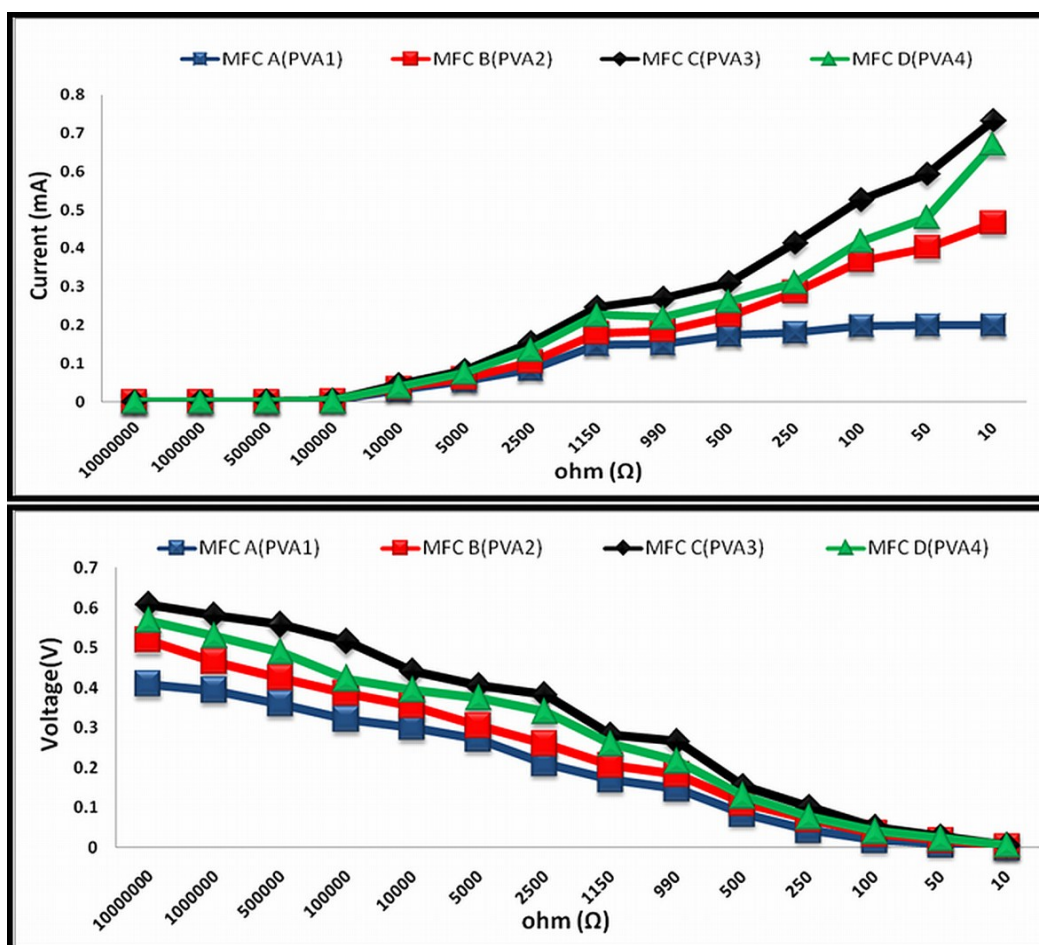
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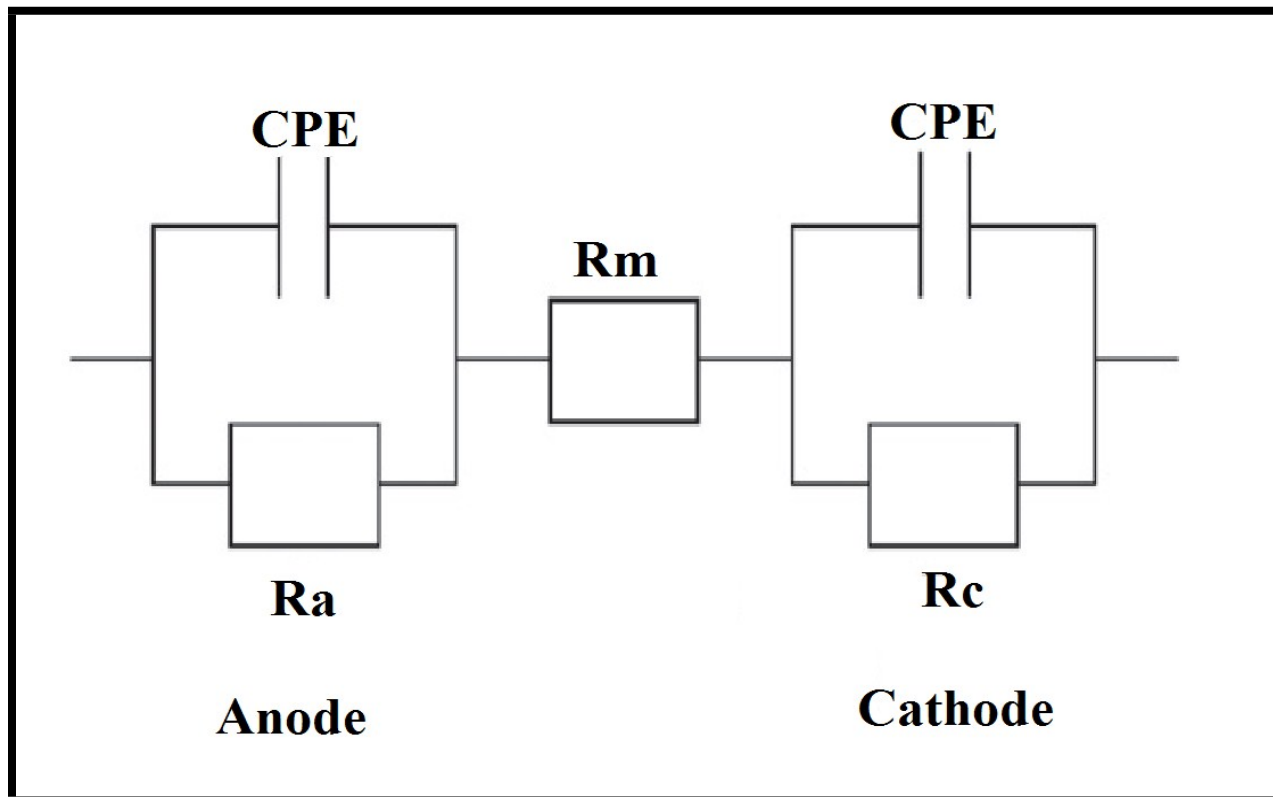
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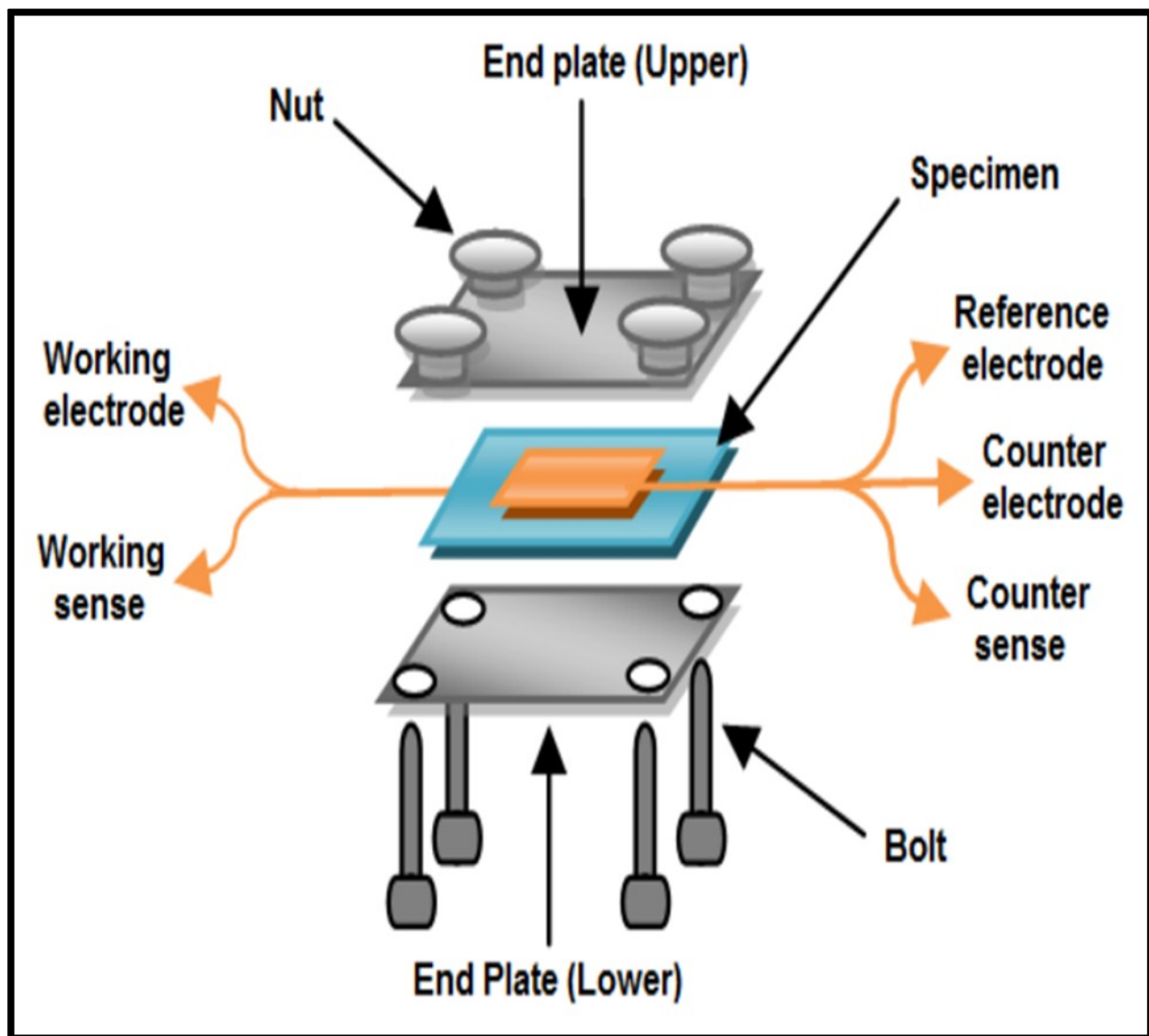
### ESI S1: Cell performances at different resistances



**Fig. ESI S2. Equivalent circuit representing ohmic resistance ( $R_m$ ).**



**Fig. ESI S3. Schematic illustration for proton conductivity measurement.**



## ESI Table 1: A comparative study of MFCs in terms of power generation using different membranes

<u>MFC Type</u>	<u>Electrodes</u>	<u>Used Membranes</u>	<u>Maximum Power density</u>	<u>References</u>
Dual chamber with oxygen flow at cathode	Carbon papers	Nafion 117	600 mWm <sup>-2</sup>	1
Air cathode MFC	Carbon Brush	Glass fibers	240±22 mWm <sup>-2</sup>	2
	Carbon Mesh	Coated Glass fibers	230 ± 3.3 mWm <sup>-2</sup>	
Air cathode MFC	Carbon papers	Nafion 117	239.4 mWm <sup>-2</sup>	3
Air cathode MFC	Carbon papers	SPEEK/PES	170 mWm <sup>-2</sup>	4
Dual chamber	Graphite Plates	Fe <sub>3</sub> O <sub>4</sub> /PES nanocomposite	20 mWm <sup>-2</sup>	5
Single chamber (tubular) MFC	Carbon cloths	GO-PVA-STA composite	139 mWm <sup>-2</sup>	6
Air cathode MFC	Carbon cloths	Crosslinked PVA membranes	119.38 ± 12 mWm <sup>-2</sup>	Present study

### References:

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