Supplementary Materials: Performance of a Novel Fertilizer-Drawn Forward Osmosis Aerobic Membrane Bioreactor (FDFO-MBR): Mitigating Salinity Build-Up by Integrating Microfiltration

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Concentration Measurements

Since the charge of the ions in solution facilitates the conductance of electrical current, the conductivity of a solution is highly (but not totally) proportional to its ion concentration. As conductivity is a non-specific technique, concentration calculation using conductivity measurements is valid for samples containing only the species of interest. The first step to measuring concentration is to know the conductivity of the solution as a function of the concentration of the species of interest. This data can come from published conductivity vs. concentration curves for electrolytes, or from laboratory measurements. Over large conductivity ranges, conductivity will increase with concentration, but may reach a maximum and then decrease with increasing concentration. When using conductivity measurement to determine the concentration, it is important to work at constant temperature for calibration and measurements as the shape of the conductivity vs. concentration curve will change with temperature [1,2].

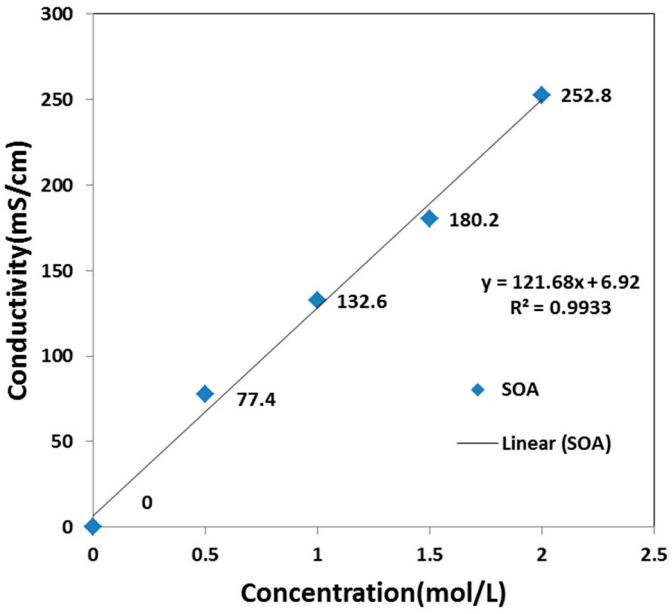

Figure S1. SOA concentration curve (temperature: 22 ± 0.5 °C).

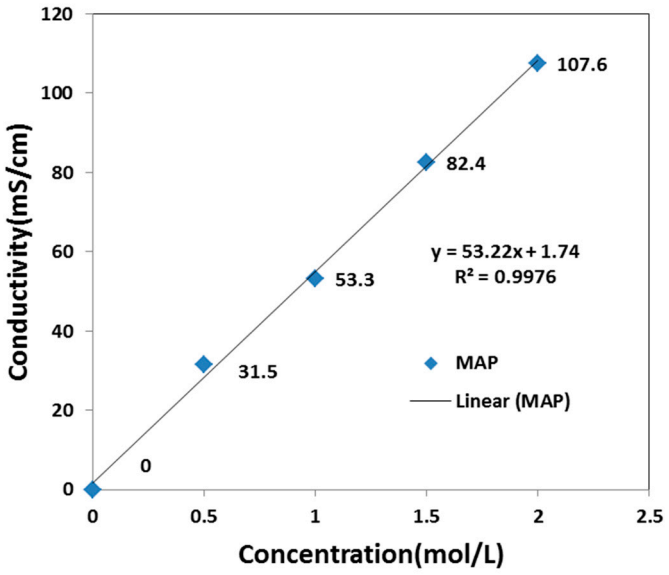

Figure S2. MAP concentration curve (temperature: 22 ± 0.5 °C).

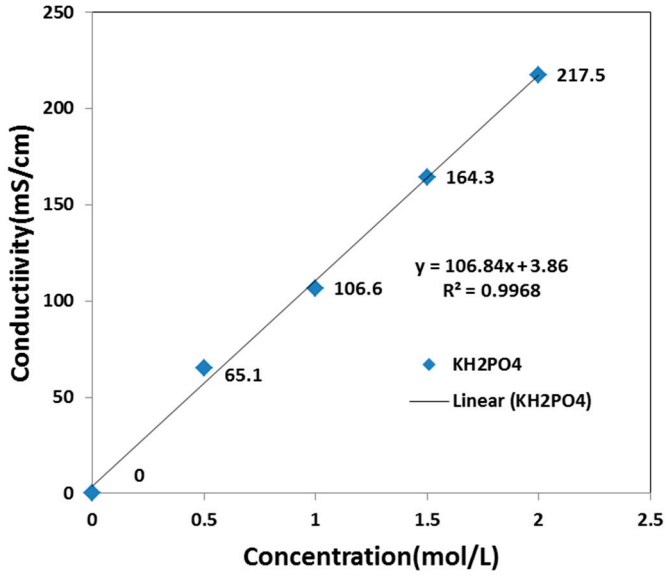

Figure S3. KH_2PO_4 concentration curve (temperature: 22 ± 0.5 °C).

References

1. *Standard Solutions Reproducing the Conductivity of Electrolytes*; 1st ed.; International Recommendation No. 56; International Organization of Legal Metrology (OIML), 1980. (Bureau International De Metrologie Legale, Paris, 1981). Available online: http://standards.globalspec.com/std/1967397/oiml-r-56 (accessed on 30 December 2016).
2. Wu, Y.C.; Koch, W.F. Absolute determination of electrolytic conductivity for primary standard KCl solutions from 0 to 50 °C. *J. Solution Chem.* **1991**, *20*, 391–401.