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Glucose Oxidase Kinetics using MnO_2 Nanosheets: Confirming Michaelis – Menten Kinetics and Quantifying Decreasing Enzyme Performance with Increasing Buffer Concentration

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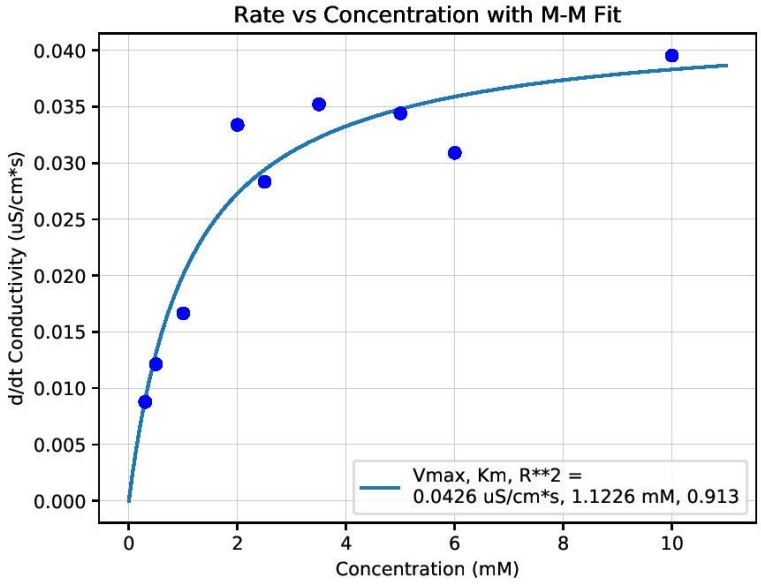


Fig. S1 Initial rate vs glucose concentration obtained by analyzing real-time kinetics data for the reaction shown in Scheme 3. The data are obtained using a UNS-Tech conductivity meter to monitor changes in conductivity arising from the production of gluconic acid (H^+) with no buffer.

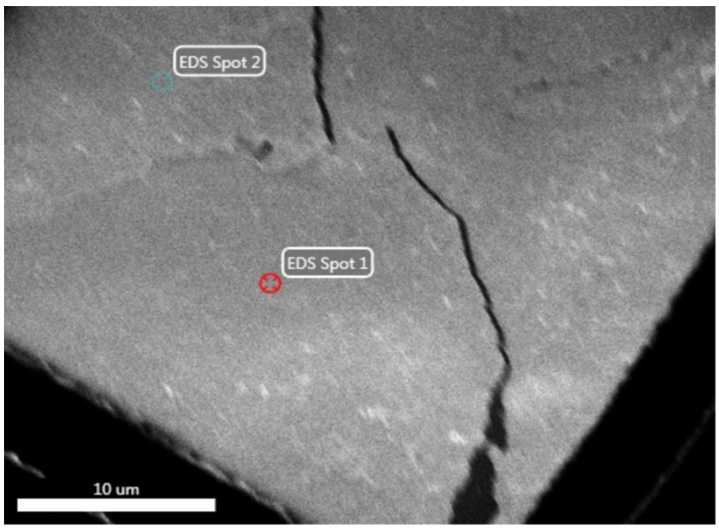


Fig. S2 ESEM image of MnO_2 Thick film used for EDS.

EDS Spot 1:

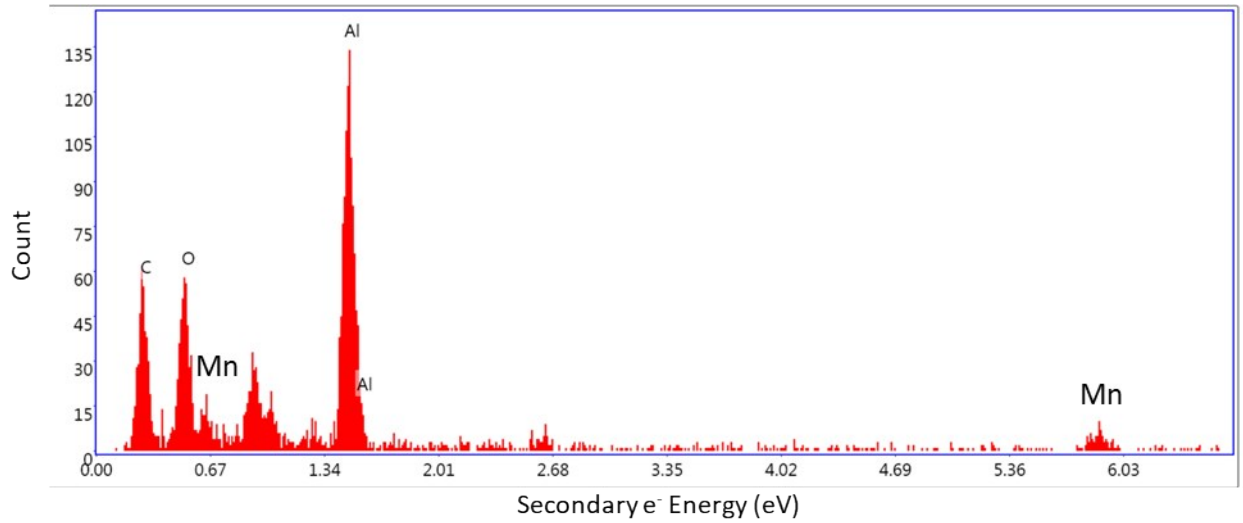
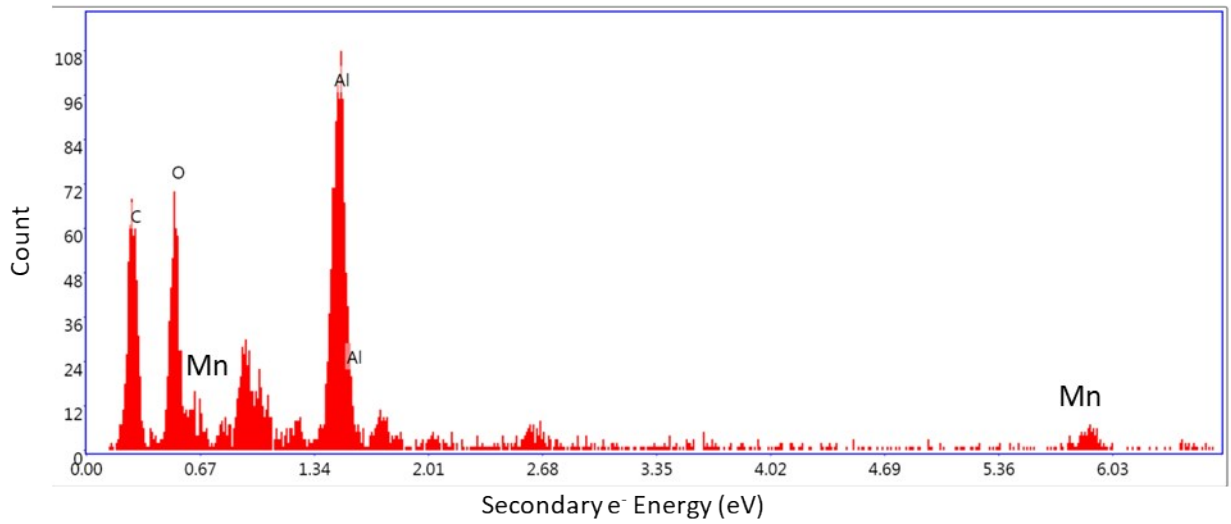


Fig. S3 EDS Spectra of MnO_2 thick film. Accelerating voltage of 10KeV was used. Al present due to sample holder, C present due to STEM grid. MnO_2 is relatively transparent to E-beam, so a thick film was needed to obtain spectra with appropriately high count. Characteristic Mn Kα seen centred at 5.9eV and Lα at 0.637eV

EDS Spot 2:


Count
108
96
84
72
60
48
36
24
12
0
C
O
Al
Mn
Al
Mn
0.00
0.67
1.34
2.01
2.68
3.35
4.02
4.69
5.36
6.03
Secondary e⁻ Energy (eV)