

Supplementary Information

In Vitro Biofouling Performance of Boron-Doped Diamond Microelectrodes for Serotonin Detection Using Fast-Scan Cyclic Voltammetry

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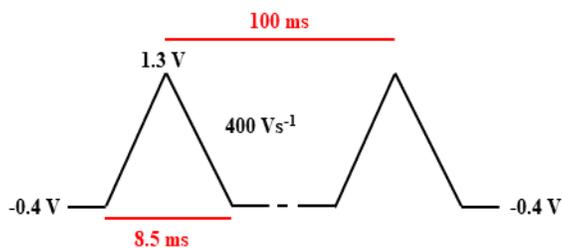
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A. Standard Waveform (triangular)



B. Jackson Waveform (N-shaped)

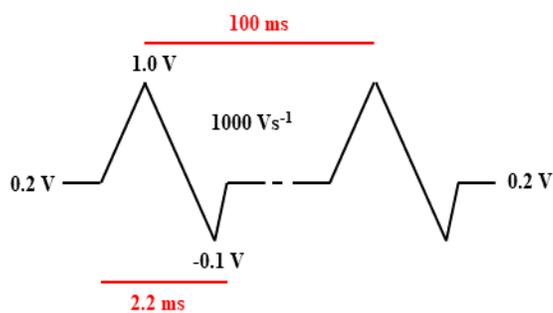


Figure S1. Diagrammatic view of standard and Jackson waveform. **A.** Standard waveform scans at 400 V_s⁻¹ while holding at a negative potential of -0.4 V, ramping up to 1.3 V and back down to -0.4 V in 8.5 ms. The waveform repeats at a frequency of 10 Hz. **B.** Jackson waveform begins at a positive potential of 0.2 V, sweeps up to 1.0 V and back down to -0.1 V before returning to 0.2 V in 2.2 ms at 1000 V_s⁻¹ and 10 Hz.

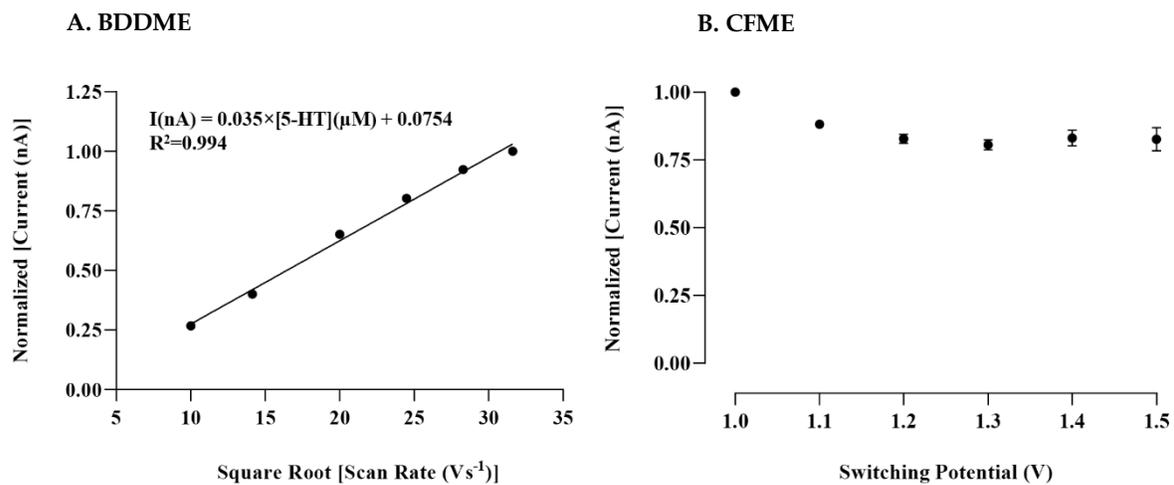


Figure S2. Further investigation of 5-HT oxidative response to scan rate at BDDMEs, and to increasing switching potential at inactivated CFMEs. **A.** 5-HT anodic peak response plotted against square root of scan rate to demonstrate possible diffusion-controlled kinetics at electrode surface, $R^2=0.9939$. **B.** Oxidative 5-HT responses at previously activated CFMEs with increasing switching potentials show a decreasing trend where 1.0 V has maximum response.

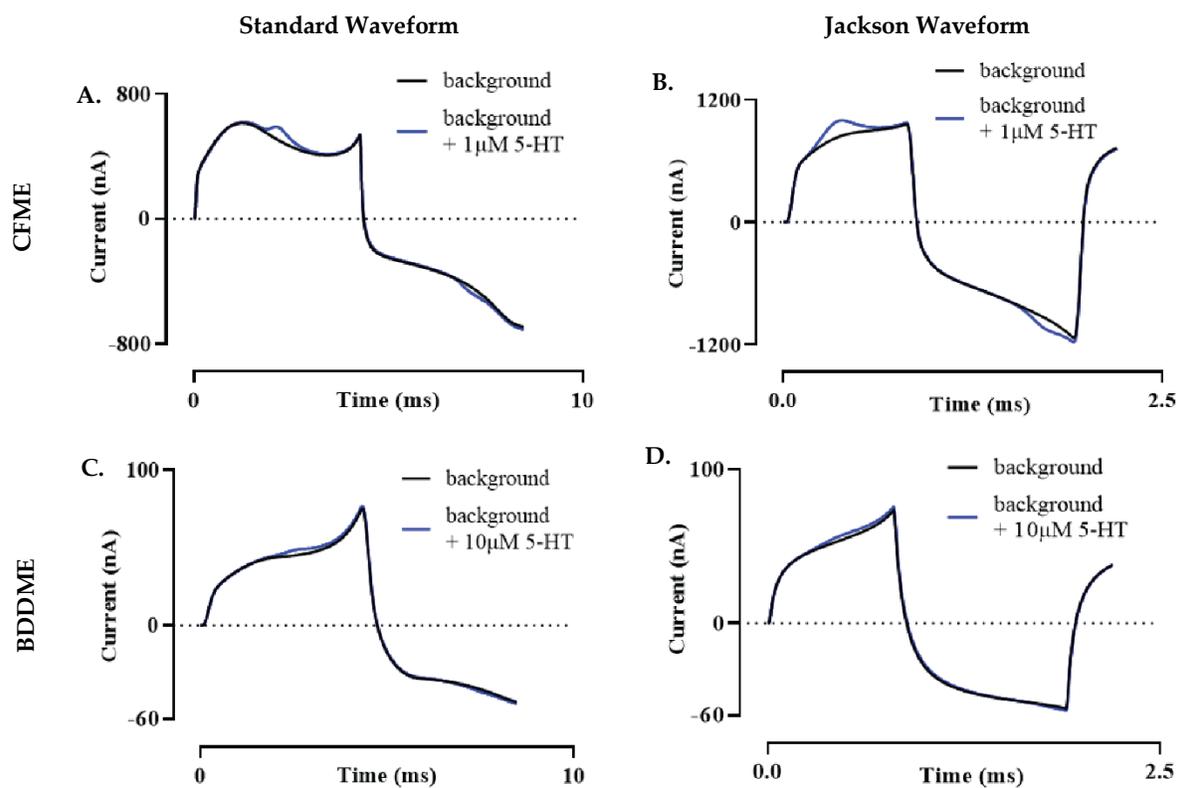


Figure S3. Background + faradaic currents at CFMEs and BDDMEs. **A. & B.** Faradaic current of 1 μM 5-HT current plotted over background current for CFME with standard and Jackson waveforms, respectively. **D. & C.** Faradaic current of 10 μM 5-HT plotted over background current for BDDME with standard and Jackson waveforms, respectively.

5-HT Response Stability at BDDME Over 2 Hours

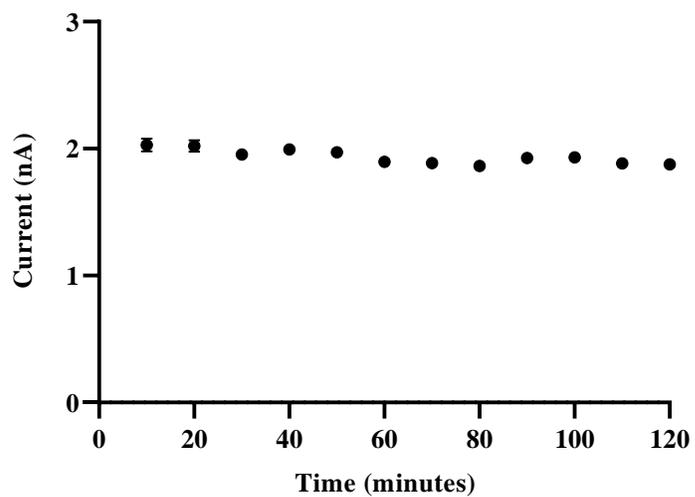


Figure S4. Response stability over 2 hours at the BDDME with the Jackson waveform. Current responses to injections of 10 μ M 5-HT administered every 8-10 minutes for 120 mins (current variation < 10%). Data are represented as mean \pm SEM for BDDME ($n=1$).