Supplemental Materials

A group of images of different colors

Description automatically generated

**Figure S1.** Background-subtracted color plots for FS-BDDMEs before and after 24-hour stability testing. These plots show the baseline noise of each individual electrode. Large increases in baseline noise can be observed in all the “After” plots as represented by the larger amounts of green and blue colors, as well as greater contrast and variability in the colors.

A close-up of several images of a human face

Description automatically generated

**Figure S2.** Representative SEM images of FS-BDDMEs. (**A**) 1000x magnification FS-BDDME. (**B**) 1000x magnification FS-BDDME (**C**) 1000x magnification FS-BDDME (**D**) 3500x magnification of the electrode shown in **C**. The darkness on the faces may indicate graphitic content. Laser pulses correspond to the striations that can be seen especially well on **C** and **D.**

**A group of diagrams with text

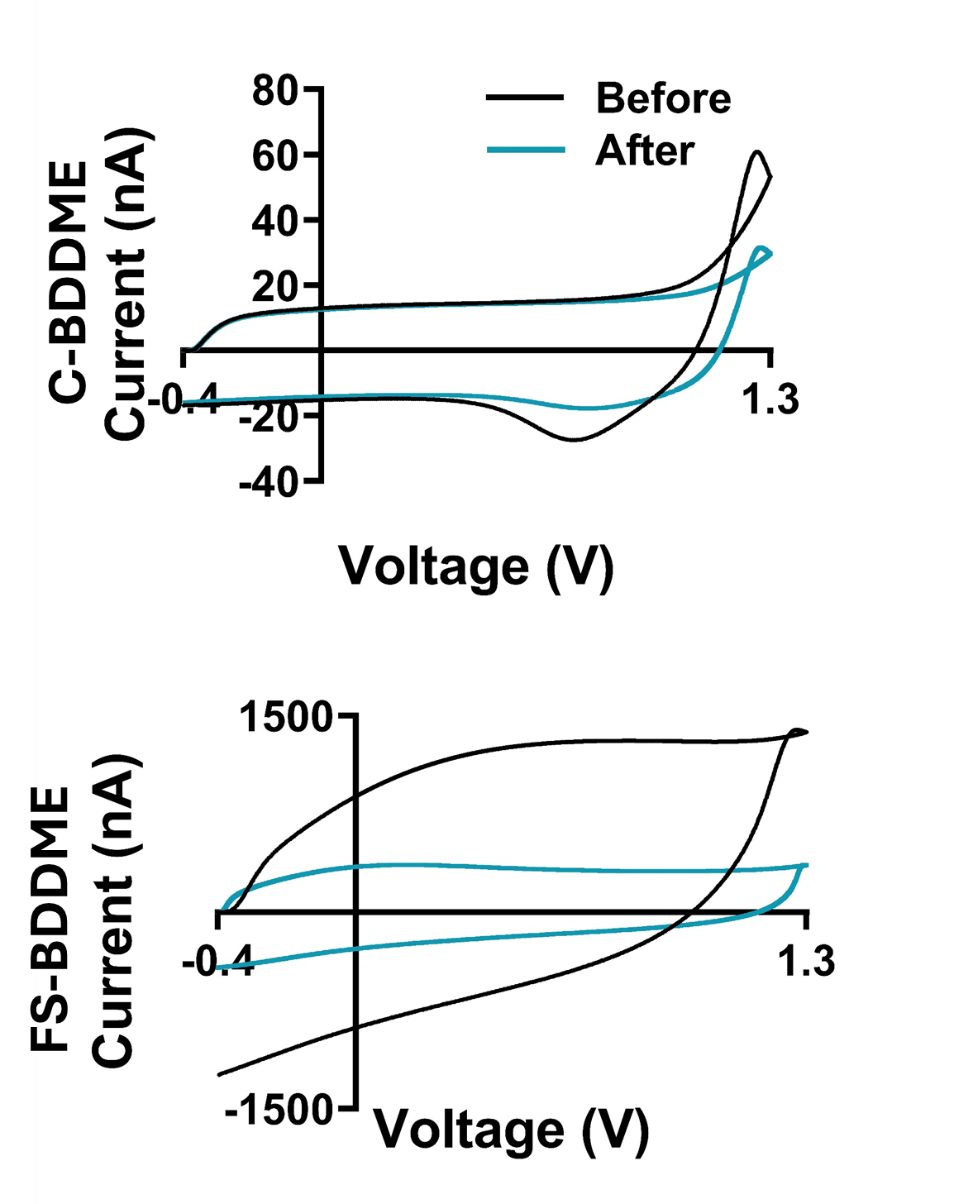
Description automatically generated**

**Figure S3.** Representative DA electrochemical fouling cyclic voltammograms. Left column contains 5 µM DA CVs, right column contains 50 µM DA CVs. The top row is CFME, middle is C-BDDME bottom is FS-BDDME The FS-BDDME CVs are **not** from the same device, the others are.

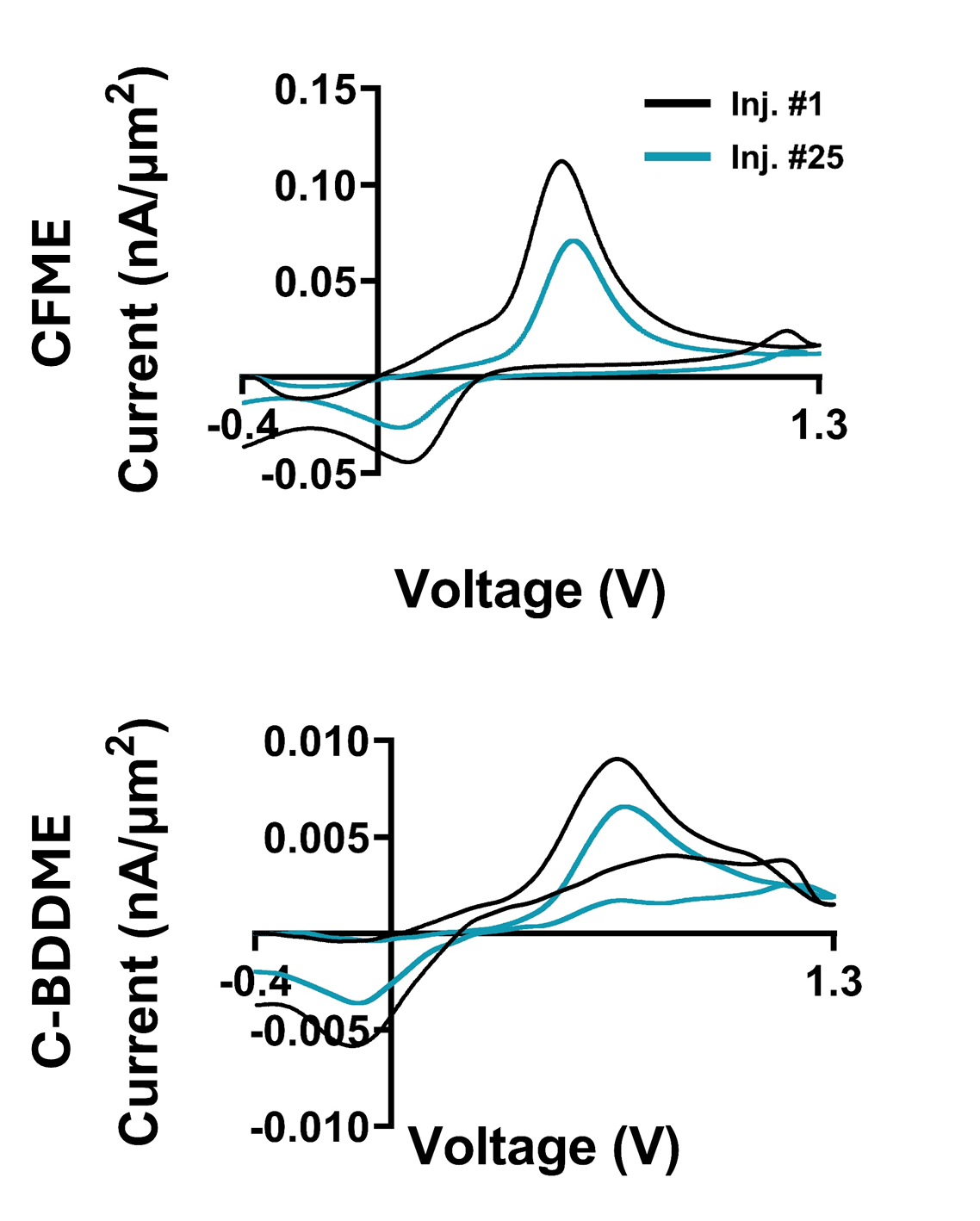
A close-up of several images of a human body

Description automatically generated

**Figure S4.** SEM images of electrodespre- and post-electrochemical fouling with 5-HT. (**A-C**) Pre-fouling images of the CFME, C-BDDME, and FS-BDDME from left to right. (**D-F**) Post-fouling images.



**Figure S5.** FSCV backgrounds in tris aCSF before and after boiling in 1:1:1 nitric:sulfuric:perchloric acid for 30 minutes. The C-BDDME background (**top)** decreased by 0.44 Na measured at 0.6 V on the front scan and he FS-BDDME background (bottom) at 972.52 nA at the same voltage



**Figure S6.** 5-HT fouling CVs with current normalized to the approximate electroactive surface are of the CFME **(top,**

**1250 µm2)** and the C-BDDME **(bottom, 150 µm2)**