Lab on a Lollipop (LoL) Platform for Preventing Food-Induced Toxicity: All-in-One System for Saliva Sampling and Electrochemical Detection of Vanillin

Haozheng Ma, Sina Khazaee Nejad, Daniel Vargas Ramos, Abdulrahman Al-Shami, Ali Soleimani, Farbod Amirghasemi, Mona A. Mohamed, and Maral P. S. Mousavi

1 Optimization of nafion modification

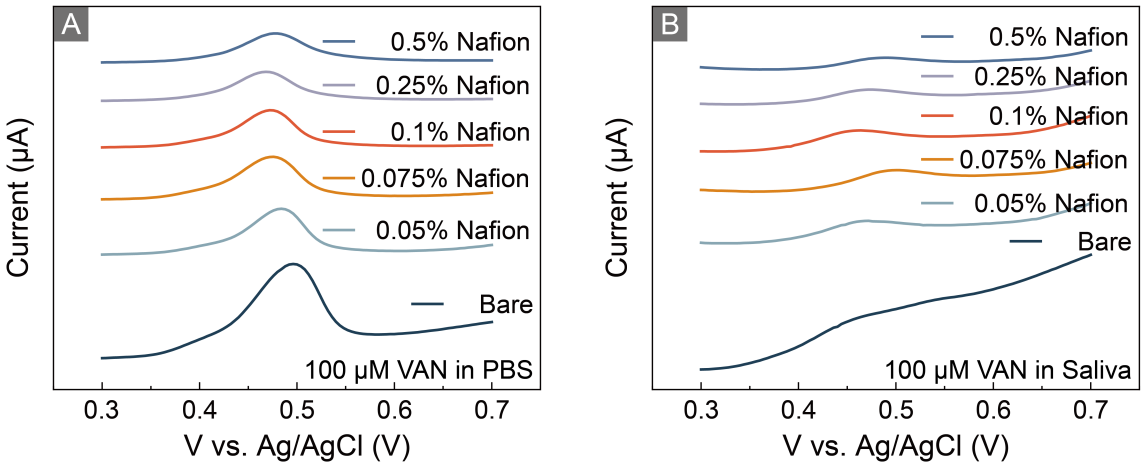

Figure 1: DPV voltammograms with LIG electrodes modified by Nafion with different concentrations (v/v %). (A) DPV voltammograms of 100 µM VAN in PBS. (B) DPV voltammograms of 100 µM VAN in Saliva.

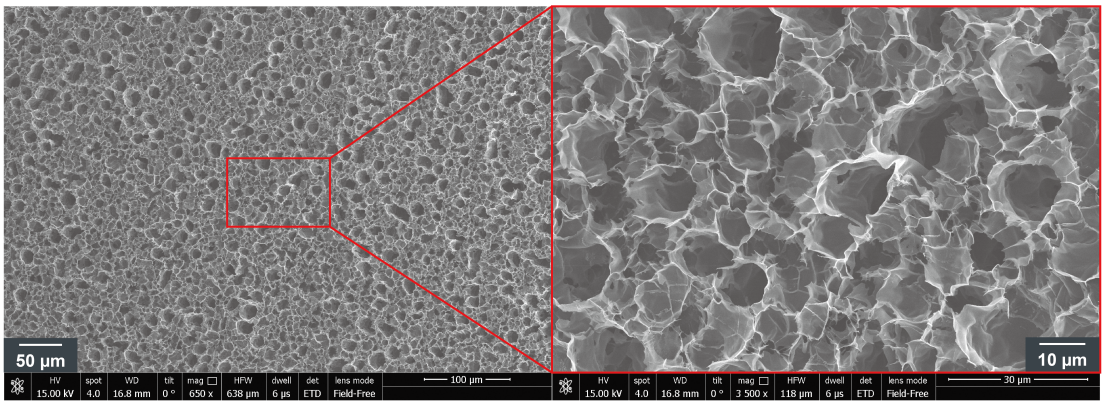

Figure 2: Top view SEM of Nafion-modified LIG at different scales

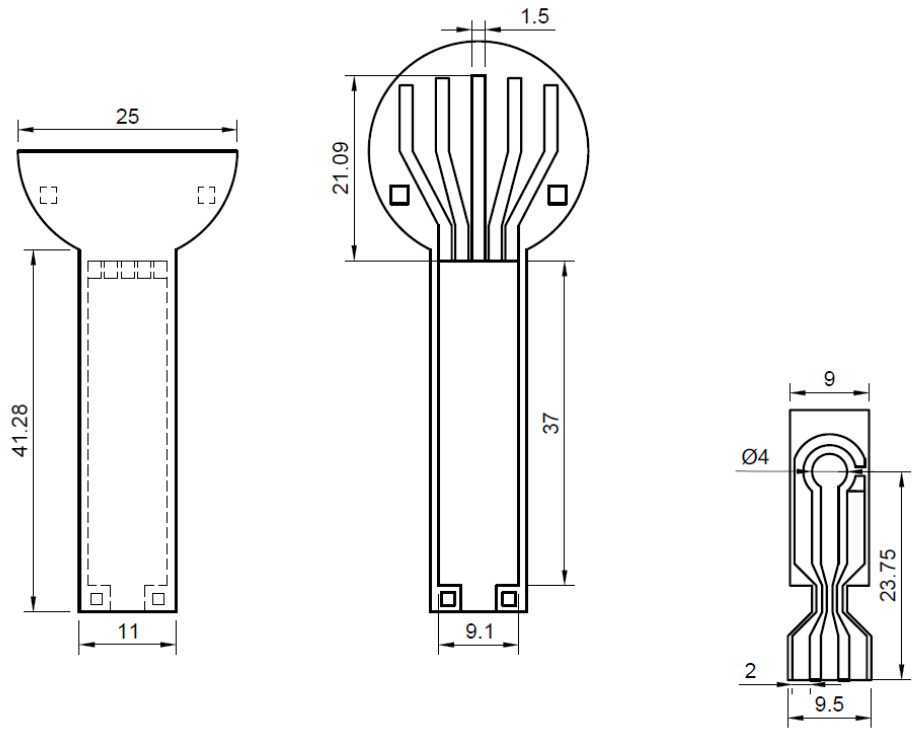

Figure 3: The dimensions of LoL platform and LIG electrodes. The unit is mm.

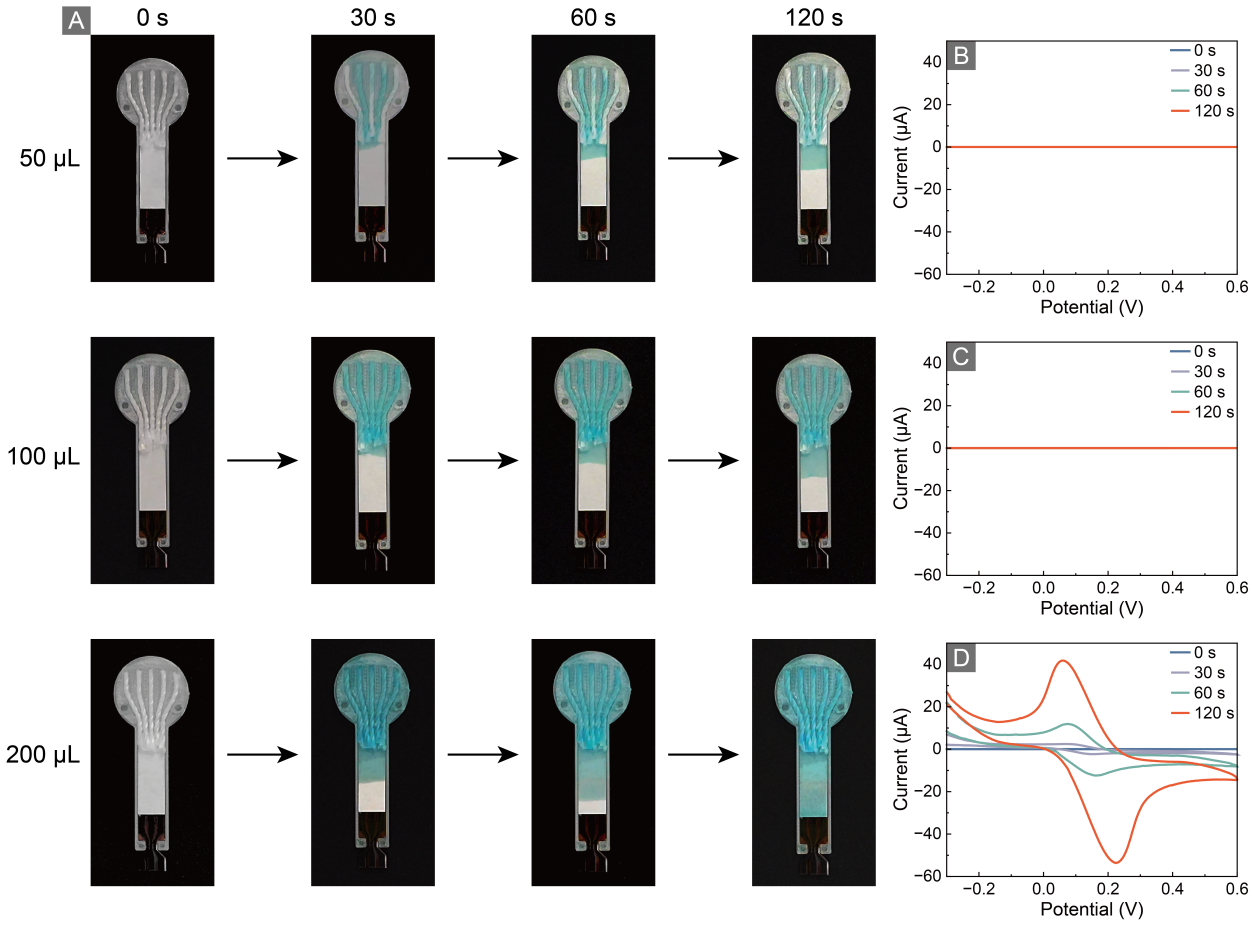

Figure 4: Flow test within lab on a lollipop platform. (A) Dead volume test by adding blue dye solution with different volume on the top of PP fibers loaded in the LoL at different time. (B-D) Cycle voltammetry voltammograms at different time after adding 50 µL, 100 µL or 200 µL 2 mM $[Fe(CN)_6]^{3-/4-}$ in 100 mM KCl in PBS.