Supplementary Information for NMR spectroelectrochemistry in studies of L-dopa oxidation by graphdiyne/graphene thin films

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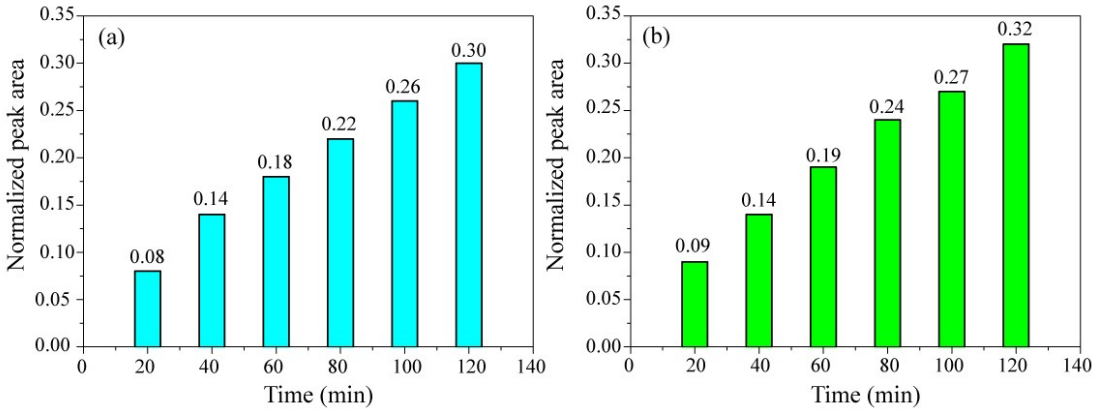

Figure S1. Normalized peak areas of the ^{1}H NMR spectra for the L-dopa oxidation at 6.1 ppm during electrolysis process in aqueous solution under 900 mV at pH 1 with different electrodes: (a) G/ITO and (b) GDY/G /ITO electrodes. (Standard reference tms normalization 1)

To facilitate the observation of the precipitate formed in the L-dopa solution after the in situ electrochemical nuclear magnetic resonance experiment, we combined the solutions from multiple in situ experiments into a 2-milliliter glass sample vial. Subsequently, we compared it with a freshly prepared L-dopa solution before the experiment. Clearly, the solution after the in situ experiment contained precipitate particles, and due to the small amount of precipitate, the solution appeared grayish-brown. After letting the post-experiment solution sit for a month, we found that the precipitate particles had further aggregated into a black film-like substance.

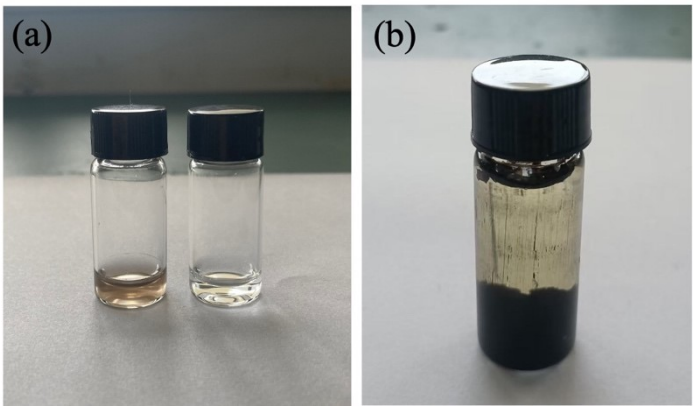

Figure S2. (a) Comparison of the L-dopa solution after in situ EC-NMR experiments (left) and the L-dopa solution before the experiments (right), (b) the L-dopa solution after in situ EC-NMR experiments after one month of standing.