Electronic Supplementary Material (ESI) for Journal of Materials Chemistry B.

Supporting Information

Catalytic $SrMoO_4$ nanoparticles and conducting polymer composite sensor for monitoring of K^+-induced dopamine release from neuronal cells

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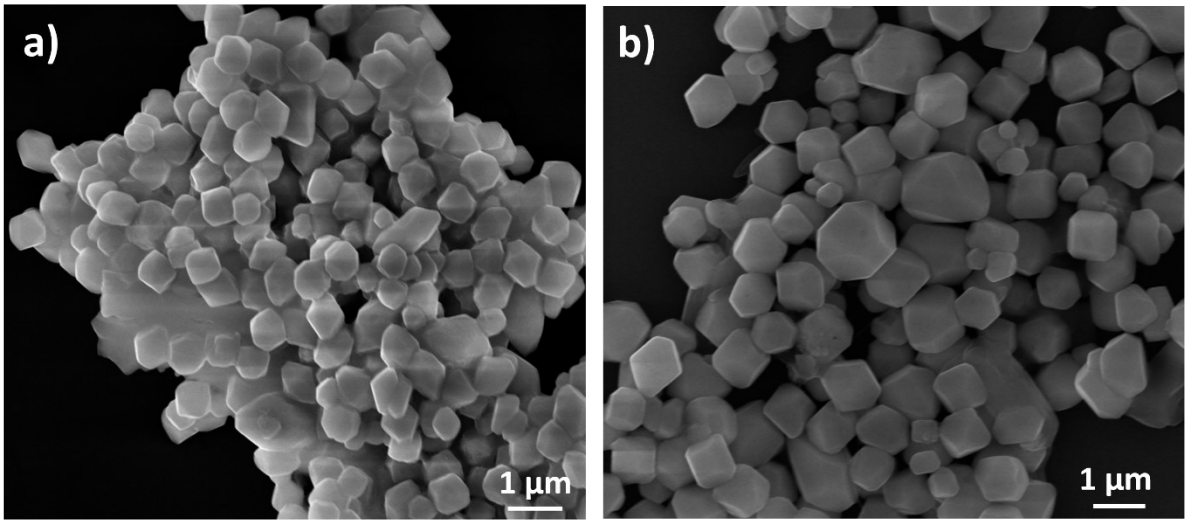

Figure S1: FE-SEM images of $SrMoO_4$ nanoparticles when treated with different time and temperature (a) 8 hr and 140 °C, (b) 10 hr and 170 °C.

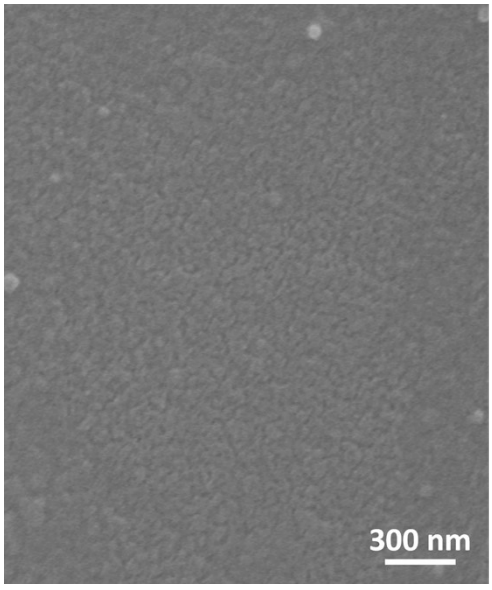

Figure S2: SEM image of pTBA at GC electrode

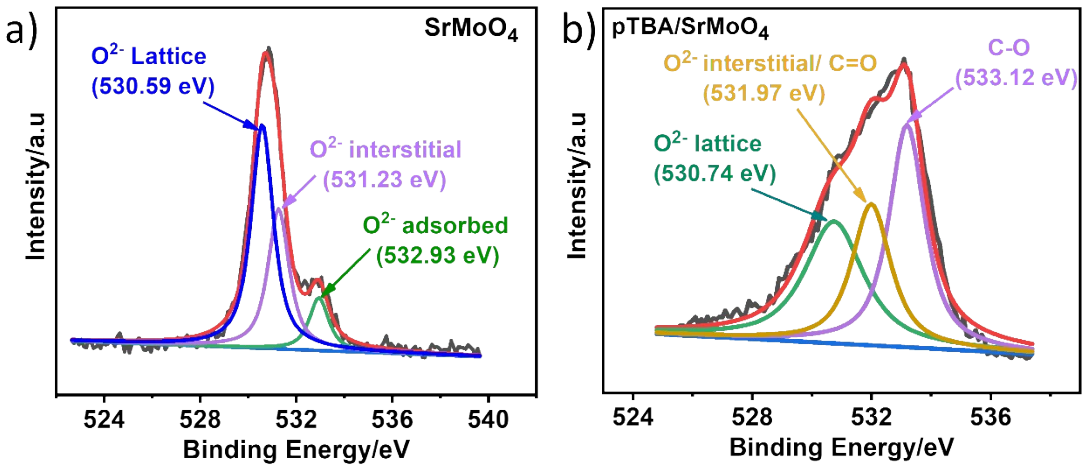

Figure S3: The deconvoluted O 1s spectrum of a) $SrMoO_4$ and b) pTBA/$SrMoO_4$.

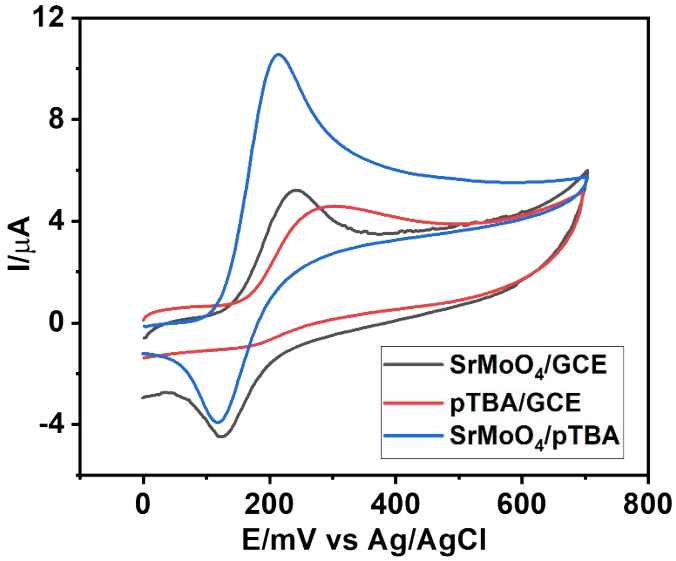

Figure S4: CV responses of pTBA, $SrMoO_4$ and pTBA/$SrMoO_4$/Nf electrodes in 0.1 M PBS (pH 7.4) containing 200 µM DA.

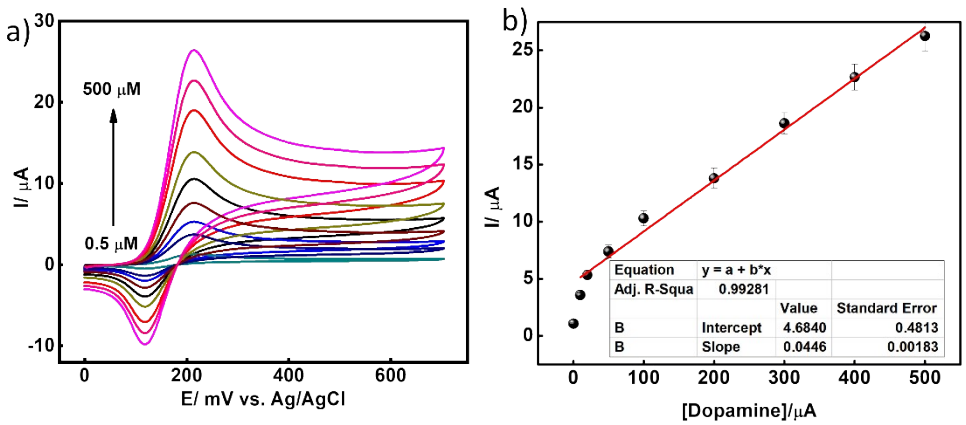

Figure S5: a) pTBA/$SrMoO_4$/Nf sensor response to the different concentrations of DA from 0.5 to 500 μM and (b) the corresponding calibration plot.

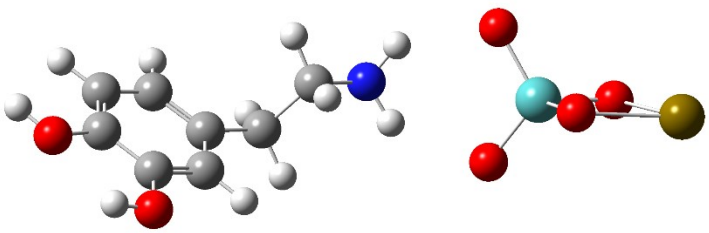

Figure S6: Optimized structure of DA and part of $SrMoO_4$ obtained by DFT calculation.

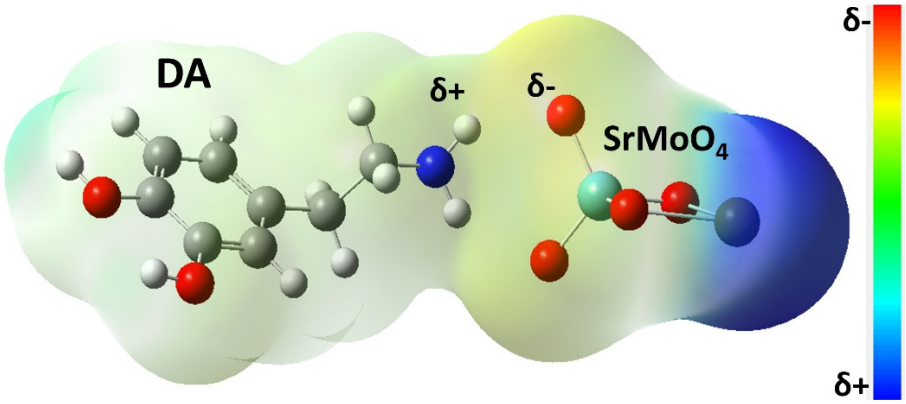

Figure S7: Molecular electrostatic potential (MEP) analysis of DA and part of $SrMoO_4$.

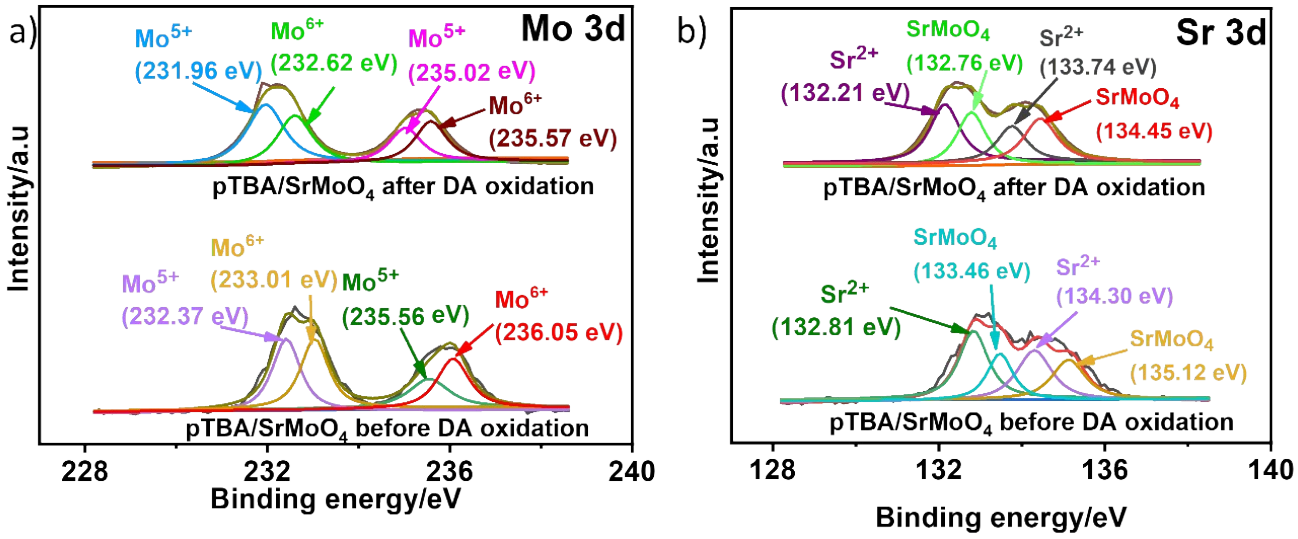

Figure S8: High resolution XPS spectrum of a) Mo 3d and b) Sr 3d before and after DA oxidation at pTBA/$SrMoO_4$/Nf electrode.

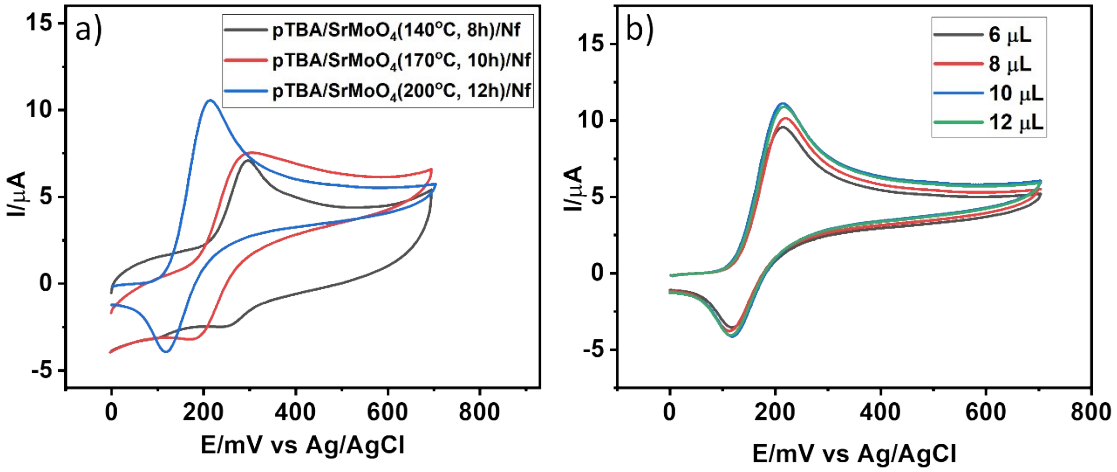

Figure S9: a) CV responses of pTBA/$SrMoO_4$/Nf electrodes in 0.1M PBS containing 200 µM DA with $SrMoO_4$ NPs synthesized at various temperature and time. b) CV responses of pTBA/$SrMoO_4$/Nf electrode with different $SrMoO_4$ loading.

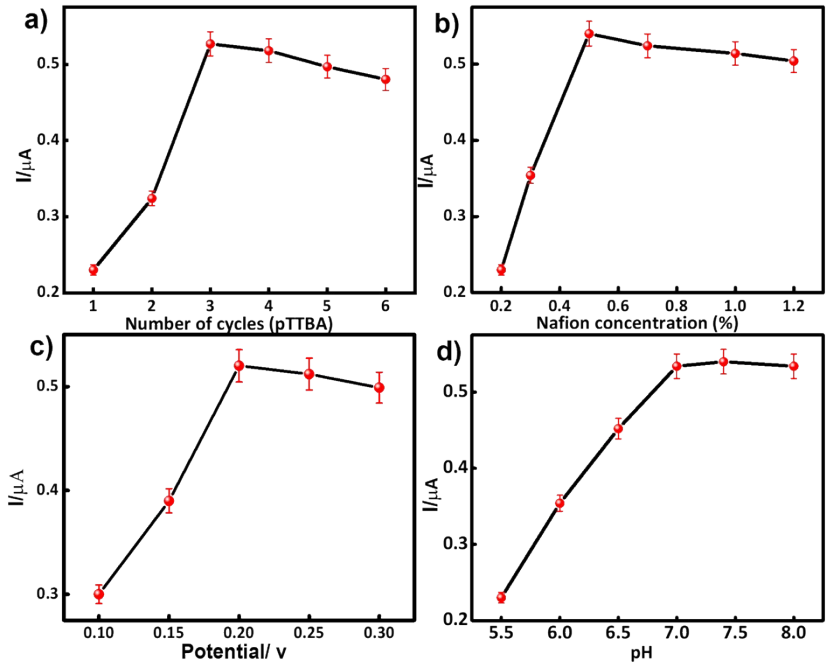

Figure S10: Optimization of the experimental conditions for the DA sensor: (a) No. of pTBA cycles (b) nafion concentrations (c) effect of potential change on the sensor performance, and (d) optimum pH value for PBS buffer solution.

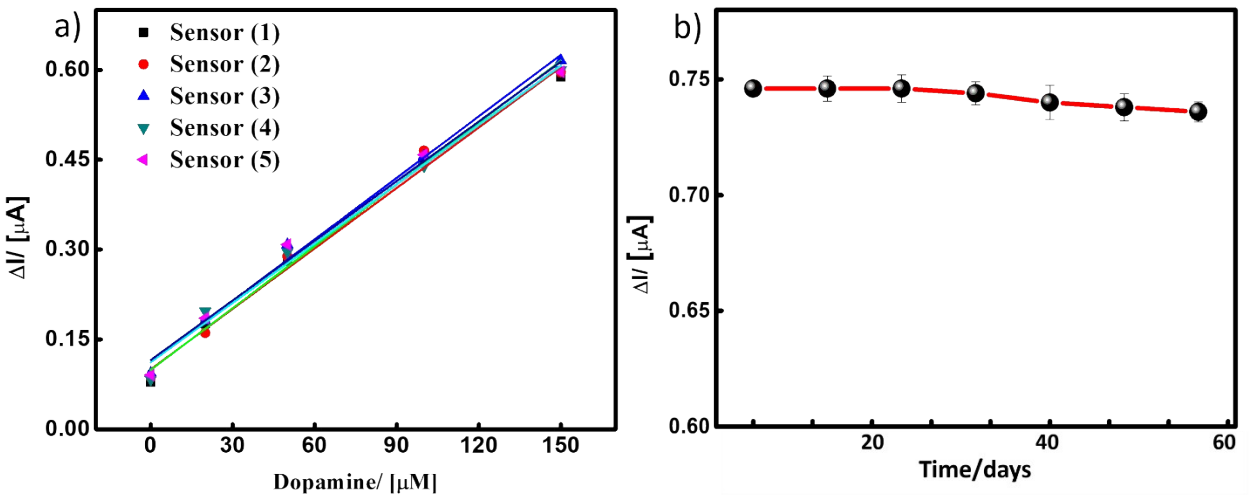

Figure S11: (a) Reproducibility of the proposed sensor containing different DA concentrations (0.5 to 150 μM) in 0.1 M PBS (pH 7.4). (b) Stability of the prepared sensor containing 200 μM DA in 0.1 M PBS (pH 7.4) for 55 days.