**Supplementary Material**

**Electrochemical molecularly imprinted polymers in microelectrode devices**

Vitalys Mba Ekomoa, Catherine Brangera\*, Ana-Mihaela Gavrilab, Andrei Sarbub, Dimitrios A. Koutsourasc, Clemens Stolzc, George G. Malliarasc, Hugues Brisset\*a

*a Laboratoire MAPIEM, EA 4323, Université de Toulon, 83041 Toulon Cedex 9, France*

*b National Research and Development Institute for Chemistry and Petrochemistry ICECHIM, Advanced Polymer Materials and Polymer Recycling, 202 Splaiul Independentei, 060021 Bucharest, Romania.*

*c Department of Bioelectronics, Ecole Nationale Supérieure des Mines, CMP-EMSE, MOC, 13541 Gardanne, France*

Figure S1. Electrochemical cells to study e-MIP and e-NIP by cyclic voltammetry.

Figure S2. Comparison of the fabrication methods of carbon paste microelectrodes.

Figure S3. Device fabrication reproducibility

Figure S4. BPA isotherms curves of the e-MIP and the e-NIP obtained by batch experiments after an equilibration time of 24h.

Figure S5. Cyclic voltammograms of carbon paste/e-MIP electrodes of two different sizes: a,b) 500 μm x 500 μm electrodes ; c,d) 200 μm x 200 μm electrodes.

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Figure S1. Electrochemical cells to study e-MIP and e-NIP by cyclic voltammetry.



Figure S2. Comparison of the fabrication methods of carbon paste microelectrodes. Optical micrographs of a) drop casted and b) spin coated devices. The scale bar is 500 μm c) Impedance spectra comparison of the two fabrication approaches for electrodes with sizes 500 μm x 500 μm and 200 μm x 200 μm. Electrodes fabricated via spin coating show slightly lower impedance values than their drop casted counterparts. d) SEM images of the carbon paste/e-MIP on the gold electrodes obtained via the drop casting fabrication approach.

For the e-MIP microelectrode sensors two fabrication approaches were investigated. The carbon paste/e-MIP mixture was either drop casted or spun (500 rpm for 30 seconds) on the microfabricated electrodes. The results were similar for the two techniques with spin coating providing devices with slightly lower impedance values than drop casting. Therefore, spin coating was the method of choice for this work.



Figure S3. Device fabrication reproducibility.

Figure S3a (which is Figure S2c) and Figure S3b presents the impedance spectroscopy spectra for both spin coated and drop casted devices. The impedance spectra are similar for electrodes of the same size regardless the method of choice for many devices.



Figure S4. BPA isotherms curves of the e-MIP and the e-NIP obtained by batch experiments after an equilibration time of 24h.



Figure S5. Cyclic voltammograms of carbon paste/e-MIP electrodes of two different sizes: a,b) 500 μm x 500 μm electrodes ; c,d) 200 μm x 200 μm electrodes.

Cyclic voltammograms for electrodes with sizes 500 μm x 500 μm are similar to each other as they both present peaks at almost the same applied voltages followed by a similar drop of around 20 nA after the addition of BPA. For the 200 μm x 200 μm electrodes the peaks appear again at the same voltages followed by a smaller this time current drop (around 5 nA in these cases). The above show that the chosen fabrication approach results in electrodes with identical performances that depend only on the device size, a fact that guarantees the sensors quality.