Electronic Supplementary Information

For

3D printing of microfluidic devices for paper-assisted direct spray ionization mass spectrometry

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Printing fidelity and repeatability

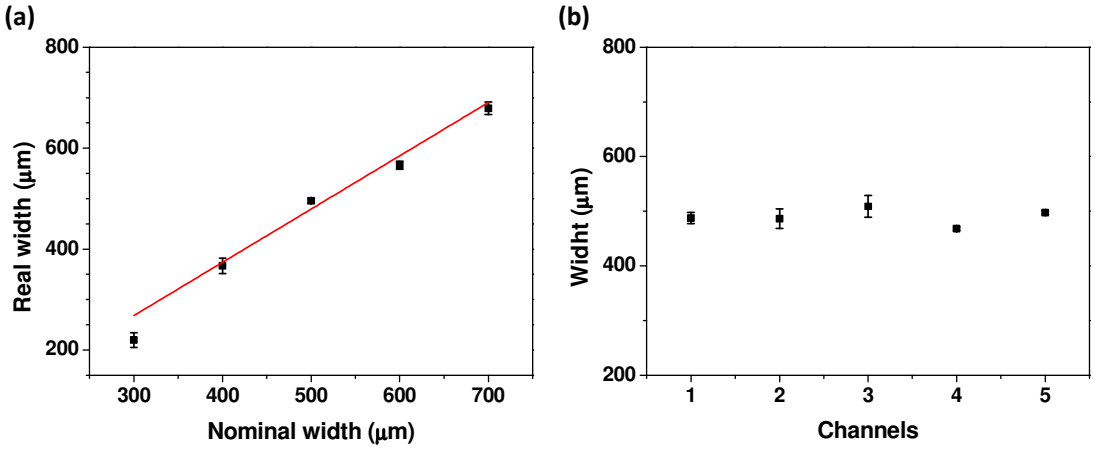

Fig. S1 Presentation of (a) printing fidelity for channels with width ranging from 300 to 700 µm and (b) repeatability for five channels printed with 500 µm width.

Investigation of the swelling ratio of thermoplastic material in aqueous and organic solvents

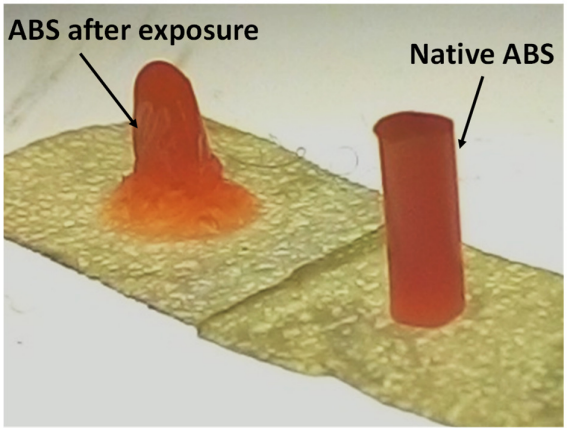

Fig. S2 Optical micrographs showing the polymer surface of ABS before (native ABS) and after exposure to acetone. Original dimensions: 4 mm long versus 1.75 mm diameter.

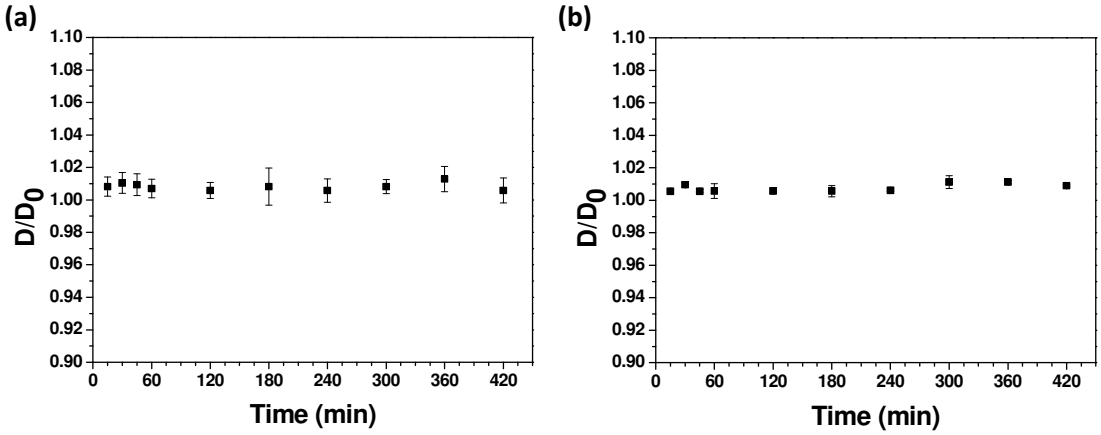

Fig. S3 Effect of the swelling ratio ($S = D/D_0$) of thermoplastic polymer when exposure over 7h to (a) water and (b) 0.1% formic acid in methanol.

DS-MS performance

Different 3D printed devices

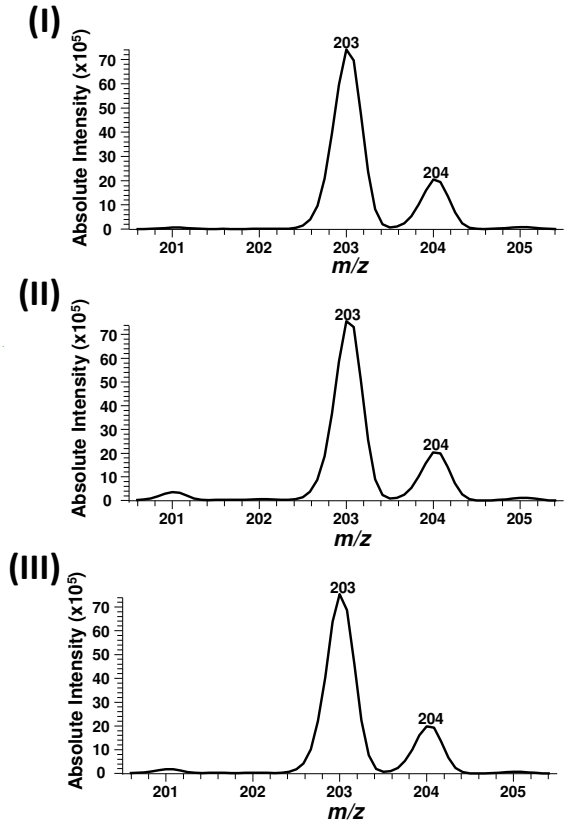

Fig. S4 Positive mass spectra recorded on three different 3D printed devices (I, II and III) for a mixture containing 1 mg/mL glucose (sodium-glucose adduct m/z 203) and deuterated glucose (sodium-deuterated glucose adduct m/z 204) prepared in 0.1% formic acid (1:1, v:v).

Multiple paper tips

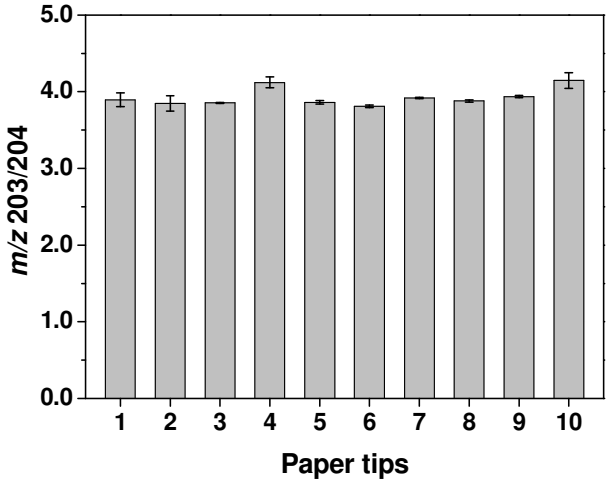

Fig. S5. Absolute ratio for the peak intensities recorded for a solution containing 1.0 mg/mL glucose and deuterated glucose (*m/z* 203/204) using ten paper tips prepared under the same dimensions and used at similar experimental conditions.