

Supporting Information

Metal-Organic Frameworks Coated Paper Substrates for Paper Spray Mass Spectrometry

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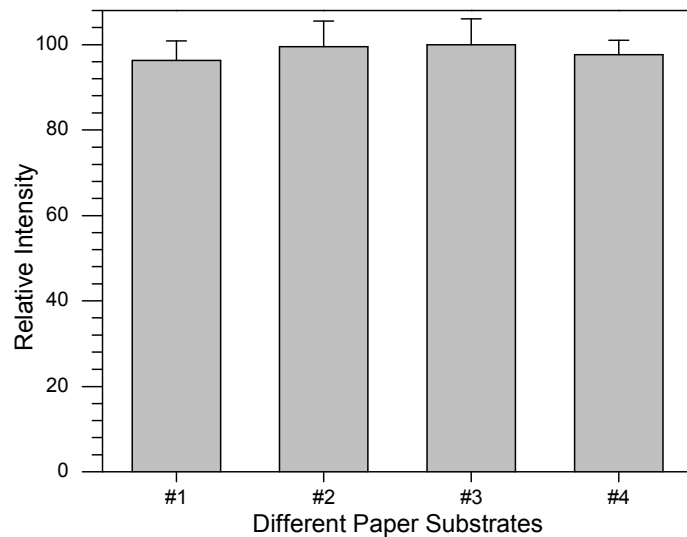


Figure S1. Repeatability of the prepared UiO-66(Zr) coated paper substrates (*Note:* The coated amount of UiO-66(Zr) particles was 0.6 g, and the solution volume for coating was 100 mL with 0.1 g soluble starch; 2 μ L blood sample was used, and the product ions m/z 165 from verapamil was employed for evaluating the performance of the prepared paper substrate; spray solvent, 25 μ L acetonitrile; applied voltage, 3.5 kV).

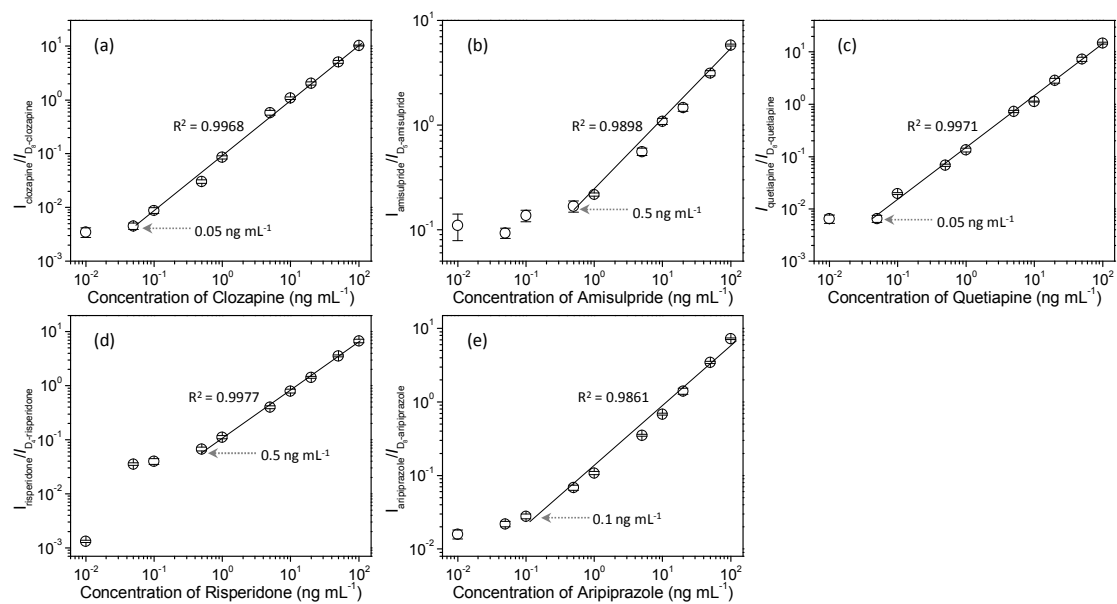


Figure S2. Comparison of the quantitative analysis of dried blood spots (human blood samples) spiked with (a) clozapine (0.01 – 100 ng mL⁻¹) and its isotopomer D₈-clozapine (20 ng mL⁻¹), (b) amisulpride (0.01 – 100 ng mL⁻¹) and its isotopomer D₅-amisulpride (20 ng mL⁻¹), (c) quetiapine (0.01 – 100 ng mL⁻¹) and its isotopomer D₈-quetiapine (20 ng mL⁻¹), (d) risperidone (0.01 – 100 ng mL⁻¹) and its isotopomer D₄-risperidone (20 ng mL⁻¹), and (e) aripiprazole (0.01 – 100 ng mL⁻¹) and its isotopomer D₈-aripiprazole (20 ng mL⁻¹) using UiO-66(Zr) coated paper for paper spray (Note: 2 μL blood sample was used; spray solvent, 25 μL acetonitrile; applied voltage, 3.5 kV).

Table S1. Concentrations of different anti-psychotic drugs (ng mL⁻¹) in human blood samples by using UiO-66(Zr) coated paper for PSMS

Number	Clozapine	Amisulpride	Quetiapine	Risperidone	Aripiprazole
#1	1.11	n.d.	0.35	n.d.	2.48
#2	0.26	n.d.	21.62	n.d.	2.85
#3	0.22	0.69	0.18	13.30	2.21
#4	0.22	0.67	0.20	0.87	150.30
#5	0.30	n.d.	0.12	n.d.	269.19
#6	9.15	0.88	0.50	1.89	2.78
#7	0.26	n.d.	0.45	n.d.	0.21
#8	484.67	n.d.	0.32	0.75	179.95
#9	0.32	0.68	0.46	1.48	0.58
#10	1.70	0.94	64.82	1.73	0.77
#11	1.45	n.d.	0.16	n.d.	0.20
#12	0.23	n.d.	347.17	n.d.	0.45
#13	2.65	n.d.	0.28	n.d.	332.55
#14	0.12	n.d.	53.76	n.d.	1.52
#15	0.07	859.25	0.31	n.d.	0.35
#16	0.05	359.29	1.08	n.d.	6.34
#17	0.08	808.51	0.60	n.d.	0.52
#18	n.d.	5.17	0.05	n.d.	0.12
#19	47.35	6.28	1.13	0.57	0.71
#20	0.15	0.66	0.26	n.d.	0.44
#21	0.86	n.d.	0.34	0.50	0.37
#22	3.33	0.99	0.05	n.d.	38.19
#23	0.14	n.d.	1.79	1.34	1.04
#24	256.98	n.d.	42.29	0.86	0.88
#25	0.15	n.d.	0.58	1.12	258.17
#26	0.05	n.d.	0.10	n.d.	0.65
#27	0.49	n.d.	0.71	1.04	1.59
#28	0.48	n.d.	0.63	0.69	1.13
#29	0.26	n.d.	0.20	0.55	0.48
#30	9.65	n.d.	26.38	n.d.	0.63
#31	1.31	n.d.	0.20	n.d.	n.d.
#32	0.52	n.d.	0.18	n.d.	0.39
#33	0.08	n.d.	0.09	n.d.	0.19
#34	0.84	n.d.	0.09	n.d.	0.43
#35	0.11	n.d.	0.09	n.d.	0.32
#36	0.36	n.d.	0.18	n.d.	0.31
#37	0.10	n.d.	99.57	n.d.	0.42
#38	0.12	n.d.	23.19	n.d.	144.51
#39	n.d.	n.d.	0.22	2.28	0.71
#40	1.35	0.66	1.26	1.12	267.86

Note: $n = 4$ per concentration point; The RSD value was a little higher (0.4 - 28.4%) at a lower concentration range (below than 0.1 ng mL⁻¹), and when the concentrations of tested drugs were higher than 0.5 ng mL⁻¹, its value was in the range of 2.2 – 13.4%; and n.d. stands for not detected.