

Electronic Supplementary Information

Preparation of COPs Mixed Matrix Membrane for Sensitive Determination of Six Sulfonamides in Human Urine

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1. The preparation procedure of TpDMB-COPs-MMM

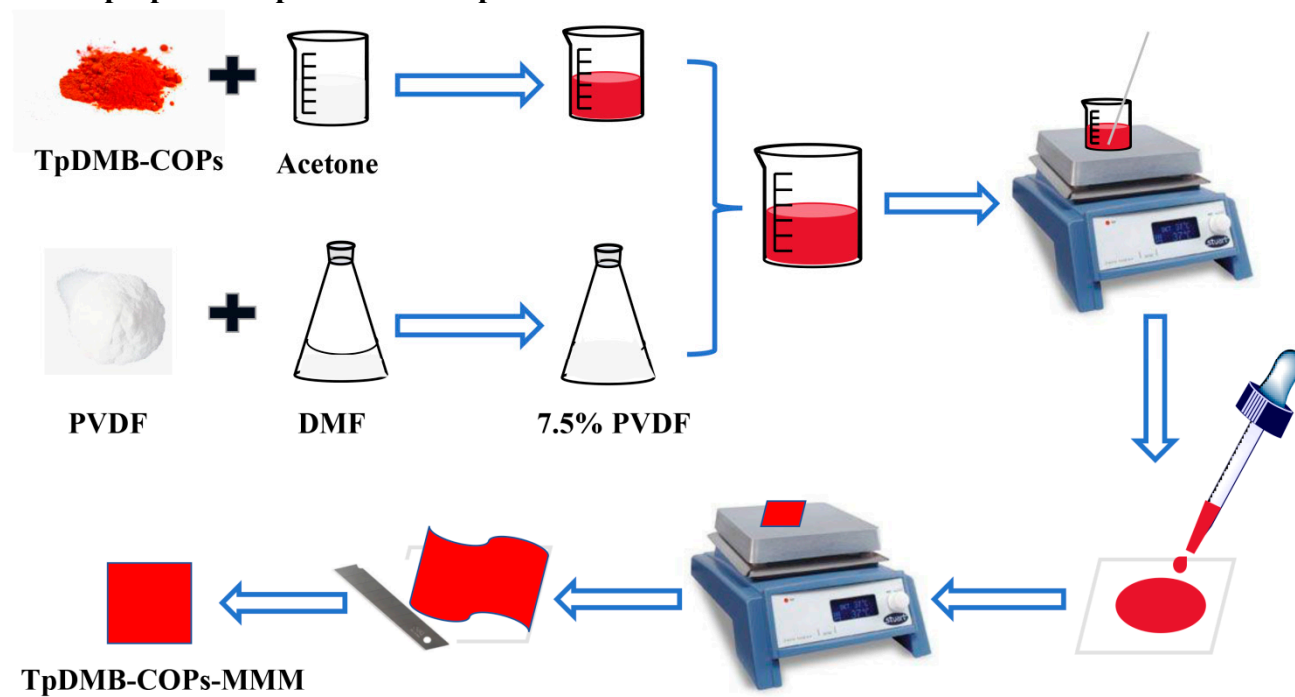


Figure S1 1. The preparation procedure of TpDMB-COPs-MMM.

2. The TGA curve of TpDMB-COPs powder

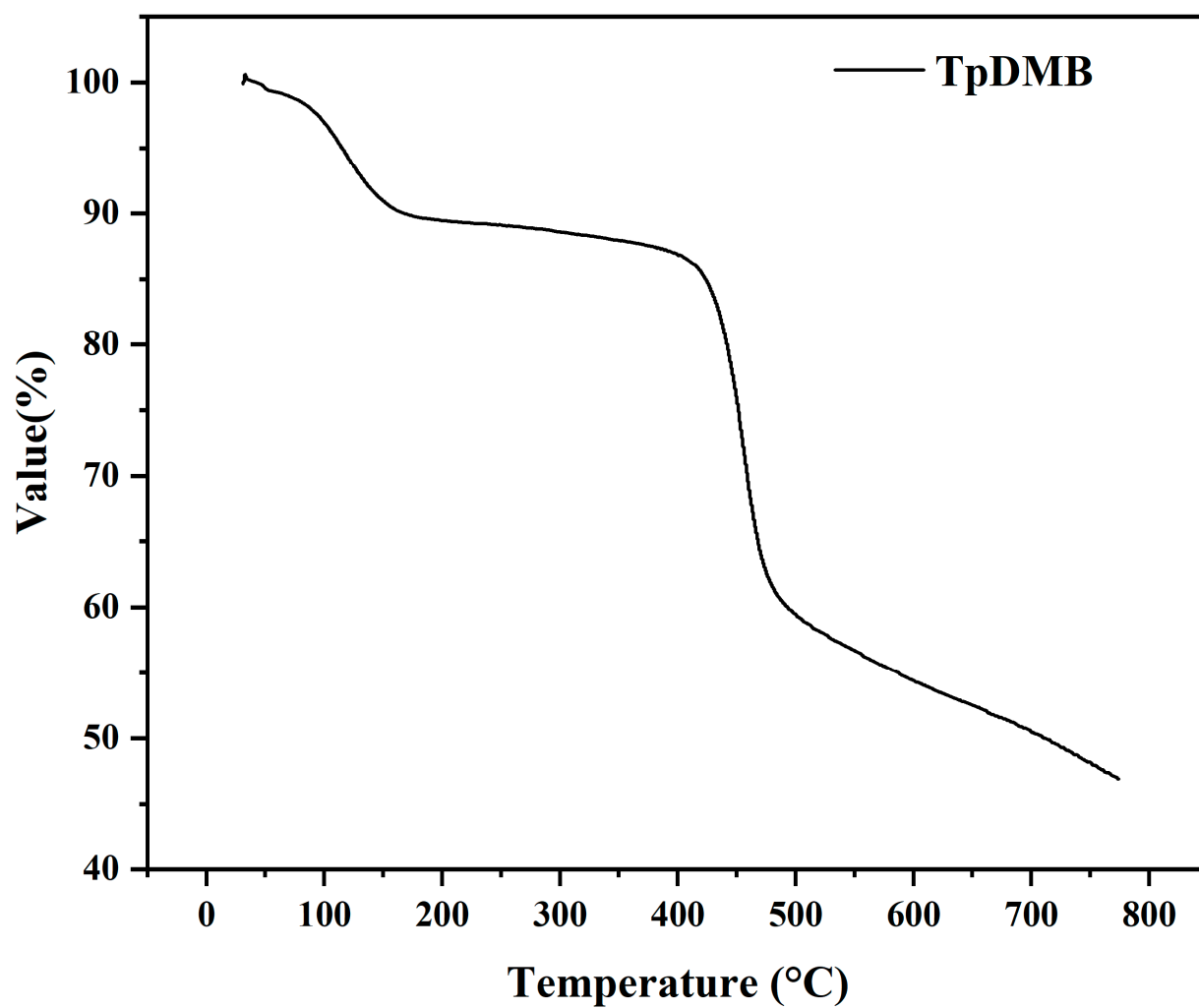


Figure S2 The TGA curve of TpDMB-COPs powder.

3. The N₂ adsorption-desorption isotherms of TpDMB-COPs powder

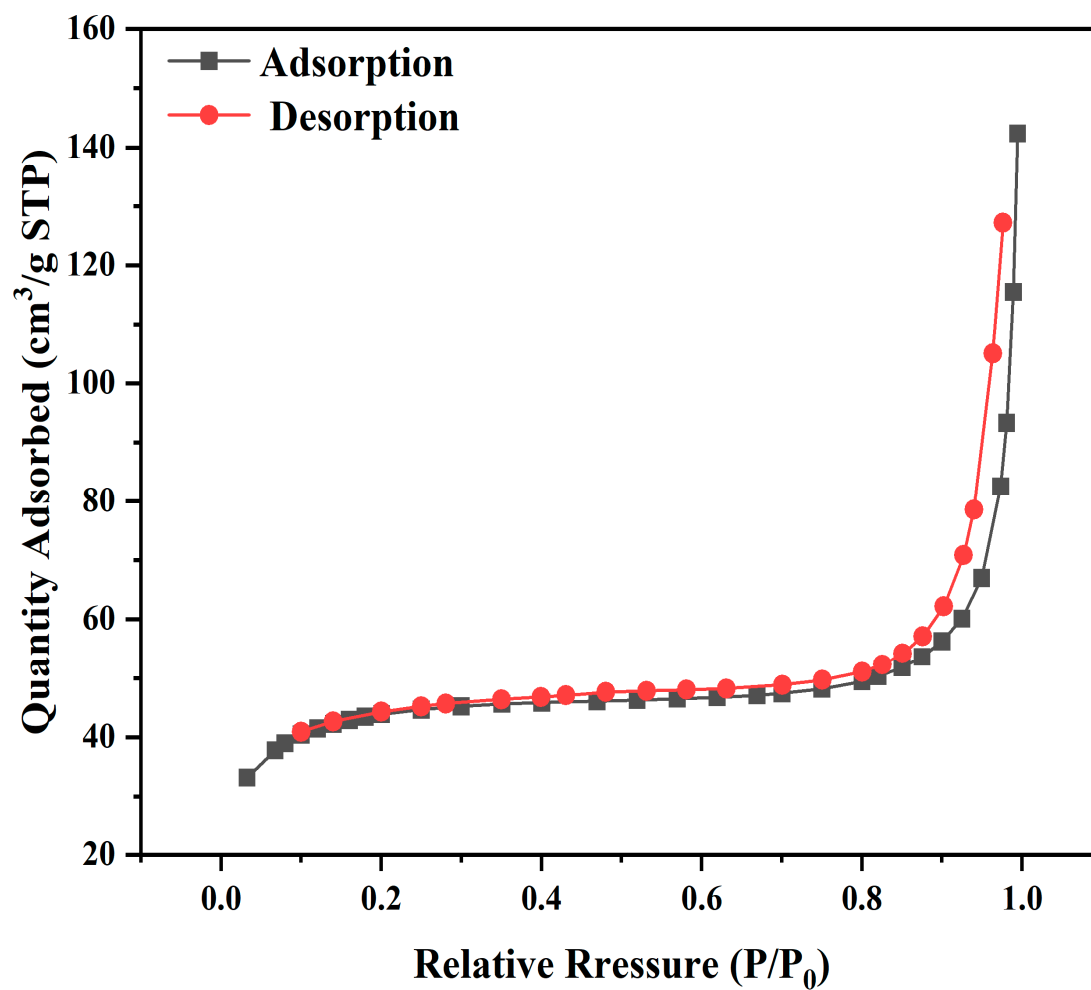


Figure S3 The N₂ adsorption-desorption isotherms of TpDMB-COPs powder.

4. The Reusability of TpDMB-COPs-MMM

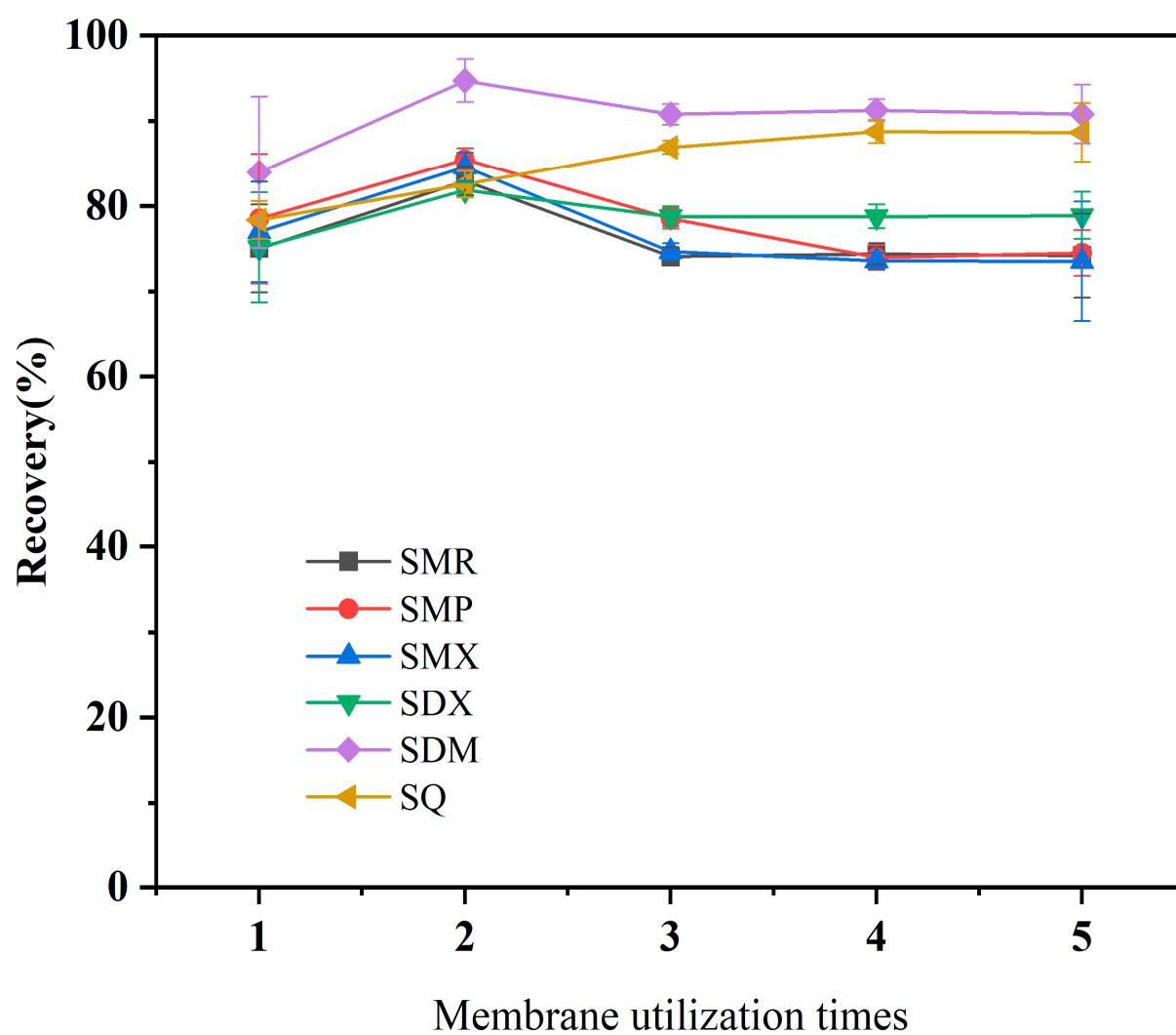


Figure S4 Reusability of TpDMB-COPs-MMM.

5. The chromatograms of spiked and real samples

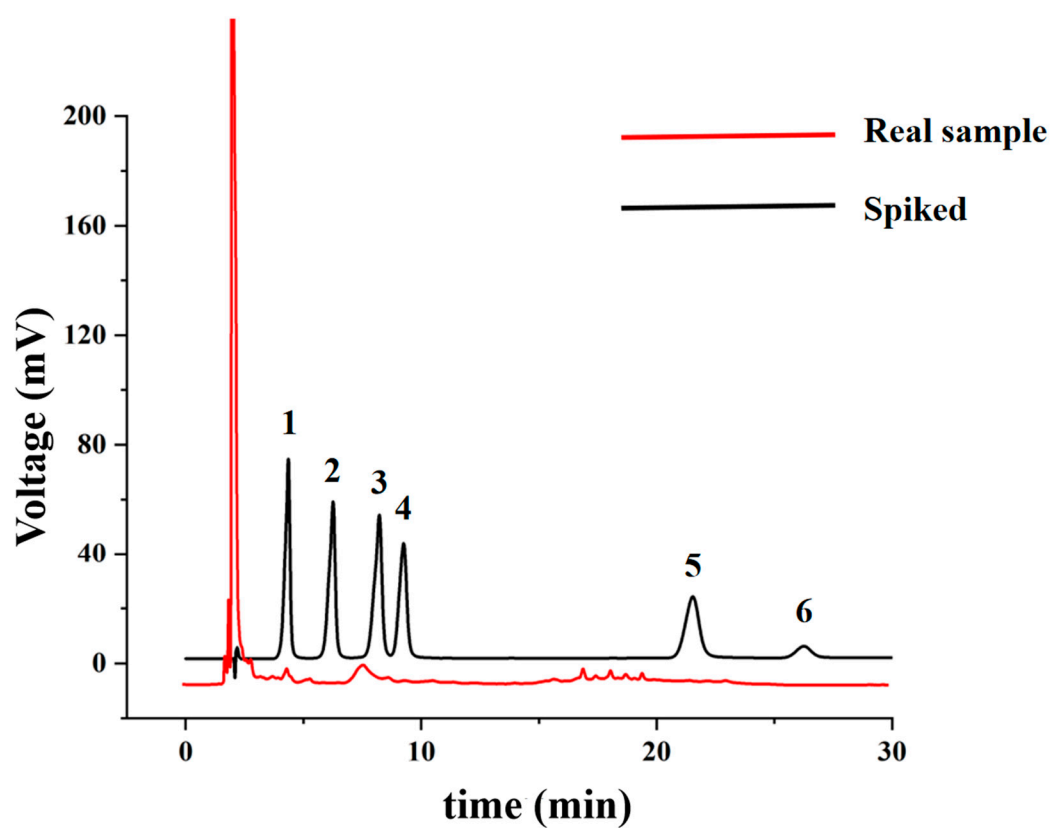
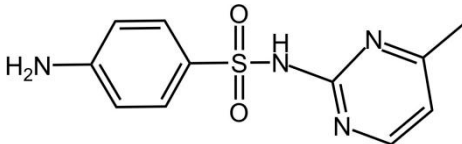
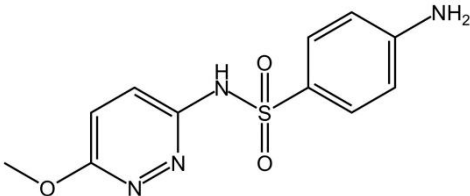
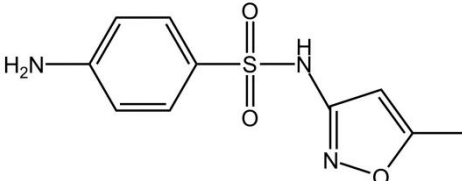
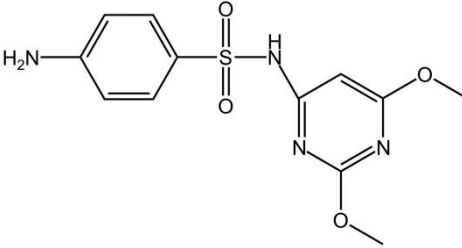
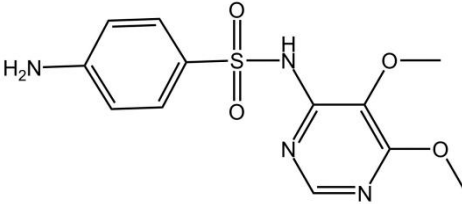
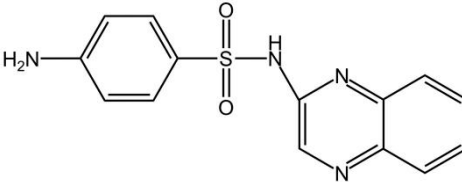


Figure S5 The chromatograms of spiked and real samples. Peak identification: 1, SMR; 2, SMP; 3, SMX; 4, SDX; 5, SDM; 6, SQ

6. The chemical structure of six sulfonamides

Table S1 The chemical structure of six sulfonamides

Sulfonamides	Chemical structure
Sulfamerazine (SMR)	
Sulfamethoxypyridazine (SMP)	
Sulfamethizole (SMX)	
Sulfadimethoxine (SDM)	
Sulfadoxine (SDX)	
Sulfaquinoxaline (SQ)	

7. Results of precision

Table S2 Results of precision

Analyses	Repeatability (RSD%, n=6)	Intra-day (RSD%, n=6)	Inter-day (RSD%, n=9)
SMR	6.8	2.5	3.8
SMP	4.1	2.9	4.7
SMX	5.1	4.3	4.4
SDX	3.7	1.7	2.4
SDM	7.3	1.7	1.5
SQ	5.0	4.5	5.0

8. The results of recoveries experiment

Table S3 The results of recoveries experiment

Analytes	Low ^a		Middle ^b		High ^c	
	Repeatability	RSD	Repeatability	RSD	Repeatability	RSD
	(%)	(%)	(%)	(%)	(%)	(%)
SMR	109.6	7.9	92.6	4.1	110.8	4.1
SMP	102.2	5.2	96.4	1.7	102.3	4.3
SMX	98.8	3.8	104.3	1.1	91.2	3.4
SDX	106.1	7.5	87.4	5.6	110.6	5.3
SDM	108.1	7.4	91.1	2.7	112.2	2.5
SQ	92.9	8.7	87.9	6.4	90.7	6.2

a: The low concentrations of SMR, SMP, SMX, SDX, SDM, SQ were 7 ng/mL, 10 ng/mL, 14 ng/mL, 14 ng/mL, 14 ng/mL, 7 ng/mL, respectively.

b: The middle concentrations of SMR, SMP, SMX, SDX, SDM, SQ were 10 ng/mL, 15 ng/mL, 15 ng/mL, 15 ng/mL, 15 ng/mL, 10 ng/mL, respectively.

c: The high concentrations of SMR, SMP, SMX, SDX, SDM, SQ were 16 ng/mL, 20 ng/mL, 20 ng/mL, 20 ng/mL, 20 ng/mL, 16 ng/mL, respectively.