

Supplementary Data

This supplementary data is a part of a paper entitled “Surfactant-Modified Dispersive Liquid-Liquid Microextraction for the Determination of Salbutamol or Dapsone via Reciprocal Derivatization”.

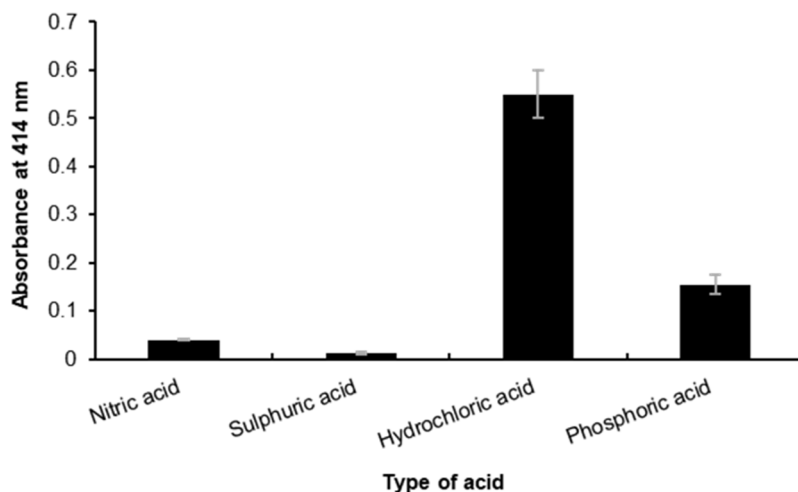


Fig S1. Acid optimization. Conditions: 20 mM acid, 0.04 mM dapsone, 2 mM sodium nitrite, 2 mM urea, 0.04 mM salbutamol, and 20 mM NaOH

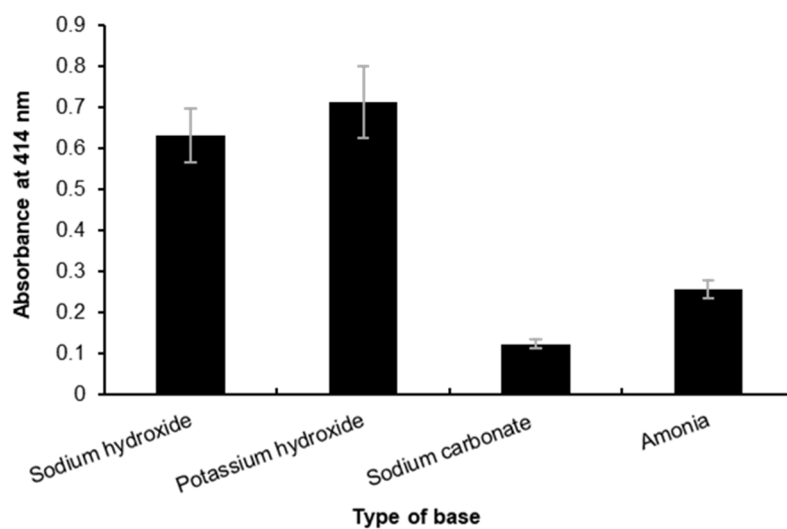


Fig S2. Base optimization. Conditions: 0.04 mM dapsone, 2 mM urea, 0.04 mM salbutamol, and 20 mM base, hydrochloric acid 12 mM, sodium nitrate 2.4 mM

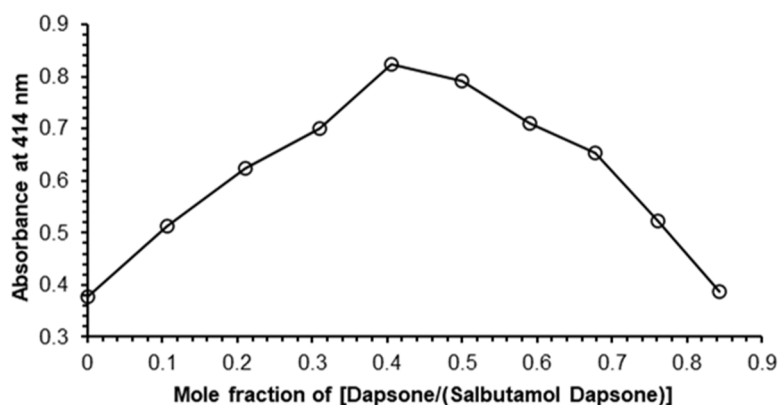


Fig S3. Continuous variation (Job's method). Conditions: 1.44 mM sodium nitrite, 6.6 mM urea, 44.6 mM KOH, and 10 mM HCl

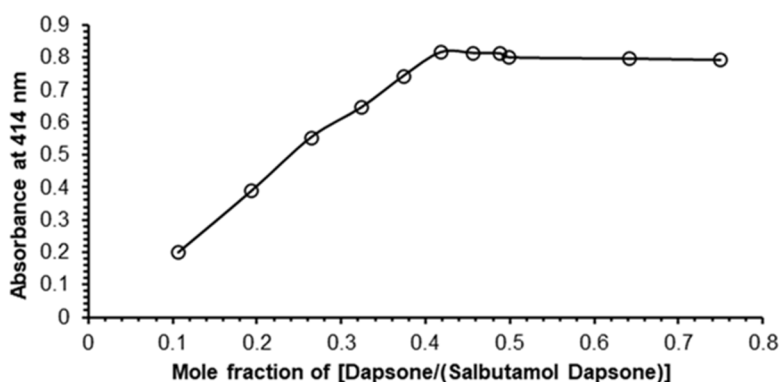


Fig S4. Molar ratio method. Conditions: 0.02 mM dapsone (constant), 1.44 mM sodium nitrite, 6.6 mM urea, (varied) mM salbutamol, and 44.6 mM KOH, 10 mM HCl

For the stoichiometric study, the Job's approach and the molar ratio method were used. Job's approach held the molar concentrations of the reactants constant, but the mole ratio method keeps one reactant's molar concentration fixed while varying the molar concentrations of the other reactants.

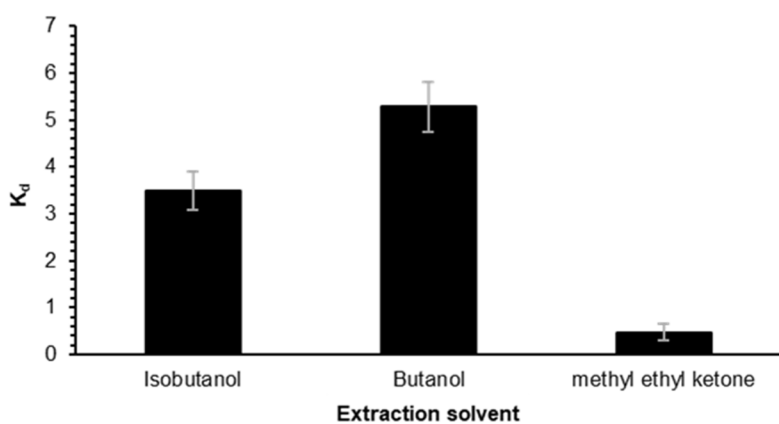


Fig S5. SM-DLLME extraction solvent study. Conditions: Salbutamol and dapsone 0.04 mM, dispersive solvent (Tween-800) 0.9%, aqueous phase (dye) 10 mL, KCl 20 mM

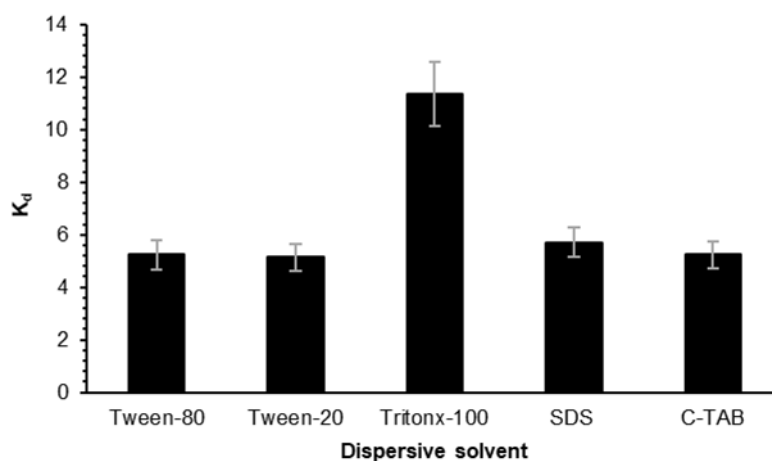


Fig S6. SM-DLLME dispersive solvent study conditions: dispersive solvent 0.9%, salbutamol and dapsone 0.04 mM, extraction solvent 600 μ L, aqueous phase (dye) 10 mL, NaCl 20 mM

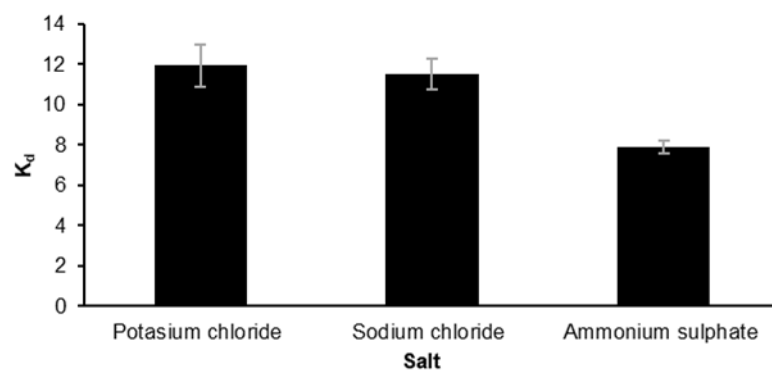


Fig S7. SM-DLLME salt selection. Conditions: extraction solvent 600 μ L, dispersive solvent 1.07%, salbutamol and dapsone 0.04 mM, aqueous phase (dye) 10 mL

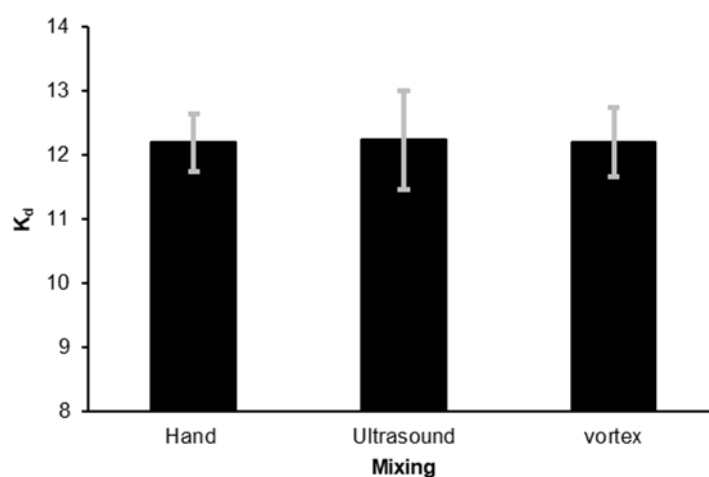


Fig S8. SM-DLLME reagent mixing effect. Conditions: extraction solvent 600 μ L, dispersive solvent 1.07%, salbutamol and dapsone 0.04 mM, aqueous phase (dye) 10 mL

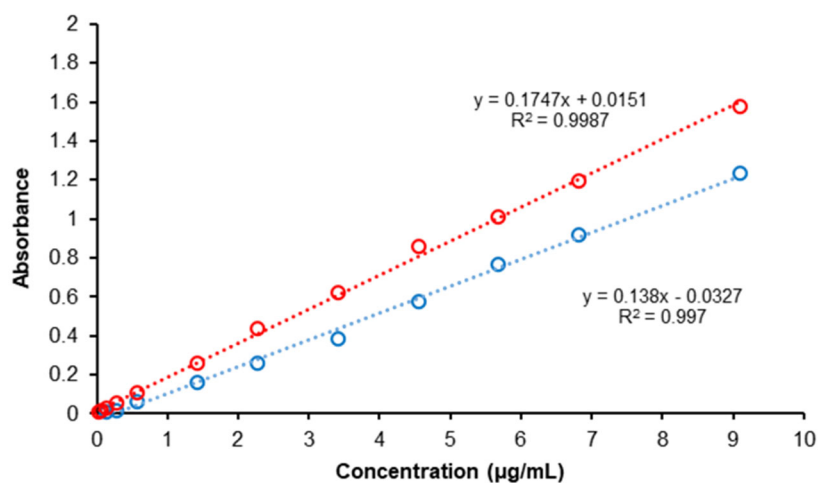


Fig S9. Calibration curves for dapson using direct determination (blue line) and SM-DLLME (red line), both under optimal conditions, with detection at 414 and 440 nm, respectively. All results were determined in triplicate

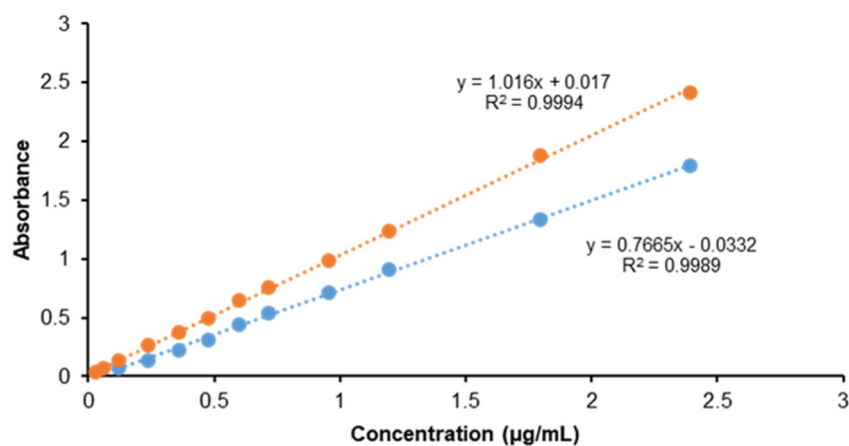


Fig S10. Calibration curves for salbutamol using direct determination (blue line), the detection was at 414 nm, and using SM-DLLME (red line), the detection was at 440 nm, both under optimal conditions

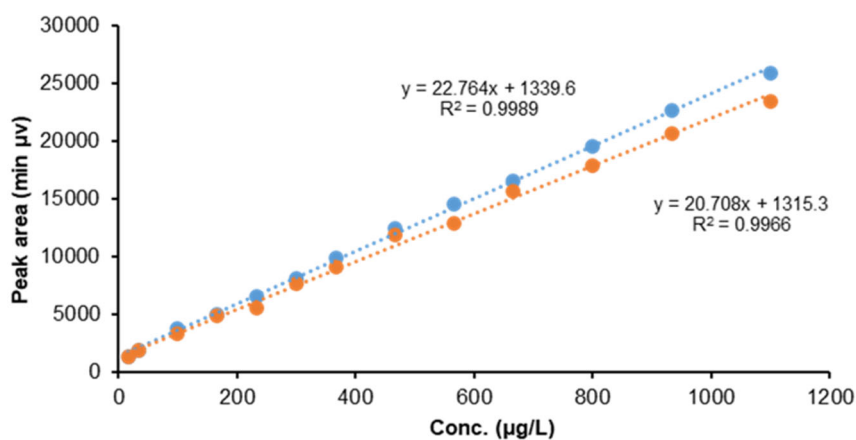


Fig S11. Calibration curves for dapson (blue line) and salbutamol (red line), both under optimal conditions. Using SM-DLLME-HPLC-UV, detection was performed at 440 nm

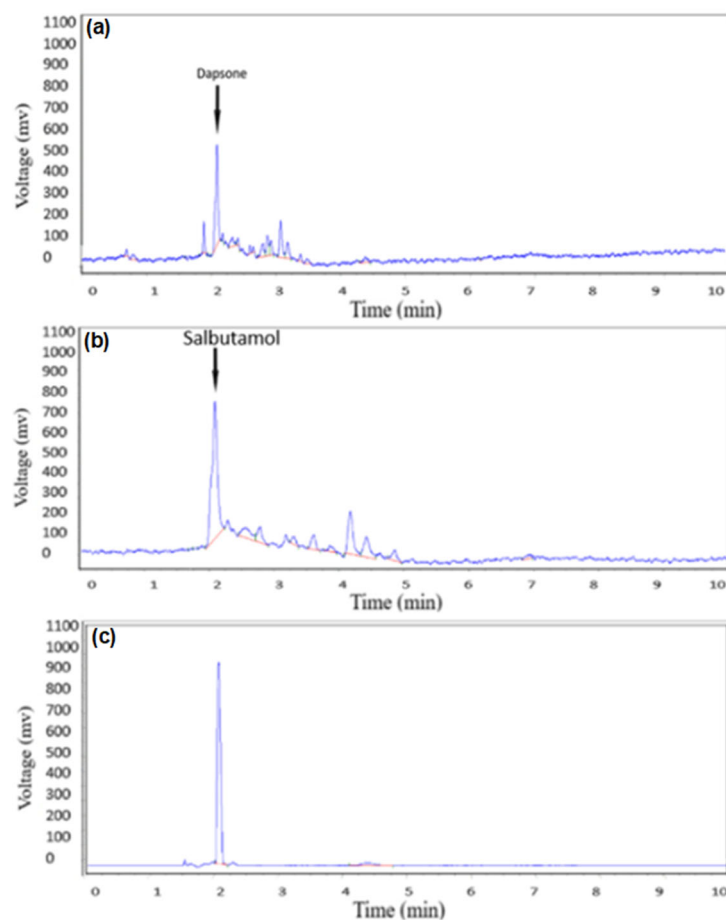


Fig S12. HPLC chromatograms of (a) DPSN in (SGPharma) sample, (b) SAL in (Veentar) sample, and (c) dye formed by coupling of pure SAL and pure DPSN using the SM-DLLME-HPLC method under optimum conditions

Table S1. HPLC parameters optimization

Organic modifier percentage %*	Temperature °C	Flow rate mL/min	Retention time min	Asymmetric factor
55	30	0.5	2.70	1.04
60	30	0.5	2.60	1.06
65	30	0.5	2.45	1.05
70	30	0.5	2.30	1.04
75	30	0.5	2.10	1.04
70	30	1.0	1.70	1.04
70	30	0.8	1.80	1.03
70	30	0.6	1.95	1.03
70	30	0.4	2.10	1.03
70	50	0.6	2.10	1.03
70	45	0.6	2.10	1.03
70	40	0.6	2.10	1.02
70	35	0.6	2.10	1.02
70	30	0.6	2.10	1.02

*The percentage of organic modifier mean (organic: water), for example: Water: methanol 55:45

Table S2. The impact of interference materials on the SAL and DPSN recovery percentage at 400 mg L⁻¹ of DPSN and 300 mg L⁻¹ of SAL was studied, whereas 1500 and 1000 mg L⁻¹ of DPSN and SAL interference substances were studied

Interference	Found (mg L ⁻¹)*	Error %*	RSD %*	Recovery %*
DPSN				
Magnesium stearate	396.37	-0.009	0.64	99.09
Starch	398.53	-0.004	0.45	99.63
Lactose	398.83	-0.003	0.47	99.71
Polyvinylpyrrolidone	404.33	0.011	0.28	101.08
Talc	400.83	0.002	0.33	100.21
SAL				
Chlorhexidine digluconate	303.33	0.011	0.33	101.11
Benzoic acid	302.33	0.008	0.50	100.78
Methyl salicylate	299.00	-0.003	0.26	99.67
Sodium benzoate	302.33	0.008	0.25	100.78

*Average of three determinations