

Supporting Information

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Simultaneous determination of chlorpheniramine maleate, pseudoephedrine hydrochloride, oxolamine citrate, and paracetamol by HPLC-PDA in pharmaceutical dosage forms

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Table of Contents		Page
Figure S1: Uncertainty Assessment of Chlorpheniramine Maleate		2
Figure S2: Uncertainty Assessment of Pseudoephedrine Hydrochloride		3
Figure S3: Uncertainty Assessment of Oxolamine Citrate		4
Figure S4: Uncertainty Assessment of Paracetamol		5

Uncertainty in the Standard Sample		x	xi	n	U _{Standard} Formula		U _{Standard}
		100.00	99.50	3.00	$\frac{x - xi}{\sqrt{n}}$		0.289

Uncertainty in the Slope of Calibration Plot		Slope of Calibration	Mean	ss	n	Standard error	U _{Calibration} Formula	U _{Calibration}
Slope1	14541.00	14691.33	157.42	3.00	90.89	$\frac{\text{standard error of slope} \cdot 100}{\text{slope}}$	0.619	
Slope2	14678.00							
Slope3	14855.00							

Uncertainty in Recovery of Sample		Recovery of Sample	Mean	ss	n	Standard error	U _{Recovery} Formula	U _{Recovery}
Recovery1	99.03	99.21	0.51	6.00	0.21	$\frac{\text{standard error of recovery} \cdot 100}{\text{recovery}}$	0.211	
Recovery2	98.91							
Recovery3	98.66							
Recovery4	99.26							
Recovery5	100.15							
Recovery6	99.22							

Uncertainty Associated with Repeatability		Repeatability of Sample	Mean	ss	n	Standard error	U _{Repeatability} Formula	U _{Repeatability}
Repeatability1	39.85	39.94	0.22	6.00	0.09	$\frac{\text{standard error of repeatability} \cdot 100}{\text{repeatability}}$	0.224	
Repeatability2	40.12							
Repeatability3	40.25							
Repeatability4	39.96							
Repeatability5	39.75							
Repeatability6	39.68							

U _{Combined} Formula		U _{Combined}
$\sqrt{(U_{\text{Standard}})^2 + (U_{\text{Calibration}})^2 + (U_{\text{Recovery}})^2 + (U_{\text{Repeatability}})^2}$		0.749

U _{Expanded} Formula		U _{Expanded}
U _{Combined} x 1.96		1.468

Figure S1: Uncertainty Assessment of Chlorpheniramine Maleate

Uncertainty in the Standard Sample	x	xi	n	U _{Standard} Formula		U _{Standard}
	100.00	99.50	3.00	$\frac{x - xi}{\sqrt{n}}$		0.289

Uncertainty in the Slope of Calibration Plot	Slope of Calibration	Mean	ss	n	Standard error	U _{Calibration} Formula	U _{Calibration}	
Slope1	85336.00	84974.33	551.97	3.00	318.68	$\frac{\text{standard error of slope} \cdot 100}{\text{slope}}$	0.375	
Slope2	84339.00							
Slope3	85248.00							

Uncertainty in Recovery of Sample	Recovery of Sample	Mean	ss	n	Standard error	U _{Recovery} Formula	U _{Recovery}	
Recovery1	99.72	99.21	0.73	6.00	0.30	$\frac{\text{standard error of recovery} \cdot 100}{\text{recovery}}$	0.299	
Recovery2	98.35							
Recovery3	100.35							
Recovery4	98.66							
Recovery5	99.06							
Recovery6	99.10							

Uncertainty Associated with Repeatability	Repeatability of Sample	Mean	ss	n	Standard error	U _{Repeatability} Formula	U _{Repeatability}	
Repeatability1	11.98	11.97	0.13	6.00	0.05	$\frac{\text{standard error of repeatability} \cdot 100}{\text{repeatability}}$	0.438	
Repeatability2	11.85							
Repeatability3	12.20							
Repeatability4	11.95							
Repeatability5	11.85							
Repeatability6	11.98							

U _{Combined} Formula	U _{Combined}
$\sqrt{(U_{\text{Standard}})^2 + (U_{\text{Calibration}})^2 + (U_{\text{Recovery}})^2 + (U_{\text{Repeatability}})^2}$	0.710

U _{Expanded} Formula	U _{Expanded}
$U_{\text{Combined}} \times 1.96$	1.392

Figure S2: Uncertainty Assessment of Pseudoephedrine Hydrochloride

Uncertainty in the Standard Sample (ustd)	x	xi	n			$U_{Standard}$ Formula	$U_{Standard}$	
	100.00	99.70	3.00			$\frac{x - xi}{\sqrt{n}}$	0.173	
Uncertainty in the Slope of Calibration Plot	Slope of Calibration	Mean	ss	n	Standard error	$U_{Calibration}$ Formula	$U_{Calibration}$	
Slope1	18602.00	18650.67	155.81	3.00	89.96	$\frac{\text{standard error of slope} \cdot 100}{\text{slope}}$	0.482	
Slope2	18825.00							
Slope3	18525.00							
Uncertainty in Recovery of Sample	Recovery of	Mean	ss	n	Standard error	$U_{Recovery}$ Formula	$U_{Recovery}$	
Recovery1	101.03	101.13	0.23	6.00	0.09	$\frac{\text{standard error of recovery} \cdot 100}{\text{recovery}}$	0.093	
Recovery2	101.21							
Recovery3	101.08							
Recovery4	100.82							
Recovery5	101.11							
Recovery6	101.52							
Uncertainty Associated with Repeatability	Repeatability of Sample	Mean	ss	n	Standard error	$U_{Repeatability}$ Formula	$U_{Repeatability}$	
Repeatability1	39.70	39.99	0.64	6.00	0.26	$\frac{\text{standard error of repeatability} \cdot 100}{\text{repeatability}}$	0.654	
Repeatability2	40.15							
Repeatability3	40.81							
Repeatability4	38.90							
Repeatability5	40.10							
Repeatability6	40.25							
$U_{Combined}$ Formula							$U_{Combined}$	
$\sqrt{(U_{Standard})^2 + (U_{Calibration})^2 + (U_{Recovery})^2 + (U_{Repeatability})^2}$							0.836	
$U_{Expanded}$ Formula							$U_{Expanded}$	
$U_{Combined} \times 1.96$							1.638	

Figure S3: Uncertainty Assessment of Oxolamine Citrate

Uncertainty in the Standard Sample	x	xi	n	U _{Standard} Formula		U _{Standard}
	100.00	99.50	3.00	$\frac{x - xi}{\sqrt{n}}$		0.289

Uncertainty in the Slope of Calibration Plot	Slope of Calibration	Mean	ss	n	Standard error	U _{Calibration} Formula	U _{Calibration}
Slope1	15406.00	15341.67	93.83	3.00	54.17	$\frac{\text{standard error of slope} \cdot 100}{\text{slope}}$	0.353
Slope2	15385.00						
Slope3	15234.00						

Uncertainty in Recovery of Sample	Recovery of Sample	Mean	ss	n	Standard error	U _{Recovery} Formula	U _{Recovery}
Recovery1	99.75	100.13	0.36	6.00	0.15	$\frac{\text{standard error of recovery} \cdot 100}{\text{recovery}}$	0.149
Recovery2	99.92						
Recovery3	99.85						
Recovery4	100.27						
Recovery5	100.73						
Recovery6	100.27						

Uncertainty Associated with Repeatability	Repeatability of Sample	Mean	ss	n	Standard error	U _{Repeatability} Formula	U _{Repeatability}
Repeatability1	130.58	130.03	0.80	6.00	0.33	$\frac{\text{standard error of repeatability} \cdot 100}{\text{repeatability}}$	0.251
Repeatability2	128.86						
Repeatability3	129.60						
Repeatability4	129.58						
Repeatability5	130.86						
Repeatability6	130.70						

U _{Combined} Formula	U _{Combined}
$\sqrt{(U_{\text{Standard}})^2 + (U_{\text{Calibration}})^2 + (U_{\text{Recovery}})^2 + (U_{\text{Repeatability}})^2}$	0.541

U _{Expanded} Formula	U _{Expanded}
U _{Combined} x 1.96	1.061

Figure S4: Uncertainty Assessment of Paracetamol