

List of Figures

Figure No.	Name	Page No.
Chapter-1 Introduction		
1.1	Plaque deposits in artery	1
1.2	Progression of blood vessel blockage	1
1.3	Structure of cholesterol.	2
1.4	Pathophysiology of lipid transport.	4
1.5	Control of hyperlipidemia	7
Chapter-5 Approach to the development of analytical methods		
1.1	3-wavelength photometric method	56
Chapter-6 Preliminary work		
6.1	IR spectra of EZE	82
6.2	IR spectra of SIMVA	82
6.3	IR spectra of LOVA	82
6.4	IR spectra of ROSU	83
6.5	IR spectra of PRAVA	83
6.6	IR spectra of NICO	83
6.7	UV spectra of EZE in different solvent	84
6.8	UV spectra of PRAVA in different solvent	84
6.9	UV spectra of ROSU in different solvent	85
6.10	UV spectra of SIMVA in different solvent	85
6.11	UV spectra of LOVA in different solvent	85
Chapter -7 Experimental work		
7.1.1.1	UV spectra of EZE by Simple UV Spectroscopy	94
7.1.1.2	Calibration curve of EZE by Spectrophotometric method	94
7.1.1.3.	First derivative UV spectra of EZE	94
7.1.1.4	Calibration curve of EZE by 1 st derivative Spectroscopy	94
7.1.1.5	2 nd derivative UV spectra of EZE	94
7.1.1.2.1	Calibration curve of standard EZE by 2 nd derivative	94
7.1.1.2.2	UV spectra of EZE by Difference Spectroscopy	100
7.1.1.2.3	Calibration curve of EZE by Difference Spectroscopy	100
7.1.1.3.1	FTIR spectra of EZE by Peak Area	105
7.1.1.3.2	FTIR spectra of EZE by Single Wavelength Number	105
7.1.1.3.3	Calibration curve of EZE by peak area	105
7.1.1.3.4	Calibration curve of EZE by single wavelength number	105
7.1.1.4.1	Single Peak of ACN Blank by HPLC with UV detection	112
7.1.1.4.2	Single Peak of EZE by HPLC with UV detection	112
7.1.1.4.3	Calibration curve of EZE by HPLC (Peak Area	112
7.1.1.4 (A)	Chromatograms of acid hydrolysis- degraded EZE	115
7.1.1.4 (B)	Chromatograms of base hydrolysis-degraded EZE	116
7.1.1.4 (C)	Chromatograms of 100 ug/ml EZE in Neutral condition standard , 0 min, 10 min, 30 min, 60 min, 120 min, 180 min and 240 min (4hr) reflux at 80	117

List of Figures

	C	
7.1.1.4.4	Chromatograms of 100 ug/ml EZE in 30 % H ₂ O ₂ after 48 hrs at room temperature	117
7.1.1.4.5(A)	Chromatograms of EZE in UV/vis after 48 hrs in photostability chamber	117
7.1.1.4.5(B)	Chromatograms of EZE in thermal 80C after 48 hrs in Stability oven	117
7.1.1.4.10	Overlain FTIR spectra of water degraded product and EZE standard	119
7.1.1.5.1	Single Peak of ACN blank by HPLC with UV detection	123
7.1.1.5.2	Single Peak of ACN Blank by HPLC with UV detection	123
7.1.1.5.3	Single Peak of EZE by HPLC with UV detection	123
7.1.1.5.4	Calibration curve of EZE by HPLC (Peak Area)	123
7.1.1.6.1	Calibration curve of EZE by HPLC (Peak Area)	134
7.1.1.6.2	Calibration curve of EZE by HPTLC by method B (Peak Area)	134
7.1.1.6.3	Calibration curve of EZE by HPTLC by method A. (Peak Area)	134
7.1.1.6.4	Calibration curve of EZE by HPTLC by method B. (Peak Height)	134
7.1.1.6.5	Single Spectrum of EZE by HPTLC by method A	134
7.1.1.6.6	Single Spectrum of EZE by HPTLC by method B	134
7.1.1.6.7	3D Spectra of EZE by HPTLC by method A	134
7.1.1.6.8	3D Spectra of EZE by HPTLC by method B	134
7.1.1.6.9	Chromatogram of EZE with UV detection (After detection)	134
7.1.1.6.10	Chromatogram of EZE with UV detection (After detection)	137
7.1.1.6.11	TLC plate of EZE and its alkaline, acidic and neutral degradation product in UV (after develop)	137
7.1.1.6.12	TLC plate of EZE in it alkaline, acidic and neutral degradation product in fluorescence light (after develop)	137
7.1.1.6.13	overlain Chromatograph of EZE in it alkaline, acidic and neutral degradation product in UV	137
7.1.1.6.14	vertical Chromatograph of EZE in it alkaline, acidic and neutral degradation product in UV	138
7.1.1.6.15	Photograph of TLC plate of EZE and its water degraded product in UV (left) and florescent light (right)	138
7.1.1.6.16	overlain Chromatograph of EZE and it neutral degradation product in UV	138
7.1.1.6.17	Chromatograph of neutral degradation of EZEproduct in UV	138
7.1.2.1.1	UV spectra of PRAVA by Simple UV Spectrophotometry	142
7.1.2.1.2	Calibration curve of PRAVA by Simple UV Spectrophotometry	142
7.1.2.1.3	First derivative UV spectra of PRAVA	142
7.1.2.1.4	Calibration curve of PRAVA by 1 st derivative Spectrophotometry	142
7.1.2.1.5	2 nd derivative UV spectra of PRAVA	142
7.1.2.1.6	Calibration curve of standard PRAVA by 2 nd derivative	142
7.1.2.2.1	Difference spectra of PRAVA	148
7.1.2.2.2	Calibration curve of PRAVA by Difference Spectrophotometry	148
7.1.2.2.3	UV spectra of PRAVA by 3-wavelength method	148
7.1.2.2.4	Calibration curve of PRAVA by 3-wavelength method	148
7.1.2.3.1	Overlain IR spectra of PRAVA	152
7.1.2.3.2	IR spectra of PRAVA of Peak Area	152
7.1.2.3.3	Calibration curve of PRAVA by peak area	152
7.1.2.3.4	IR spectra of PRAVA of Single Wavelength Number	152

List of Figures

7.1.2.3.5	Calibration curve of PRAVA by single wavelength number	152
7.1.2.4.1	Simple UV spectrum of PRAVA in acetonitrile	156
7.1.2.4.2	Single Peak of ACN Blank by HPLC with UV detection	159
7.1.2.4.3	Single Peak of PRAVA by HPLC with UV detection	159
7.1.2.4.4	Overlain Peak of PRAVA by HPLC with UV detection	159
7.1.2.4.5	Calibration curve of PRAVA by HPLC	159
7.1.2.4.6	Chromatograms of acid hydrolysis of PRAVA in 0.5 M HCl at 0 min, 24 hrs and 48 hrs	162
7.1.2.4.7	Chromatograms of base hydrolysis of PRAVA in 0.1 M NaOH at 0 min, at 24 hrs and 48 hrs	162
7.1.2.4.8	Chromatograms of neutral (H ₂ O) – degraded PRAVA	162
7.1.2.4.9	Chromatograms of oxidative of PRAVA in 30 % H ₂ O ₂ at 0 min, 24 hrs and at 48 hrs	162
7.1.2.4.10	Chromatograms of thermal 80C at stability oven -degraded PRAVA	163
7.1.2.4.11	Chromatograms of UV/VIS photo stability chamber degraded PRAVA	163
7.1.2.5.1	Single Peak of ACN blank by HPLC with UV detection	166
7.1.2.5.2	Single Peak of plasma blank by HPLC with UV detection	166
7.1.2.5.3	Single Peak of PRAVA by HPLC with UV detection	166
7.1.2.5.4	Overlay Peak of PRAVA by HPLC with UV detection	166
7.1.2.5.5	Calibration curve of PRAVA by HPLC with UV detection (Peak Area)	166
7.1.2.6.1	Calibration curve of PRAVA by HPTLC by method A (Peak Area)	175
7.1.2.6.2	Calibration curve of PRAVA by HPTLC by method A (Peak Height)	175
7.1.2.6.3	Calibration curve of PRAVA by HPTLC by method B (Peak Area)	175
7.1.2.6.4	Single Spectrum of PRAVA by HPTLC by method A	176
7.1.2.6.5	Single Spectrum of PRAVA by HPTLC by method B	176
7.1.2.6.6	3D Spectra of PRAVA by HPTLC by method A	176
7.1.2.6.7	3D Spectra of PRAVA by HPTLC by method B	176
7.1.2.6.8	Chromatogram of PRAVA by method A (After detection)	176
7.1.2.6.9	Chromatogram of PRAVA by method B (After detection)	176
7.1.2.6.10	Reproducibility data of PRAVA by HPTLC with UV detection(400 ng/ml)	179
7.1.2.6.11	Chromatogram of PRAVA in acidic degradation with UV detection (After detection)	
7.1.2.6.12	Chromatogram of PRAVA in acidic degradation (acidic degradation show three degradation product)	180
7.1.2.6.13	vertical Chromatogram of PRAVA in acidic degradation (acidic degradation show three degradation products)	180
7.1.3.1.1	UV spectra of ROSU by Simple UV Spectrophotometry	183
7.1.3.1.2	Calibration curve of ROSU by Simple UV Spectrophotometry	183
7.1.3.1.3	First derivative UV spectra of ROSU	184
7.1.3.1.4	Calibration curve of ROSU by 1 st derivative Spectrophotometry	184
7.1.3.1.5	UV spectra of ROSU by 3-wavelength method	184
7.1.3.1.6	Calibration curve of ROSU by 3-wavelength method	184
7.1.3.2.1	Overlain FT-IR spectra of ROSU	189
7.1.3.2.2	FT-IR spectra of ROSU by peak area	189

List of Figures

7.1.3.2.3	FT-IR spectra of ROSU by peak height	189
7.1.3.2.5	Calibration curve of ROSU by peak area	189
7.1.3.2.6	Calibration curve of ROSU by peak height	189
7.1.3.3.2	Single Peak of ACN Blank by HPLC with UV detection	196
7.1.3.3.3	Single Peak of ROSU by HPLC with UV detection	196
7.1.3.3.4	Single Peak of ROSU by HPLC with UV detection	196
7.1.3.3.5	Calibration curve of ROSU by HPLC with UV detection (Peak Area)	196
7.1.3.3.5(A)	Chromatograms of ROSU in 0.5 N HCl at 0 min, 24 hr and after 48 hrs at room temperature	198
7.1.3.3.5	Chromatograms of ROSU in 1 N HCl at 0 min, 30 min, 1 hr, 2 hr, 3 hr, 4 hr and after 5 hrs reflux at 80	198
7.1.3.3.6(A)	Chromatograms of ROSU in 1 N NaOH at 0 min, 2 hr, 24 hr and after 48 hrs at room temperature	199
7.1.3.3.6(A)	Chromatograms of ROSU in 1 N NaOH at 0min, 30 min, 1 hr, 2 hr, 3 hr and after 4 hrs reflux at 80 C	199
7.1.3.3.6(A)	Chromatograms of ROSU in neutral at 0 min, 24 hr and after 48 hrs at room temperature	199
7.1.3.3.7(A)	Chromatograms of ROSU in neutral at 0 min, 30 min, 1 h, 3 hr and after 5 hrs reflux at 80 C	199
7.1.3.3.7	Chromatograms of neutral (H ₂ O) – degraded ROSU	200
7.1.3.3.8(A)	Chromatograms of ROSU in 30 % H ₂ O ₂ at 0 min, 24 hr and after 48 hrs at room temperature	200
7.1.3.3.8(A)	Chromatograms of ROSU in 30 % H ₂ O ₂ at 0 min, 30 min, 1 h and after 3 hrs reflux at 80 C	200
7.1.3.3.8	Chromatograms of oxidative-degraded ROSU	200
7.1.3.3.9	Chromatograms of Thermal-degraded ROSU	200
7.1.3.3.10	Chromatograms of UV/254 and Vis/366-degraded ROSU	200
7.1.3.4.1	Single Peak of ACN blank by HPLC with UV detection	204
7.1.3.4.2	Single Peak of plasma blank by HPLC with UV detection	204
7.1.3.4.3	Single Peak of ROSU by HPLC with UV detection	204
7.1.3.4.4	Single Peak of ROSU by HPLC with UV detection	204
7.1.3.4.5	Calibration curve of ROSU by bioanalytical method	204
7.1.3.5.1	Calibration curve of ROSU by HPTLC by method A (Peak Area)	214
7.1.3.5.2	Calibration curve of ROSU by HPTLC by method A (Peak Height)	214
7.1.3.5.3	Calibration curve of ROSU by HPTLC by method B (Peak Area)	214
7.1.3.5.4	Single Spectrum of ROSU by HPTLC by method A	214
7.1.3.5.5	Single Spectrum of ROSU by HPTLC by method B	214
7.1.3.5.6	3D Spectra of ROSU by HPTLC by method A	214
7.1.3.5.7	3D Spectra of ROSU by HPTLC by method B	214
7.1.3.5.8	Chromatogram of ROSU by method A (After detection)	214
7.1.3.5.9	Chromatogram of ROSU by method B (After detection)	214
7.1.3.5.10	HPTLC Chromatogram of ROSU and its acidic degradation in UV detection	217
7.1.3.5.11	Overlain and vertical HPTLC Chromatogram of ROSU and its acidic degradation products	218
7.1.4.1.1	UV spectra of SIMVA by Simple UV Spectrophotometry	222

List of Figures

7.1.4.1.2	Calibration curve of SIMVA by Simple UV Spectrophotometry	222
7.1.4.1.3	First derivative UV spectra of SIMVA	222
7.1.4.1.4	2 nd derivative UV spectra of SIMVA	222
7.1.4.1.5	Calibration curve of SIMVA by 1 st derivative Spectrophotometry	222
7.1.4.2.1	Calibration curve of standard SIMVA by 2 nd derivative	227
7.1.4.2.1	UV spectra of SIMVA for 3-wavelength method	227
7.1.4.2.2	Calibration curve of SIMVA by 3-wavelength method	227
7.1.4.3.1	Overlay FT-IR spectra of SIMVA	231
7.1.4.3.2	FT-IR spectra of SIMVA by Peak Area and peak height	232
7.1.4.3.3	FT-IR spectra of SIMVA by Peak height	232
7.1.4.3.4	Calibration curve of SIMVA by peak area	232
7.1.4.3.5	Calibration curve of SIMVA by peak height	232
7.1.4.4.1	Calibration curve of SIMVA by HPTLC method A (Peak Area)	238
7.1.4.4.2	Calibration curve of SIMVA by HPTLC method A (Peak Height)	238
7.1.4.4.3	Calibration curve of SIMVA by HPTLC method B(Peak Area)	238
7.1.4.4.4	Single Spectrum of SIMVA by HPTLC by method A	239
7.1.4.4.5	Single Spectrum of SIMVA by HPTLC by method B	239
7.1.4.4.6	3D Spectra of SIMVA by HPTLC by method A	239
7.1.4.4.7	3D Spectra of SIMVA by HPTLC by method B	239
7.1.4.4.8	Chromatogram of SIMVA by method A (After detection)	239
7.1.4.4.9	Chromatogram of SIMVA by method B (After detection)	239
7.1.4.4.10	TLC plate of SIMVA & SIMVA ACID by method A (After detection)	242
7.1.4.4.11	TLC plate of SIMVA & SIMVA ACID by method B (After detection)	242
7.1.4.4.12	Vertical chromatogram of SIMVA and SIMVA acid	243
7.1.4.4.13	Vertical chromatogram of SIMVA and SIMVA acid	243
7.1.4.4.14	Chromatogram of SIMVA acid by method B	243
7.1.5.1.2	UV spectra of LOVA by Simple UV Spectrophotometry	247
7.1.5.1.3	Calibration curve of LOVA by Simple UV Spectrophotometry	247
7.1.5.1.4	First derivative UV spectra of LOVA	247
7.1.5.1.5	Calibration curve of LOVA by 1 st derivative Spectrophotometry	247
7.1.5.1.6	2 nd derivative UV spectra of LOVA	248
7.1.5.1.7	Calibration curve of standard LOVA by 2 nd derivative	248
7.1.5.2.1	UV spectra of LOVA by 3-wavelength method	252
7.1.5.2.2	Calibration curve of LOVA by 3-wavelength method	252
7.1.5.3.1	Overlay FT-IR spectra of LOVA	256
7.1.5.3.2	FT-IR spectra of LOVA by Peak Area	256
7.1.5.3.3	Calibration curve of LOVA by peak area	256
7.1.5.3.4	FT-IR spectra of LOVA by Single Wavelength Number	257
7.1.5.3.5	Calibration curve of LOVA by single wavelength number	257
7.1.5.4.1	Calibration curve of LOVA by HPTLC by method (Peak Area)	262
7.1.5.4.2	Calibration curve of LOVA by HPTLC by method A (Peak Height)	262
7.1.5.4.3	Calibration curve of LOVA by HPTLC by method B (Peak Area)	262
7.1.5.4.4	Single Spectrum of LOVA by HPTLC by method A	262
7.1.5.4.5	Single Spectrum of LOVA by HPTLC by method B	262
7.1.5.4.6	3D Spectra of LOVA by HPTLC by method A	263

List of Figures

7.1.5.4.7	3D Spectra of LOVA by HPTLC by method B	263
7.1.5.4.8	Chromatogram of LOVA by method A (After detection)	263
7.1.5.4.9	Chromatogram of LOVA (After detection) by method B	263
7.1.5.4.10	TLC plate of LOVA by method a (After detection)	266
7.1.5.4.11	TLC plate of LOVA by method B (After detection)	266
7.1.5.4.12	Vertical chromatogram of LOVA and LOVA acid	266
7.1.5.4.13	Chromatogram of LOVA acid	267
7.2.1.1.1	Overlain zero order spectra of EZE and SIMVA and binary mixture 1:1	270
7.2.1.1.2	Overlain 1 st order UV spectra of EZE and SIMVA	270
7.2.1.1.3	1 st order derivative UV spectra of EZE and SIMVA	270
7.2.1.1.4	Ratio spectra of EZE (40 µg/ml SIMVA as divisor)	272
7.2.1.1.5	Ratio spectra of SIMVA (10 µg/ml EZE as divisor)	272
7.2.1.1.6	Ratio spectra of EZE and SIMVA (10 µg/ml EZE as divisor)	272
7.2.1.1.7	Ratio derivative spectra of EZE and SIMVA (10 µg/ml EZE as divisor)	272
7.2.1.1.8	ratio spectra of EZE and SIMVA (40 µg/ml SIMVA as divisor)	272
7.2.1.1.9	Ratio derivative spectra of EZE and SIMVA(40 µg/ml SIMVA as divisor)	272
7.2.1.1.10	Calibration curve of EZE at 265.2 nm by FDZC method	275
7.2.1.1.11	Calibration curve of SIMVA at 245.4 nm by FDZC method	275
7.2.1.1.12	Calibration curve of EZE and SIMVA ratio derivative method	275
7.2.1.2.1	Overlain IR spectra of EZE and SIMVA	281
7.2.1.2.2	Overlain IR spectra of SIMVA and EZE at 1614 cm ⁻¹	281
7.2.1.2.3	Overlain IR spectra of SIMVA and EZE at 3550 cm ⁻¹	281
7.2.1.2.4	Calibration curve of EZE at 1614cm ⁻¹ by IR method	282
7.2.1.2.5	Calibration curve of SIMVA at 3550 cm ⁻¹ by IR method	282
7.2.1.3.1	Overlain spectra of EZE, SIMVA and their binary mixture showing spectral region 237 nm to 268 nm (21 wavelengths)	285
7.2.1.3.2	Equation of ILS	289
7.2.1.3.3	Equation of CLS	289
7.2.1.3.4	Linearity plots of EZE and SIMVA for validation set	290
7.2.1.3.5	Linearity plots of EZE and SIMVA for validation set	293
7.2.1.3.6	Linearity plots of EZE for validation set	293
7.2.1.3.7	Linearity plots of SIMVA for validation set	293
7.2.1.3.8	Residual vs. predicted concentration plot for EZE and SIMVA	294
7.2.1.3.9	Residual vs. predicted concentration plot for EZE and SIMVA	294
7.2.1.3.10	Residual vs. predicted concentration plot for EZE	295
7.2.1.3.11	Residual vs. predicted concentration plot for SIMVA	295
7.2.2.1.1	Overlain zero order UV spectra of EZE and PRAVA	300
7.2.2.1.2	Overlain 1 st order derivative UV spectra of EZE and PRAVA	300
7.2.2.1.3	Calibration curve of EZE at 237.2 nm by FDZC method	300
7.2.2.1.4	Calibration curve of PRAVA at 218.2 nm by FDZC method	300
7.2.2.1.5	Overlain zero order difference spectra of EZE and PRAVA	300
7.2.2.1.6	Overlain difference 1 st derivative spectra of EZE and PRAVA	300
7.2.2.1.7	Calibration curve of EZE at 250.4 nm by DDZC method	300
7.2.2.1.8	Calibration curve of PRAVA at 243.6 nm by DDZC method	300

List of Figures

7.2.2.2.1	Overlain IR spectra of EZE and PRAVA	306
7.2.2.2.2	Overlain IR spectra of PRAVA and EZE at 1566.38 cm ⁻¹	306
7.2.2.2.3	Overlain IR spectra of PRAVA and EZE at 2354.92 cm ⁻¹	306
7.2.2.2.4	Calibration curve of EZE at 2354.92cm ⁻¹ by IR method	306
7.2.2.2.5	Calibration curve of PRAVA at 1566.38 cm ⁻¹ by IR method	306
7.2.2.3.1	overlain UV spectrum of EZE and PRAVA in acetonitrile	309
7.2.2.3.2	Peak of ACN Blank by HPLC with UV detection	312
7.2.2.3.3	Peak of EZE(22 µg/ml) and (B) PRAVA(22 µg/ml) and (C) combination of EZE and PRAVA by HPLC with UV detection	312
7.2.2.3.4	Overlain Peaks of EZE and PRAVA by HPLC with UV detection	312
7.2.2.3.5	Calibration curve of EZE by HPLC with UV detection (Peak Area)	313
7.2.2.3.6	Calibration curve of PRAVA by HPLC with UV detection (Peak Area)	313
7.2.2.3.7	Chromatograms of acid hydrolysis in 0.5 N HCL after 0 min , 24 hrs and after 48 hrs degraded EZE and PRAVA	316
7.2.2.3.8	Chromatograms of base hydrolysis in 0.1N NaOH after 0 min, 24 hrs and after 48 hrs degraded -degraded EZE and PRAVA	316
7.2.2.3.9	Chromatograms of Neutral hydrolysis in 0.1N NaOH after 0 min, 24 hrs and after 48 hrs degraded -degraded EZE and PRAVA	317
7.2.2.3.10	Chromatograms of oxidative in 30 % H2O2 after 0 min, 24 hrs and after 48 hrs -degraded EZE and PRAVA	317
7.2.2.3.11	Chromatogram of EZE (30 µg/ml) and PRAVA (40 µg/ml) in UV/vis after 48 hrs in photostability chamber	317
7.2.2.3.12	Chromatogram of EZE (26 µg/ml) and PRAVA (20 µg/ml) in thermal 80C after 48 hrs in Stability oven	317
7.2.2.4.1	Calibration curve of EZE by HPTLC with UV detection (Peak Area)	322
7.2.2.4.2	Calibration curve of EZE by HPTLC with UV detection (Peak Height)	322
7.2.2.4.3	Calibration curve of PRAVA by HPTLC with UV detection (Peak Area)	322
7.2.2.4.4	Calibration curve of PRAVA by HPTLC with UV detection (Peak Height)	322
7.2.2.4.5	Spectrum of EZE and PRAVA by HPTLC with UV detection	322
7.2.2.4.6	Overlain Spectra of EZE and PRAVA by HPTLC with UV detection	322
7.2.2.4.7	TLC plate of EZE and PRAVA with UV detection (After detection)	323
7.2.2.5.1	Overlain spectra of EZE , PRAVA and their binary mixture showing spectral region 230 nm to 250 nm (21 wavelengths)	326
7.2.2.5.2	Equation of ILS	327
7.2.2.5.3	Equation of CLS	328
7.2.2.5.4	Linearity plots of EZE and PRAVA for validation set	332
7.2.2.5.5	Linearity plots of EZE and PRAVA for validation set	332
7.2.2.5.6	Linearity plots of EZE for validation set	334
7.2.2.5.7	Linearity plots of PRAVA for validation set	334
7.2.2.5.8	Residual vs. predicted conc. plot for EZE and PRAVA	335
7.2.2.5.9	Residual vs. predicted conc. plot for EZE and PRAVA	335
7.2.2.5.19	Residual vs. predicted conc. plot for EZE	335

List of Figures

7.2.2.5.11	Residual vs. predicted conc. plot for PRAVA	335
7.2.3.1.1	Overlain zero order spectra of EZE and ROSU and binary mixture (1:1)	339
7.2.3.1.2	Overlain 1st order derivative spectra of EZE and ROSU	339
7.2.3.1.3	Calibration curve of EZE at 290.0 nm by FDZC method	341
7.2.3.1.4	Calibration curve of ROSU at 245.6 nm by FDZC method	341
7.2.3.1.1	Overlain IR spectra of EZE and ROSU	345
7.2.3.2.2	Overlain IR spectra of ROSU and EZE at 1879 cm^{-1}	345
7.2.3.2.3	Overlain IR spectra of ROSU and EZE at 965 cm^{-1}	345
7.2.3.2.4	Calibration curve of EZE at 1879 cm^{-1} by IR method	346
7.2.3.2.5	Calibration curve of ROSU at 965 cm^{-1} by IR method	346
7.2.3.3.1	overlain UV spectrum of EZE and ROSU in acetonitrile	349
7.2.3.3.2	Peak of EZE(104 $\mu\text{g/ml}$) and ROSU(113 $\mu\text{g/ml}$) by HPLC Method A	352
7.2.3.3.3	Peak of EZE(104 $\mu\text{g/ml}$) and ROSU(113 $\mu\text{g/ml}$) by HPLC Method A	352
7.2.3.3.4	Calibration curve of EZE by HPLC (Peak Area)	352
7.2.3.3.5	Calibration curve of ROSU by HPLC (Peak Area)	352
7.2.3.3.6	(A) Peak of EZE(104 $\mu\text{g/ml}$) and (B) ROSU(113 $\mu\text{g/ml}$) and (C) combination of EZE and ROSU by HPLC with UV detection	352
7.2.3.3.7	Peaks of binary mixture of EZE and ROSU by HPLC By method B	352
7.2.3.3.8	Calibration curve of EZE by HPLC (Peak Area) method B	354
7.2.3.3.9	Calibration curve of ROSU by HPLC (Peak Area) Method B	354
7.2.3.3.10	Chromatograms of neutral degradation at Rt of EZE and ROSU	357
7.2.3.3.11	Chromatograms of oxidative-degraded of EZE and ROSU at RT	357
7.2.3.3.12	Chromatogram of EZE and ROSU in photostability chamber	357
7.2.3.3.13	Chromatogram of EZE and ROSU in thermal 80C after 48 hrs in Stability oven	358
7.2.3.3.14	Chromatograms of acid hydrolysis of EZE and ROSU at R	358
7.2.3.3.15	Chromatograms of base hydrolysis of EZE and ROSU at RT	358
7.2.3.3.16	Chromatogram of degradation of EZE and ROSU in all condition by method B	359
7.2.3.3.17	Chromatogram of degradation of EZE and ROSU in all condition by method B after 48 hrs	359
7.2.3.4.1	Calibration curve of EZE by HPTLC with UV detection(Peak Area)	364
7.2.3.4.2	Calibration curve of EZE by HPTLC with UV detection(Peak Height)	364
7.2.3.4.3	Calibration curve of ROSU by HPTLC with UV detection (Peak Area)	364
7.2.3.4.4	Calibration curve of ROSU by HPTLC with UV detection (Peak Height)	364
7.2.3.4.5	Single Spectrum of EZE and ROSU by HPTLC with UV detection	365
7.2.3.4.6	Overlain Spectra of EZE and ROSU by HPTLC with UV detection	365
7.2.3.4.7	Chromatogram of EZE and ROSU with UV detection (After detection)	365
7.2.3.5.1	Overlain spectra of EZE, ROSU and their binary mixture showing spectral region 248 nm to 268 nm (21 wavelengths)	369
7.2.3.5.2	Equation of ILS	373
7.2.3.5.3	Equation of CLS	374

List of Figures

7.2.3.5.4	Linearity plots of EZE and ROSU for validation set	377
7.2.3.5.5	Linearity plots of EZE and ROSU for validation set	377
7.2.3.5.6	Linearity plots of EZE for validation set	378
7.2.3.5.7	Linearity plots of ROSU for validation set	378
7.2.3.5.8	Residual vs. predicted concentration plot for EZE and ROSU	378
7.2.3.5.9	Residual vs. predicted concentration plot for EZE and ROSU	378
7.2.3.5.10	Residual vs. predicted concentration plot for EZE	379
7.2.3.5.11	Residual vs. predicted concentration plot for ROSU	379
7.2.4.1.1	Overlain zero order spectra of EZE and LOVA and binary mixture 1:1	383
7.2.4.1.2	Overlain 1st order UV spectra of EZE and LOVA	383
7.2.4.1.3	Overlain 1 st order derivative UV spectra of EZE and LOVA	383
7.2.4.1.4	Overlain ratio spectra of EZE (5 µg/ml LOVA as divisor)	384
7.2.4.1.5	Overlain ratio spectra of LOVA (10 µg/ml EZE as divisor)	384
7.2.4.1.6	Overlain ratio spectra of EZE (5 µg/ml LOVA as divisor)	384
7.2.4.1.7	Overlain ratio derivative spectra of EZE (5 µg/ml LOVA as divisor)	384
7.2.4.1.8	Overlain ratio spectra of LOVA (10 µg/ml EZE as divisor)	384
7.2.4.1.9	Overlain ratio derivative spectra of LOVA (10 µg/ml EZE as divisor)	384
7.2.4.1.10	Calibration curve of EZE at 265.2 nm by FDZC method	384
7.2.4.1.11	Calibration curve of LOVA at 245.4 nm by FDZC method	386
7.2.4.1.12	Calibration curve of EZE and LOVA by RDZC method	386
7.2.4.2.1	Overlain IR spectra of EZE and LOVA	395
7.2.4.2.2	Overlain IR spectra of LOVA and EZE at 1510.16 cm ⁻¹	395
7.2.4.2.3	Overlain IR spectra of LOVA and EZE at 3542.99cm ⁻¹	395
7.2.4.2.4	Calibration curve of EZE at 1510.16cm ⁻¹ by IR method	395
7.2.4.2.5	Calibration curve of LOVA at 3542.99cm ⁻¹ by IR method	395
7.2.4.3.1	Overlain spectra of EZE, LOVA and their binary mixture showing spectral region 237 nm to 258 nm (21 wavelengths)	396
7.2.4.3.2	Equation of ILS	400
7.2.4.3.3	Equation of CLS	401
7.2.4.3.4	Linearity plots of EZE and LOVA for validation set	403
7.2.4.3.5	Linearity plots of EZE and LOVA for validation set	403
7.2.4.3.6	Linearity plots of EZE for validation set	404
7.2.4.3.7	Linearity plots of LOVA for validation set	404
7.2.4.3.8	Residual vs. predicted concentration plot for EZE and LOVA	405
7.2.4.3.9	Residual vs. predicted concentration plot for EZE and LOVA	405
7.2.4.3.10	Residual vs. predicted concentration plot for EZE	405
7.2.4.3.11	Residual vs. predicted concentration plot for LOVA	405
7.2.5.1	Calibration curve of SIMVA by HPTLC (Peak Area)	410
7.2.5.2	Calibration curve of NICO by HPTLC (Peak Area)	410
7.2.5.3	Chromatogram of SIMVA and NICO (After detection)	410
7.2.5.4	Single Spectrum of SIMVA and NICO by HPTLC	411
7.2.5.5	Vertical Spectra of SIMVA and NICO by HPTLC	411
7.2.6.1	Calibration curve of EZE, SIMVA and LOVA by HPTLC (Peak Area)	416
7.2.6.2	Chromatogram of EZE and SIMVA with UV detection (After detection)	416
7.2.6.3	Chromatogram of EZE and LOVA with UV detection (After detection)	416
7.2.6.4	Single Spectrum of EZE and SIMVA by HPTLC	417

List of Figures

7.2.6.5	Vertical Spectra of EZE and SIMVA by HPTLC	417
7.2.6.6	Single Spectrum of EZE and LOVA by HPTLC	417
7.2.6.7	Vertical Spectra of EZE and LOVA by HPTLC	417
7.2.7.1	overlain UV spectrum of EZE, SIMVA and LOVA in ACN Optimization of mobile phase	421
7.2.7.2	Peak of ACN Blank by HPLC with UV detection	425
7.2.7.3	Peak of (A) SIMVA, (B) EZE, (C) LOVA and (D) EZE, SIMVA and LOVA by HPLC with UV detection	425
7.2.7.4	Calibration curve of EZE, SIMVA and LOVA by HPLC method	425
7.2.7.5	Chromatogram of SIMVA in acidic condition	430
7.2.7.6	Chromatogram of SIMVA in basic condition	430
7.2.7.7	Chromatogram of SIMVA in Neutral condition	430
7.2.7.8	Chromatogram of SIMVA in thermal condition	430
7.2.7.9	Chromatogram of SIMVA in oxidative	430
7.2.7.10	Chromatogram of SIMVA in photolytic condition	430
7.2.7.11	Chromatogram of EZE and SIMVA in neutral condition (water) at 7 pH	430
7.2.7.12	Chromatogram of EZE and SIMVA in 30 % H ₂ O ₂ at room temperature	430
7.2.7.13	Chromatogram of EZE and SIMVA in 0.5 N HCL	431
7.2.7.14	Chromatogram of EZE and SIMVA in 0.1N NaOH	431
7.2.7.15	Chromatogram of EZE and SIMVA in photostability chamber	431
7.2.7.16	Chromatogram of EZE and SIMVA in Stability oven	431
7.2.7.17	Chromatogram of LOVA in 0.5 N HCl	431
7.2.7.18	Chromatogram of LOVA in 0.1 N NaOH	431
7.2.7.19	Chromatogram of LOVA in Neutral	431
7.2.7.20	Chromatogram of LOVA in 30% H ₂ O ₂	431
7.2.7.21	Chromatogram of LOVA in stability oven	432
7.2.7.22	Chromatogram of LOVA in photo stability condition	432
7.2.7.23	Chromatogram of EZE and LOVA in neutral condition (water) at 7 pH	432
7.2.7.24	Chromatogram of EZE and LOVA in 30 % H ₂ O ₂ at room temperature	432
7.2.7.25	Chromatogram of EZE and LOVA in 0.5 N HCL	432
7.2.7.26	Chromatogram of EZE and LOVA in 0.1N NaOH	432
7.2.7.27	Chromatogram of EZE and LOVA in photostability chamber	432
7.2.7.28	Chromatogram of EZE and LOVA in Stability oven	432
7.2.7.29	Chromatogram of (A) LOVA acid std. (B) SIMVA acid std, and (C) EZE, SIMVA and LOVA std.	433
7.2.7.30	Chromatogram of EZE, SIMVA and LOVA in 0.5N HCL at room temp. at 0min, 24 h and 48 h.	433
7.2.7.31	Chromatogram of (A) 0 min EZE, SIMVA and LOVA, (B) 0 min SIMVA, (C) 0 min LOVA, (D) 0 min EZE, (E) 48 h SIMVA, (F) LOVA 48 h and (G) 48 h EZE, SIMVA and LOVA in 0.5 N HCl at room temp.	434
7.2.7.32	Chromatogram of (A) 0 min EZE, SIMVA and LOVA, (B) 0 min SIMVA, (C) 0 min LOVA, (D) 0 min EZE, (E) 48 h SIMVA, (F) LOVA 48 h and (G) 48 h EZE, SIMVA and LOVA in 0.1 N NaOH at room temp.	434
7.2.7.33	Chromatogram of (A) 0 min EZE, SIMVA and LOVA, (B) 0 min SIMVA, (C) 0 min LOVA, (D) 0 min EZE, (E) 48 h SIMVA, (F) LOVA	434

List of Figures

	48 h and (G) 48 h EZE, SIMVA and LOVA in H ₂ O at room temp.	
7.2.7.34	Chromatogram of (A) 0 min EZE, SIMVA and LOVA, (B) 0 min SIMVA, (C) 0 min LOVA, (D) 0 min EZE, (E) 48 h SIMVA, (F) LOVA 48 h and (G) 48 h EZE, SIMVA and LOVA in 30% H ₂ O ₂ at room temp	435
7.2.7.35	Chromatogram of (A) 0 min EZE, SIMVA and LOVA, (B) 0 min SIMVA, (C) 0 min LOVA, (D) 0 min EZE, (E) 48 h SIMVA, (F) LOVA 48 h and (G) 48 h EZE, SIMVA and LOVA in stability oven at 80C	435
7.2.7.36	Chromatogram of (A) 0 min EZE, SIMVA and LOVA, (B) 0 min SIMVA, (C) 0 min LOVA, (D) 0 min EZE, (E) 48 h SIMVA, (F) LOVA 48 h and (G) 48 h EZE, SIMVA and LOVA in stability chamber	435
7.2.8.1	ACN, plasma blank, SIMVA and SIMVA acid by HPLC with UV detection	441
7.2.8.2	Linearity of SIMVA by HPLC with UV detection	441
7.2.8.3	ACN, plasma, LOVA and LOVA acid by HPLC with UV detection	441
7.2.8.4	Linearity of LOVA by HPLC with UV detection	441
7.2.8.5	Calibration curve of SIMVA by HPLC with UV detection (Peak Area)	441
7.2.8.6	Calibration curve of LOVA by HPLC with UV detection (Peak Area)	441