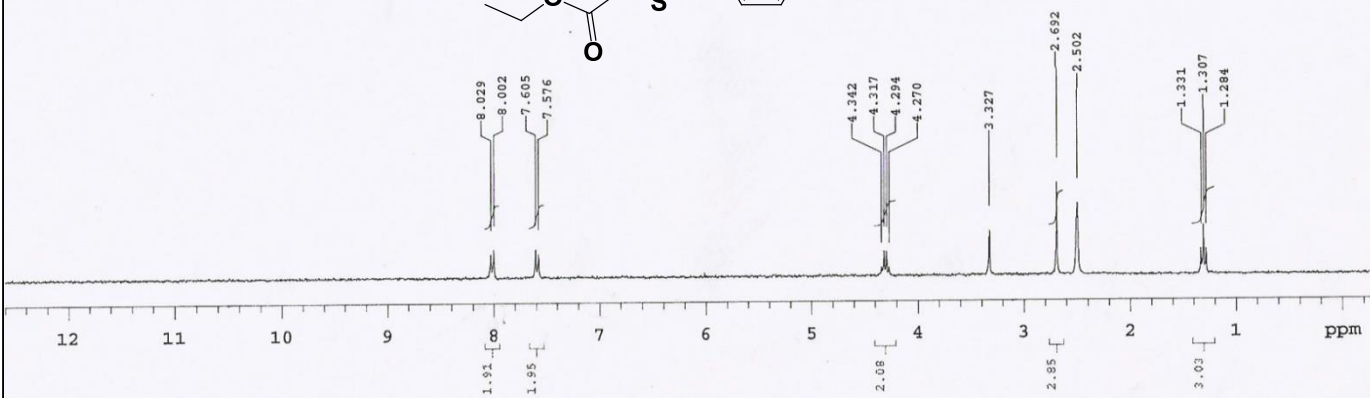
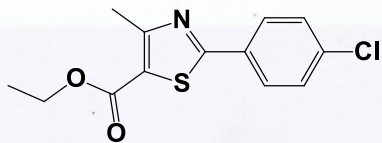


SYNTHESIS OF NOVEL THIAZOL-5-YL-PYRAZOLES AND THEIR ANTIMICROBIAL EVALUATION

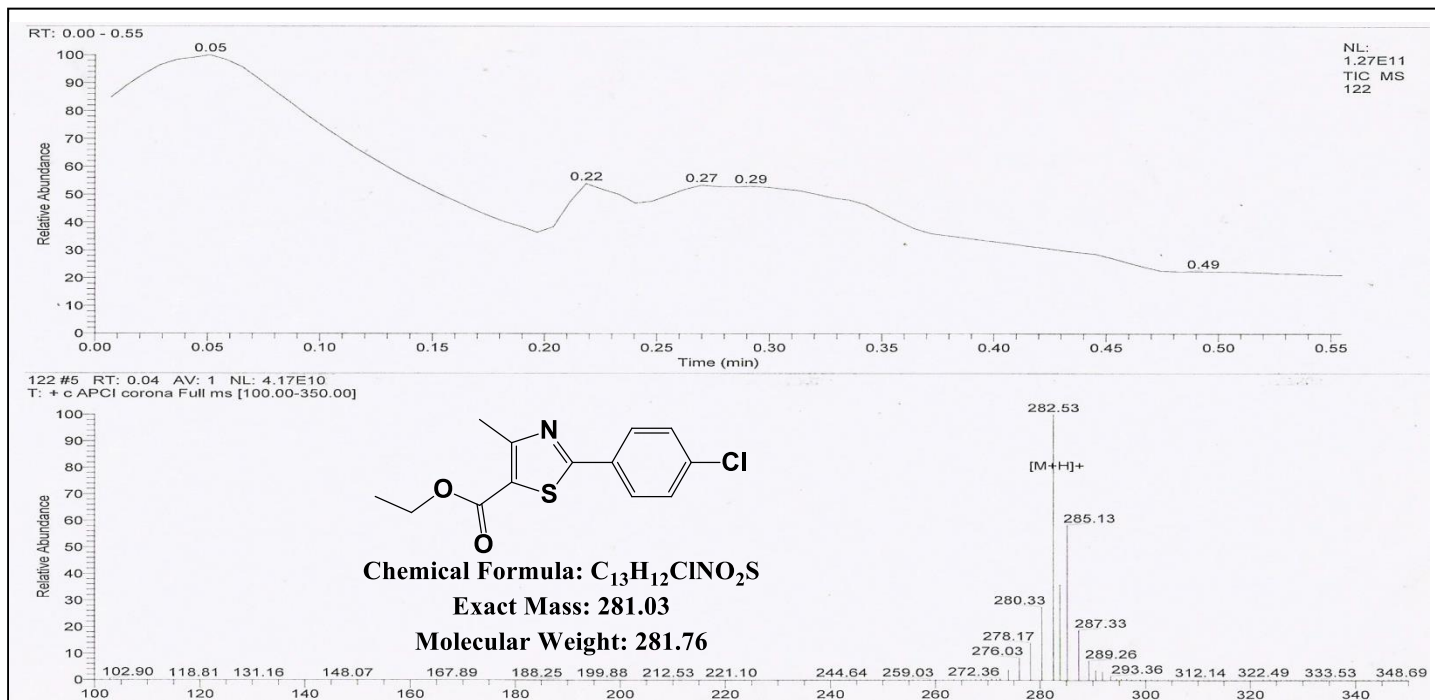
**Sanjay U. Deshmukh,^{1*} Raghunath B. Toche,^{2*} Sushama J. Takate,³ Supriya
P. Salve,³ Ram W. Sabnis⁴**

^{1*} Department of Chemistry, KRT Arts, BH Commerce & AM Science College, Nashik 422002, India; Email: sanjay_deshmukh08@rediffmail.com ^{2†} Dadasheb Bidkar Arts, Science & Commerce College, Peth, Nashik 422208, India; [†]Affiliated to SPP University, Pune, India; ³ Department of Chemistry, New Art, Commerce and Science College, Ahmednagar 414001, India; ⁴ Georgia-Pacific LLC, 133 Peachtree Street NE, Atlanta, GA 30303, USA

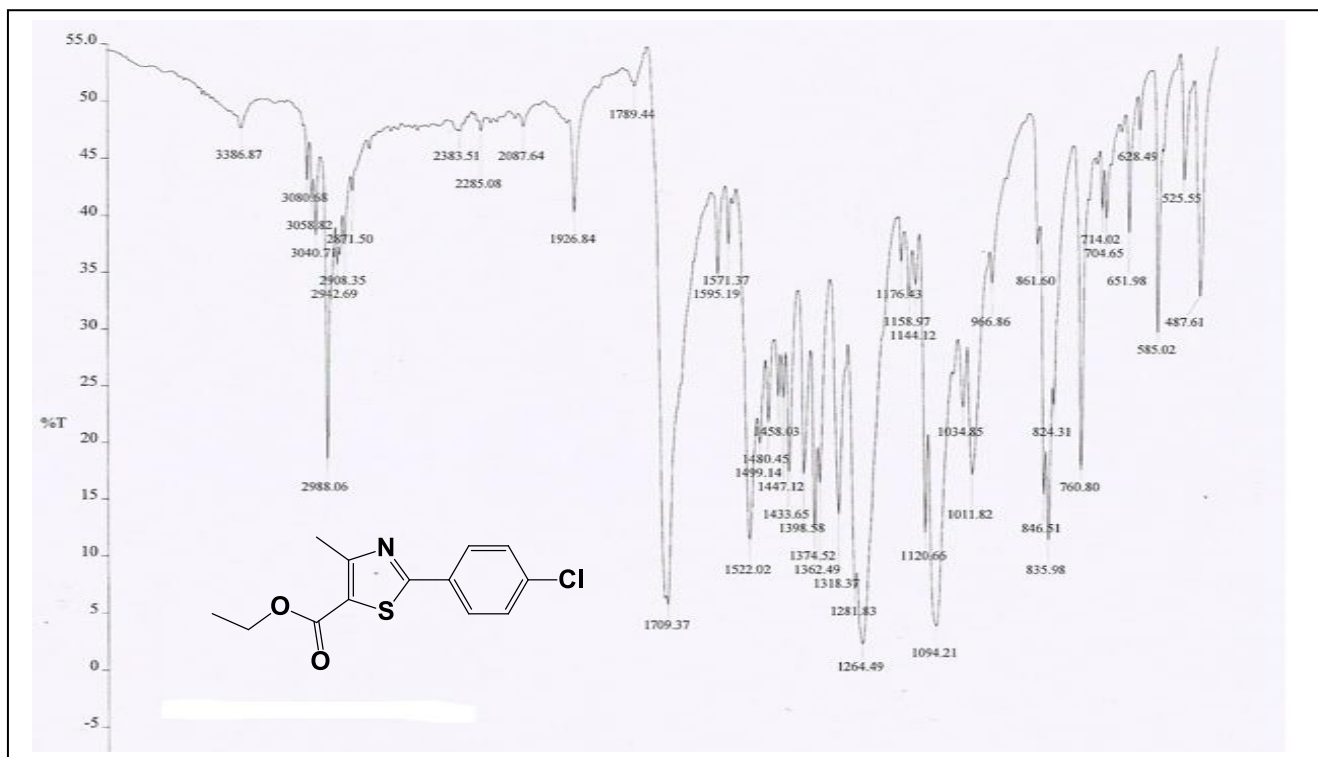
Supplementary data material



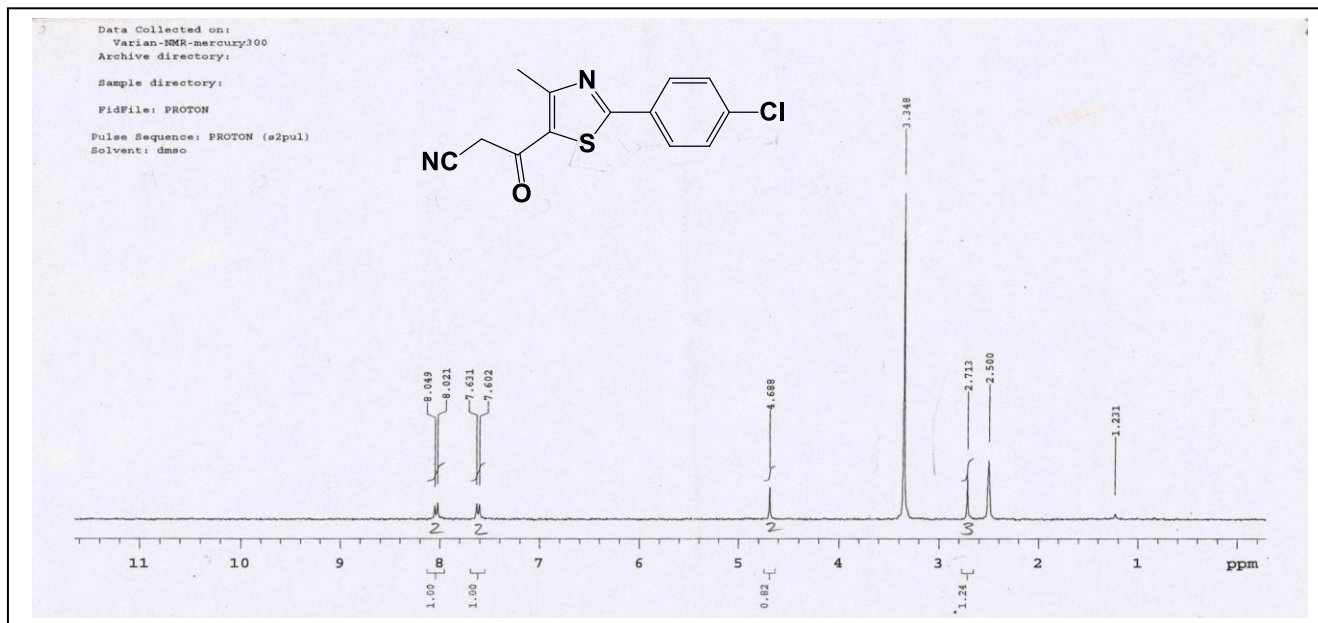
Spectrum No 1 : ^1H NMR Spectra(DMSO- d_6) - ethyl 2-(4-chlorophenyl)-4-methylthiazole-5-carboxylate 5



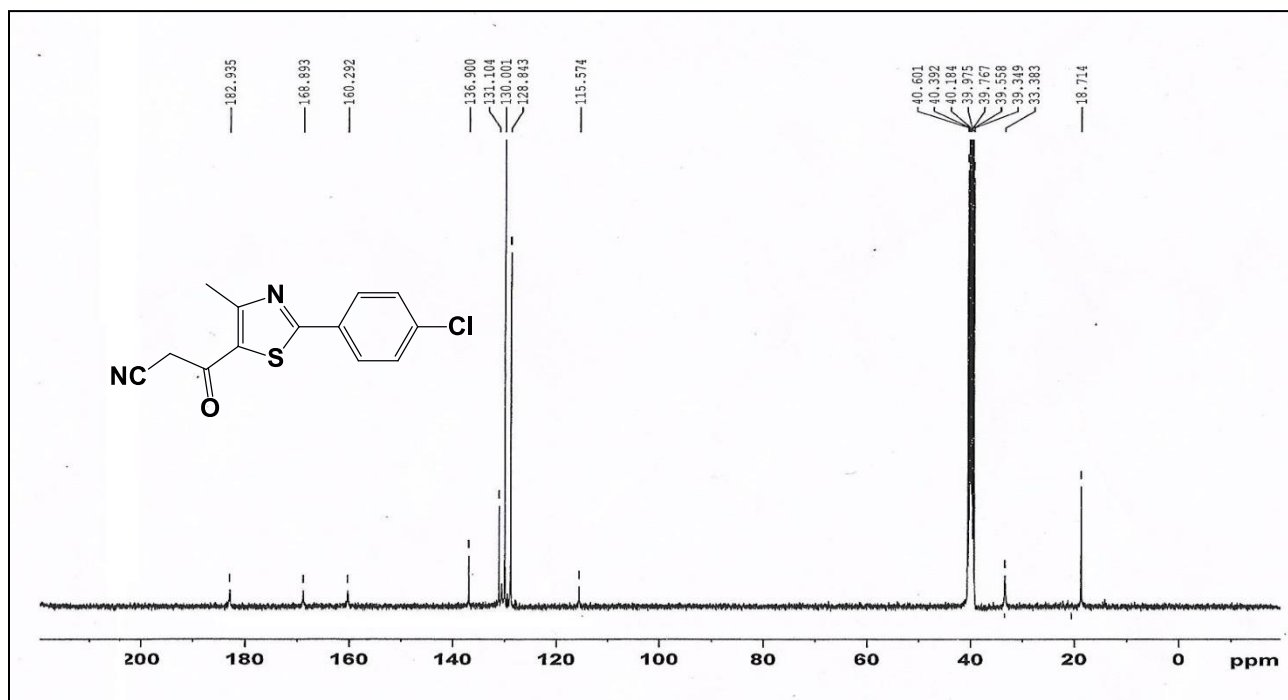
Spectrum No 2: Mass Spectra of ethyl 2-(4-chlorophenyl)-4-methylthiazole-5-carboxylate 5



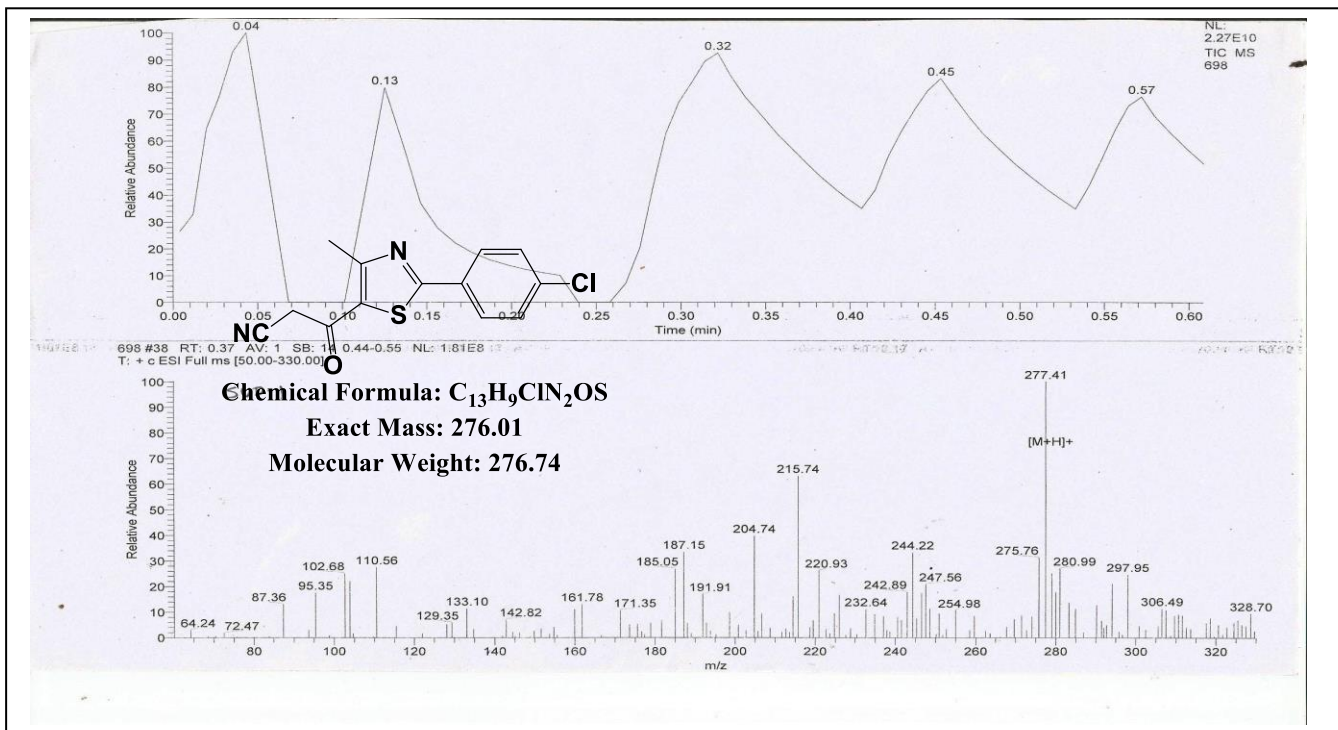
Spectrum No 3: IR Spectra(KBr) of ethyl 2-(4-chlorophenyl)-4-methylthiazole-5-carboxylate 5



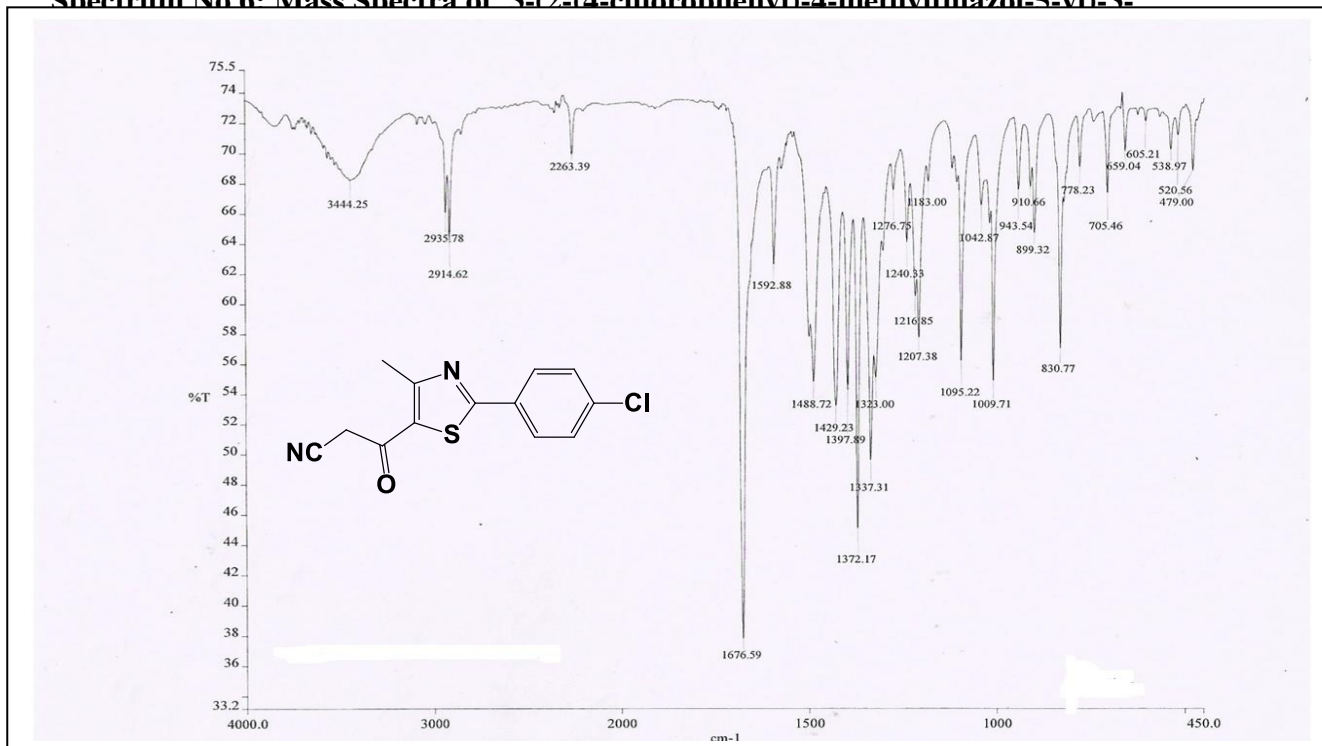
Spectrum No 4 :¹H NMR Spectra(DMSO-d₆) 3-(2-(4-chlorophenyl)-4-methylthiazol-5-yl)-3-oxopropanenitrile 6



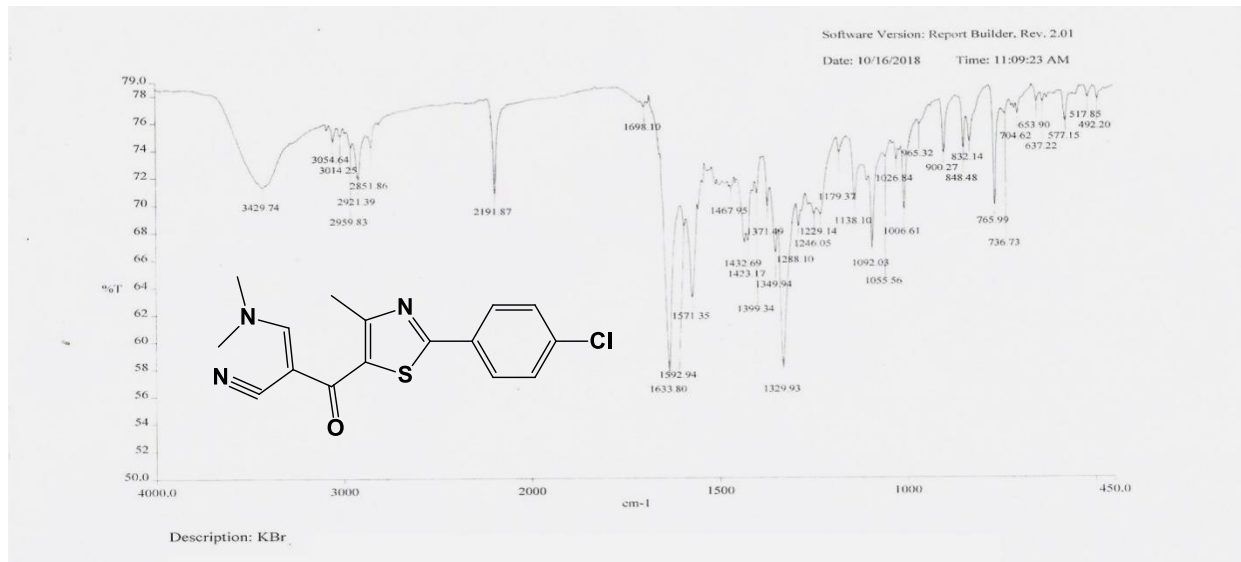
Spectrum No 5: ¹³C NMR Spectra(DMSO-d₆) of 3-(2-(4-chlorophenyl)-4-methylthiazol-5-yl)-3-oxopropanenitrile 6



Spectrum No 6: Mass Spectra of 3-(2-(4-chlorophenyl)-4-methylthiazol-5-yl)-3-



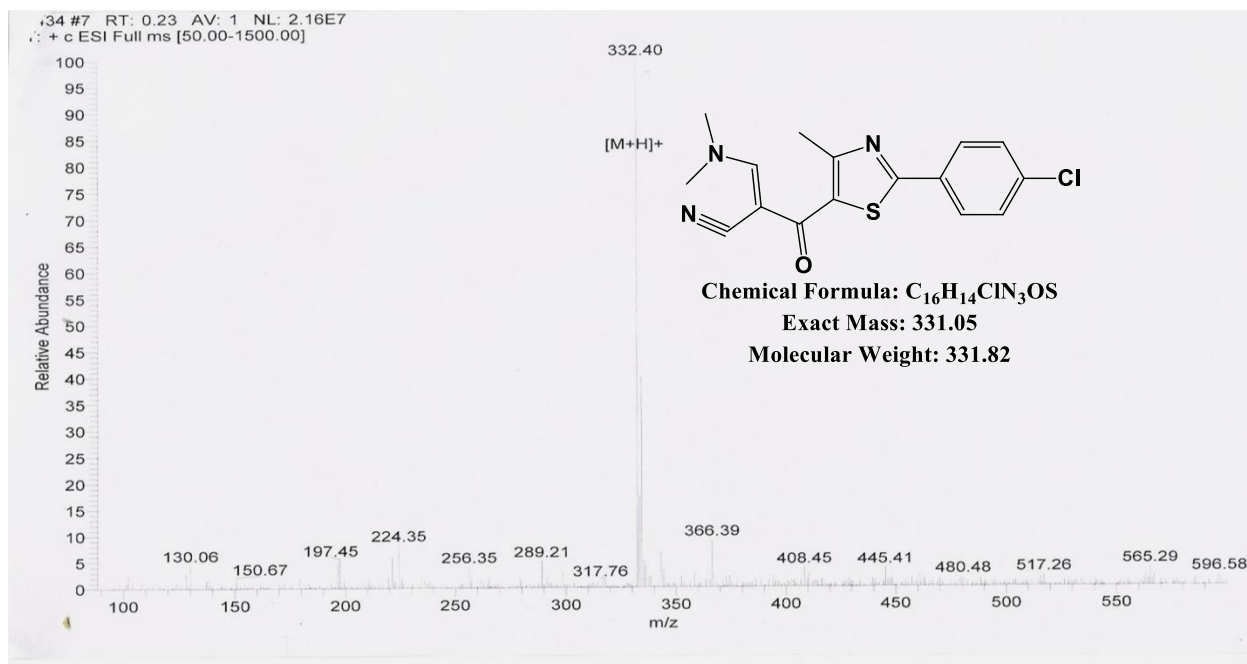
Spectrum No 7: IR Spectra(KBr) of 3-(2-(4-chlorophenyl)-4-methylthiazol-5-yl)-3-oxopropanenitrile 6



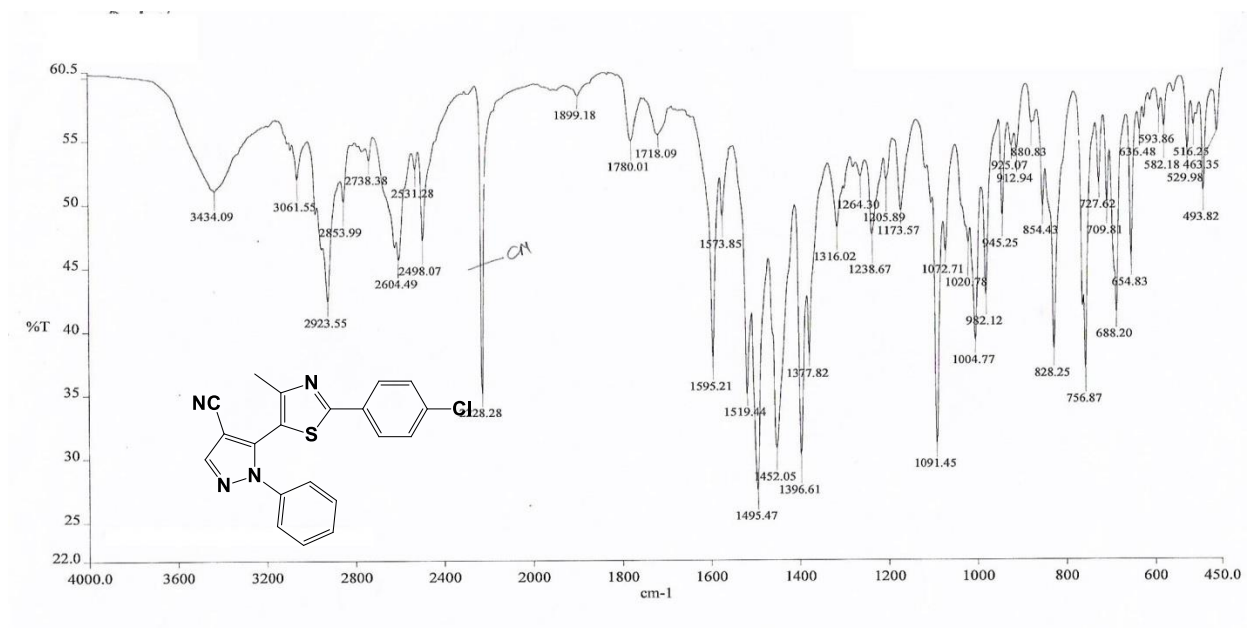
Spectrum No 8: IR Spectra(KBr) of 2-(2-(4-chlorophenyl)-4-methylthiazole-5-carbonyl)-3-(dimethylamino) acrylonitrile 7



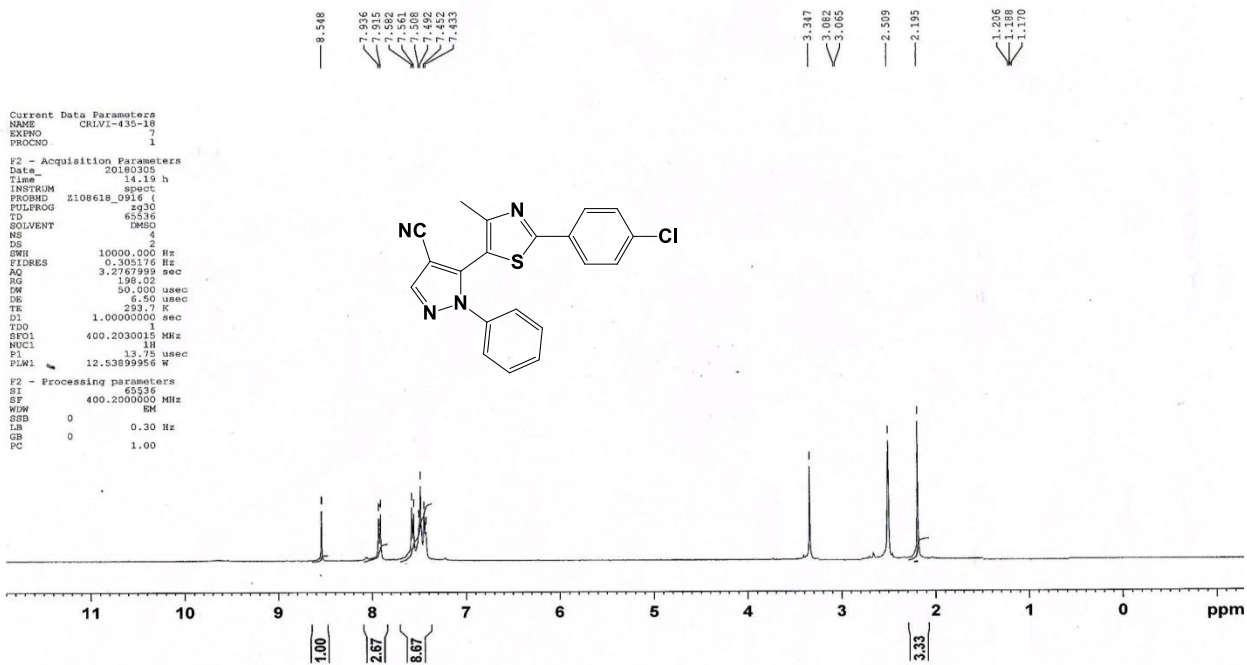
Spectrum No 9: ¹H NMR Spectra(DMSO-d₆) 2-(2-(4-chlorophenyl)-4-methylthiazole-5-carbonyl)-3-(dimethylamino)acrylonitrile 7



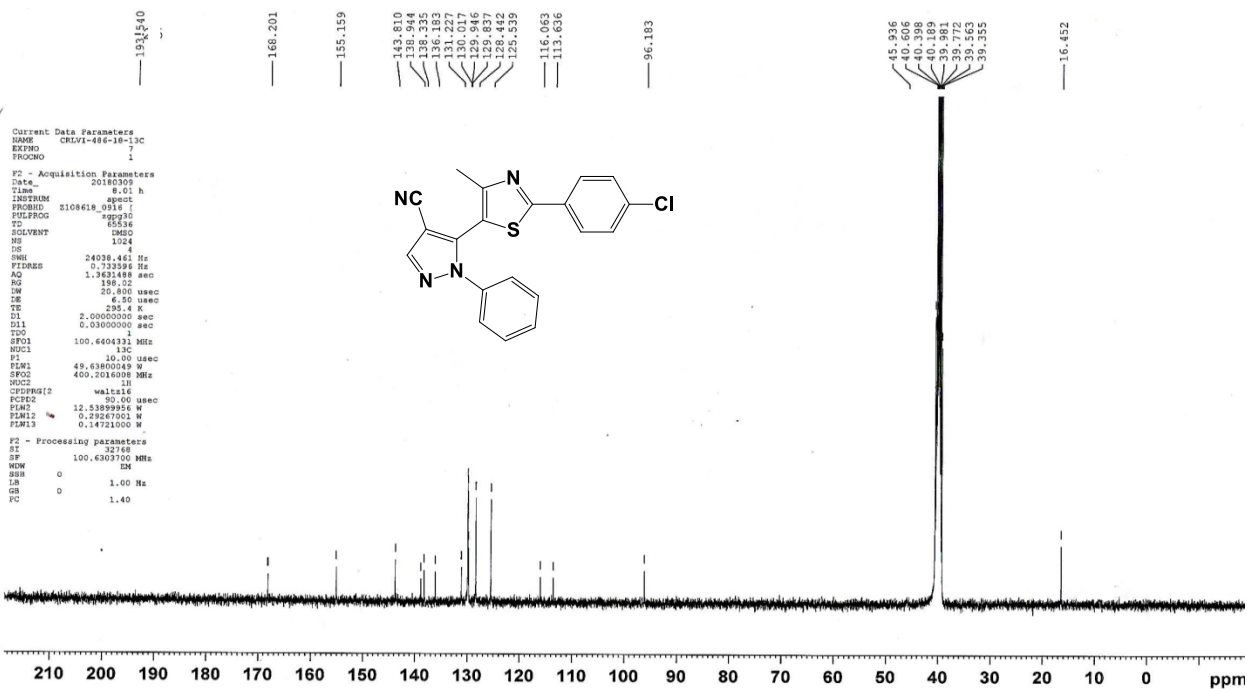
Spectrum No 10: Mass Spectra of 2-(2-(4-chlorophenyl)-4-methylthiazole-5-carbonyl)-3-(dimethylamino)acrylonitrile 7



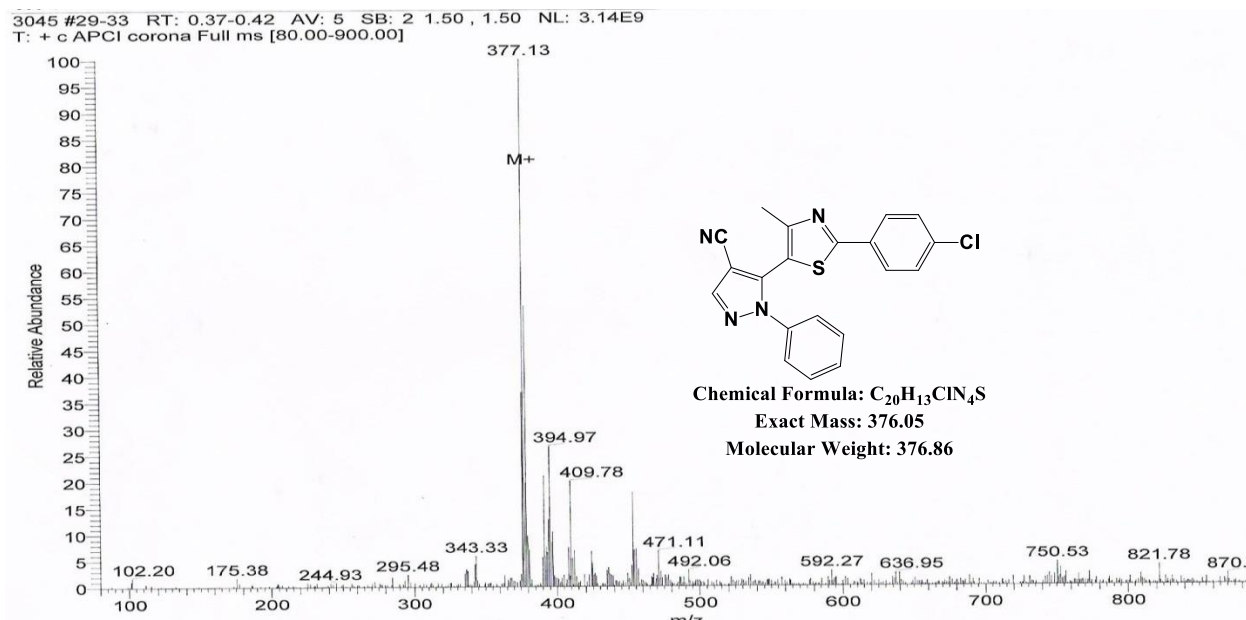
Spectrum No 11: IR Spectra(KBr) of 5-(2-(4-chlorophenyl)-4-methylthiazol-5-yl)-1-phenyl-1H-pyrazole-4-carbonitrile 8a



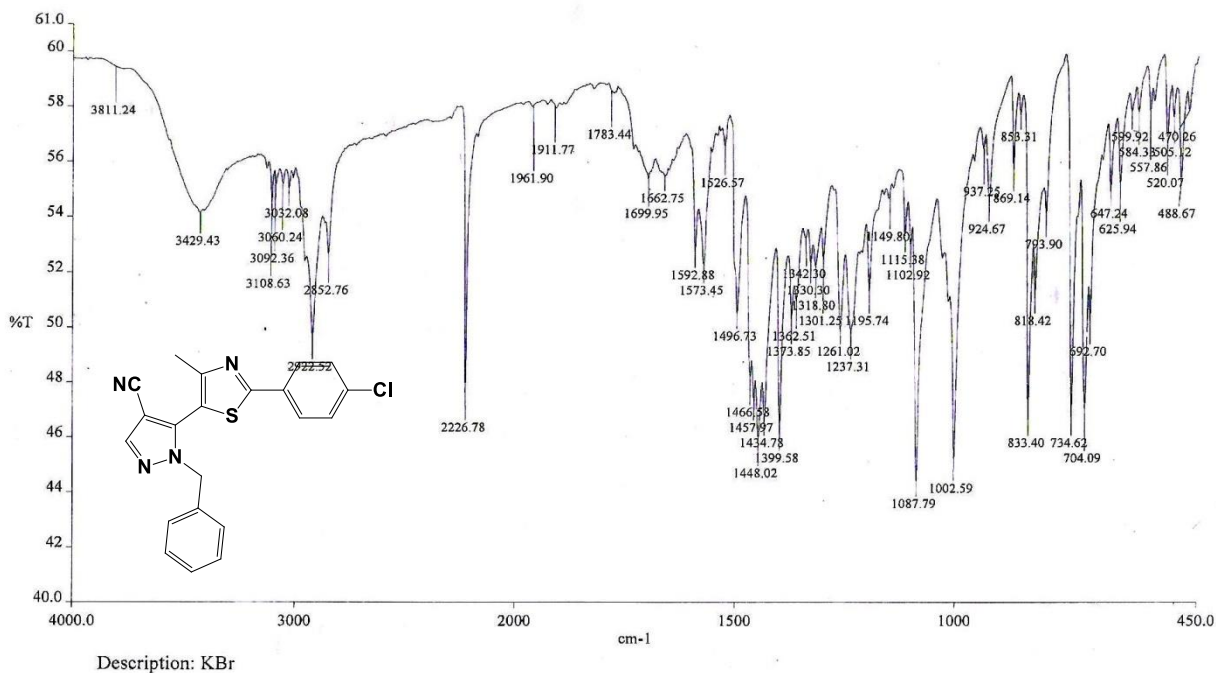
Spectrum No 12: ¹H NMR Spectra(DMSO-d₆) of 5-(2-(4-chlorophenyl)-4-methylthiazol-5-yl)-1-phenyl-1H-pyrazole-4-carbonitrile 8a



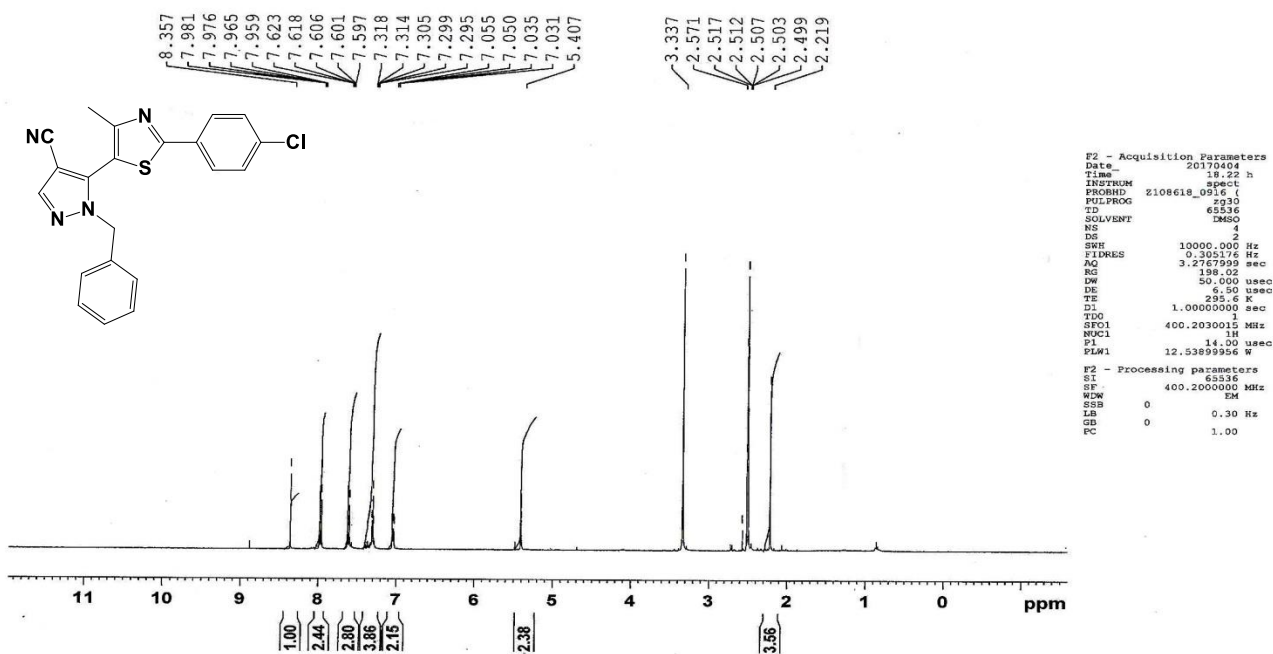
Spectrum No 13: ¹³C NMR Spectra(DMSO-d₆) of 5-(2-(4-chlorophenyl)-4-methylthiazol-5-yl)-1-phenyl-1H-pyrazole-4-carbonitrile 8a



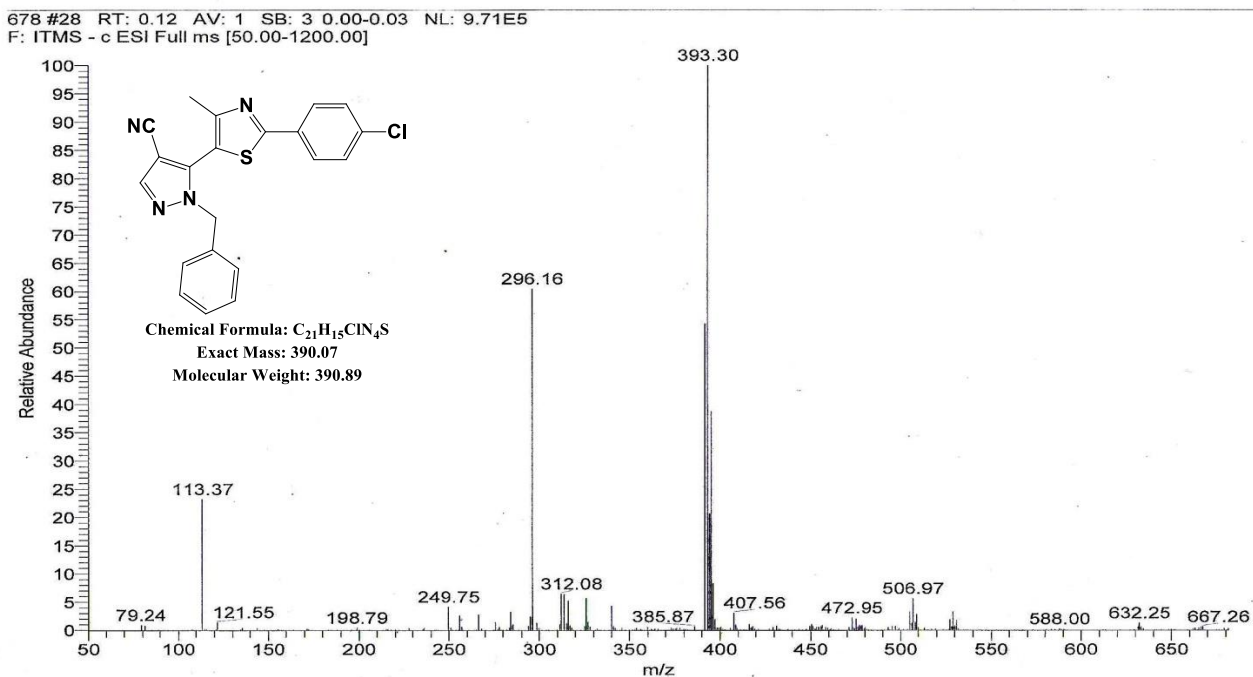
Spectrum No 14: Mass Spectra of 5-(2-(4-chlorophenyl)-4-methylthiazol-5-yl)-1-phenyl-1H-pyrazole-4-carbonitrile 8a



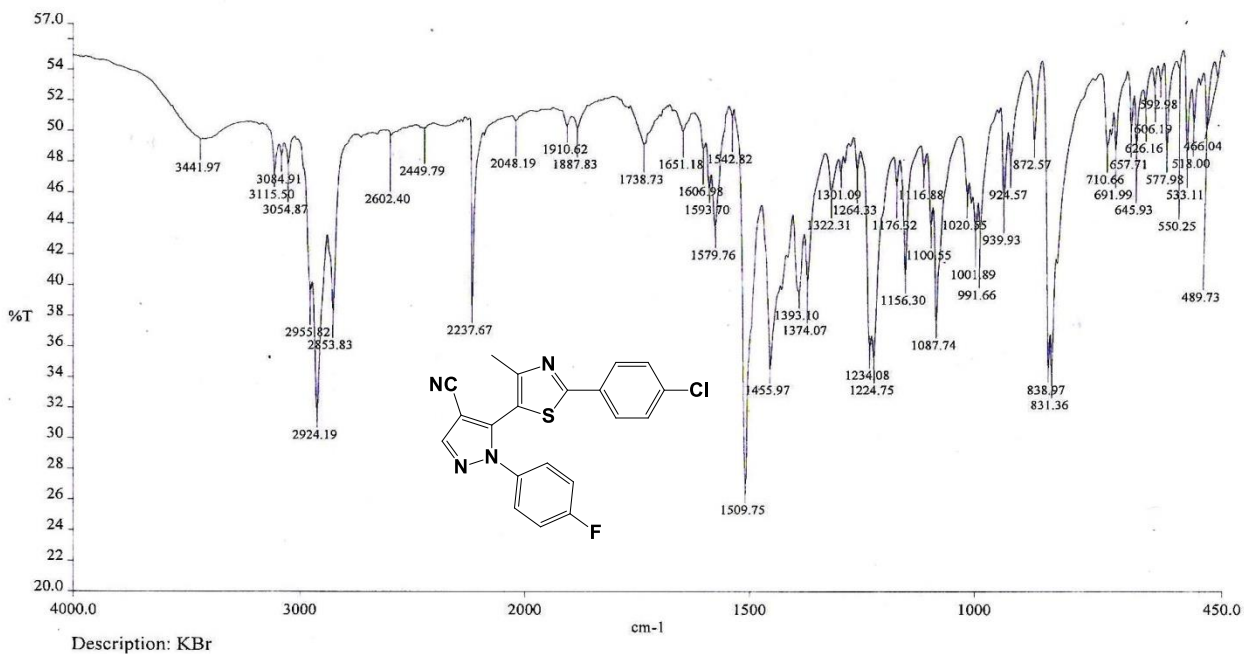
Spectrum No 15: IR Spectra(KBr) of 1-benzyl-5-(2-(4-chlorophenyl)-4-methylthiazol-5-yl)-1H-pyrazole-4-carbonitrile 8b



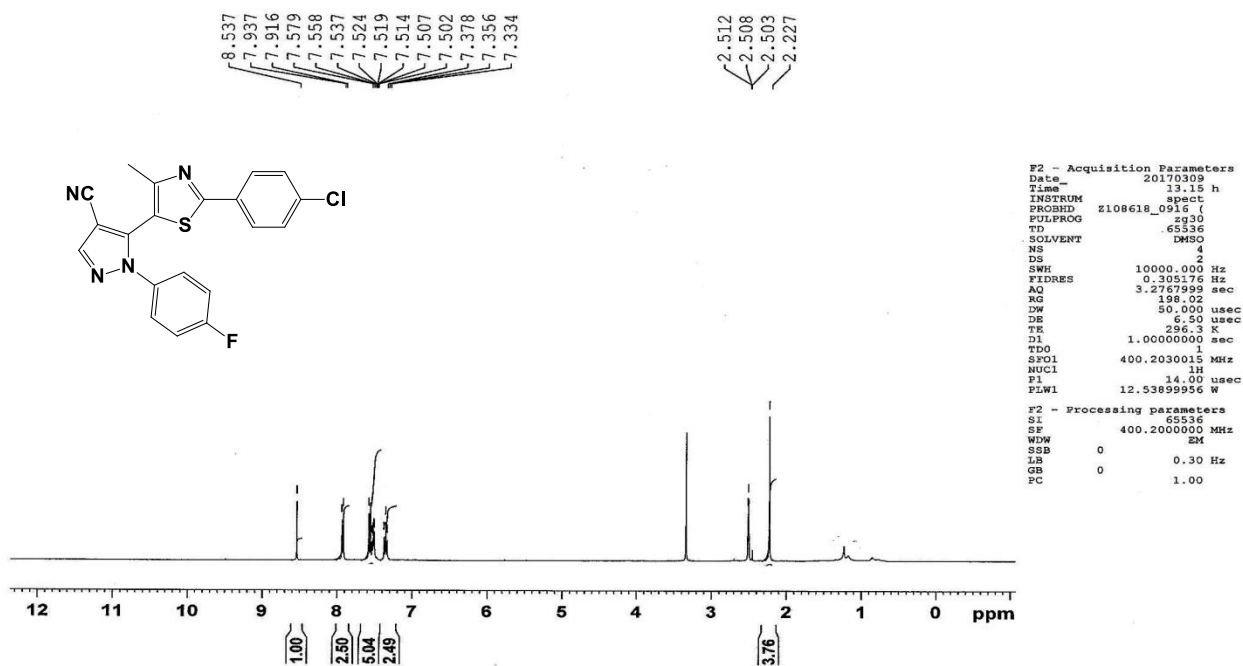
Spectrum No 16: ¹H NMR Spectra(DMSO-d₆) of 1-benzyl-5-(2-(4-chlorophenyl)-4-methylthiazol-5-yl)-1H-pyrazole-4-carbonitrile 8b



Spectrum No 17: Mass Spectra of 1-benzyl-5-(2-(4-chlorophenyl)-4-methylthiazol-5-yl)-1H-pyrazole-4-carbonitrile 8b

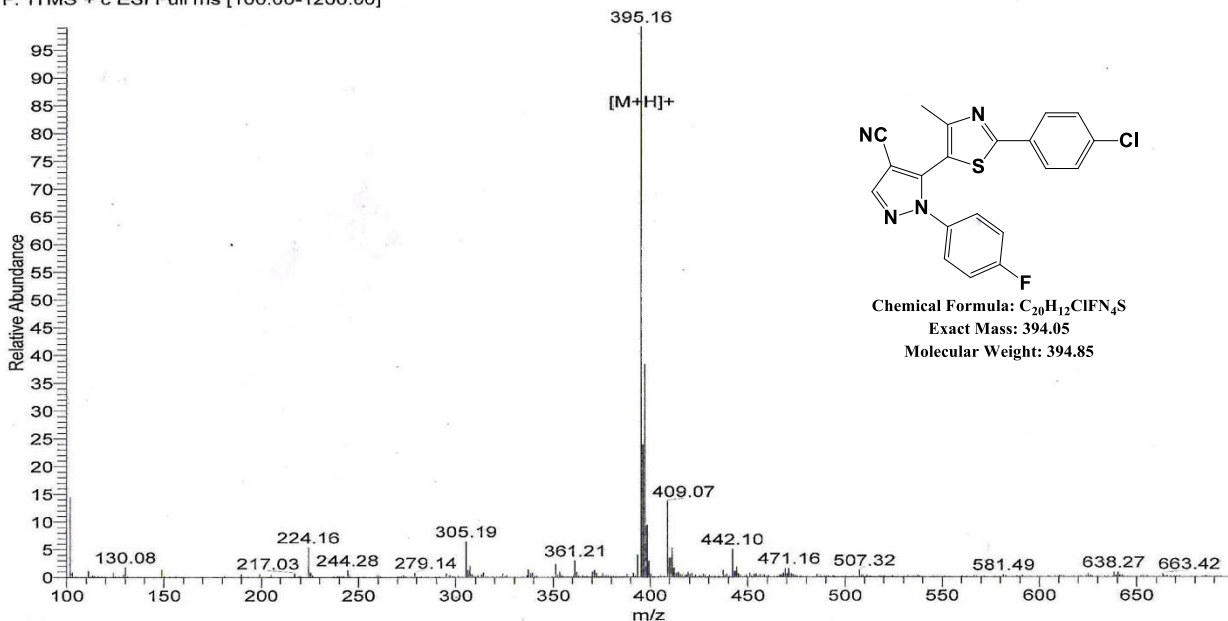


Spectrum No 18: IR Spectra(KBr) of 5-(2-(4-chlorophenyl)-4-methylthiazol-5-yl)-1-(4-fluorophenyl)-1H-pyrazole-4-carbonitrile 8c

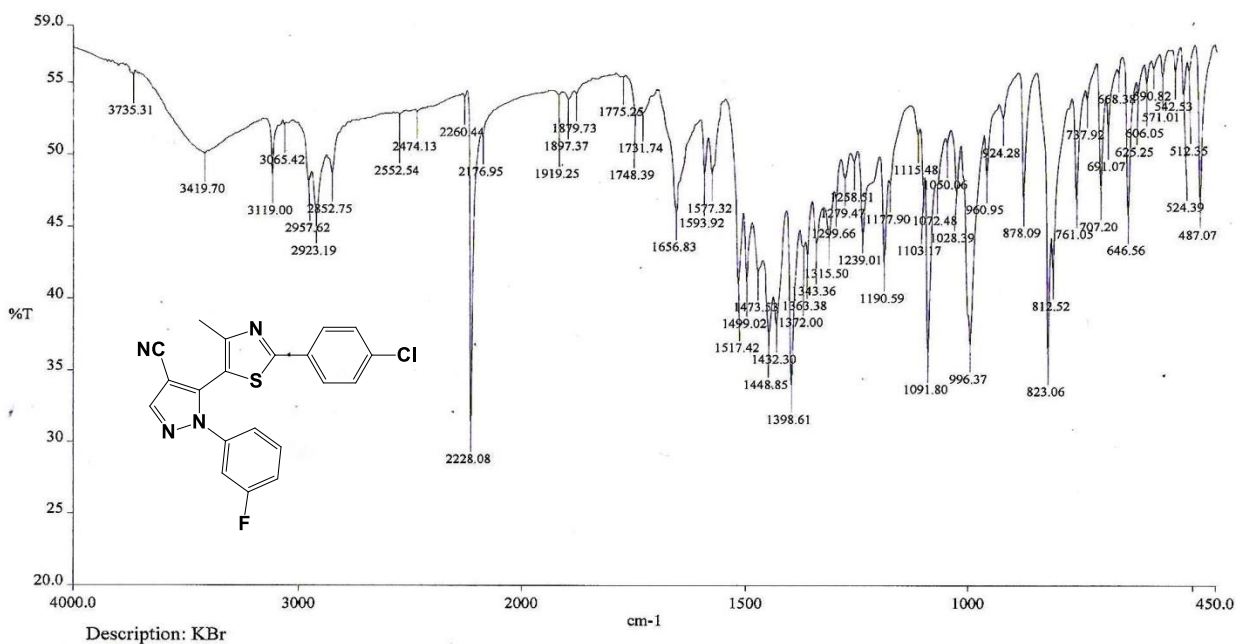


Spectrum No 19: ¹H NMR Spectra(DMSO-d₆) of 5-(2-(4-chlorophenyl)-4-methylthiazol-5-yl)-1-(4-fluorophenyl)-1H-pyrazole-4-carbonitrile 8c

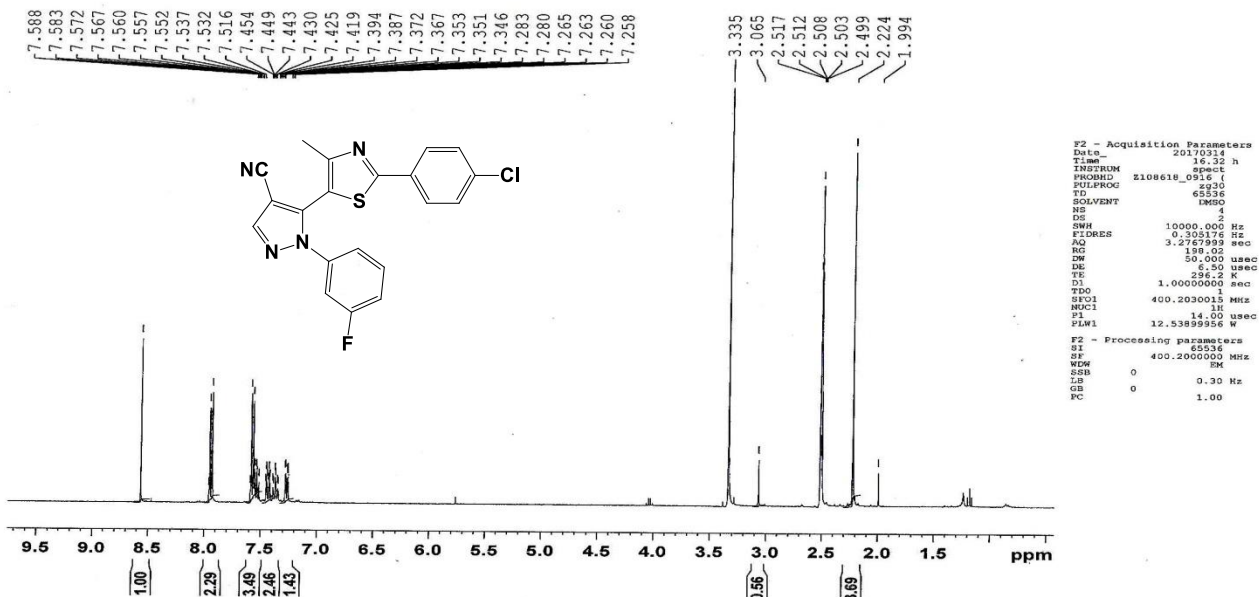
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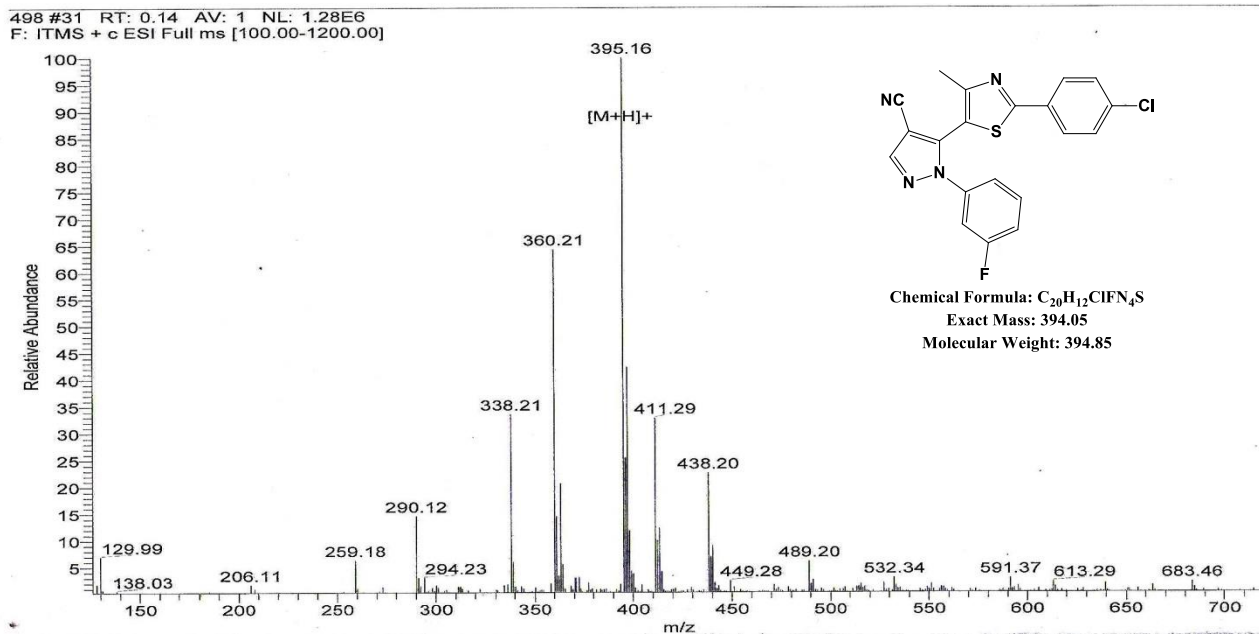
Spectrum No 20: Mass Spectra of 5-(2-(4-chlorophenyl)-4-methylthiazol-5-yl)-1-(4-fluorophenyl)-1H-pyrazole-4-carbonitrile 8c



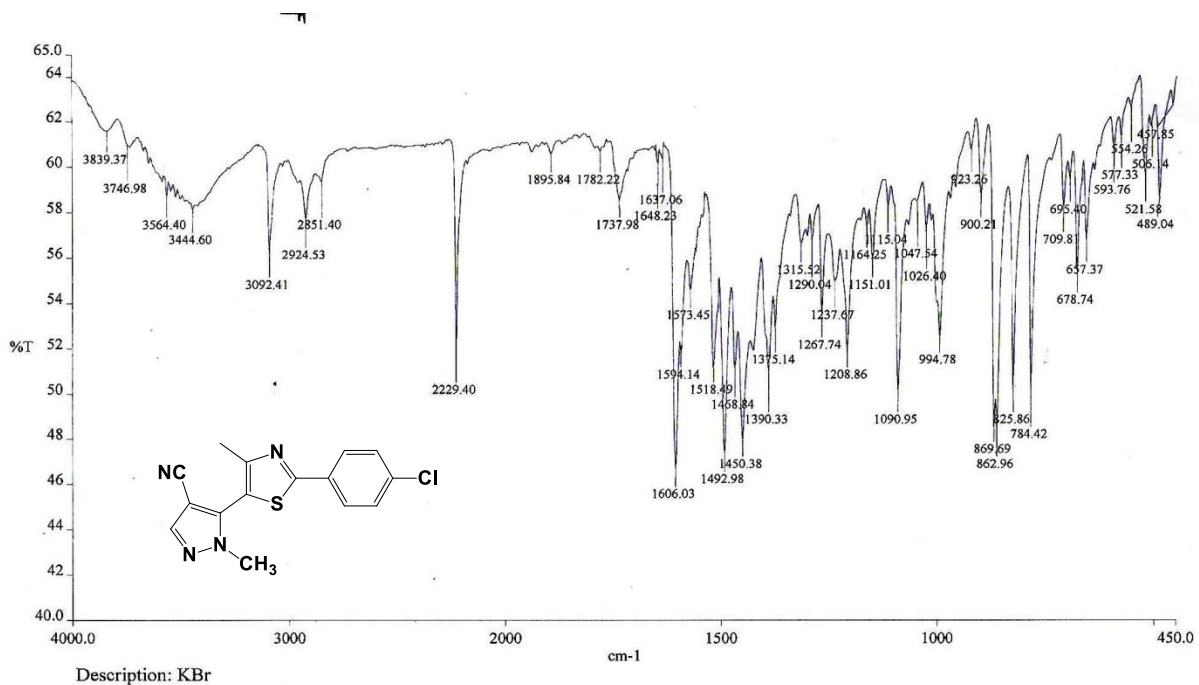
Spectrum No 21: IR Spectra(KBr) of 5-(2-(4-chlorophenyl)-4-methylthiazol-5-yl)-1-(3-fluorophenyl)-1H-pyrazole-4-carbonitrile 8d



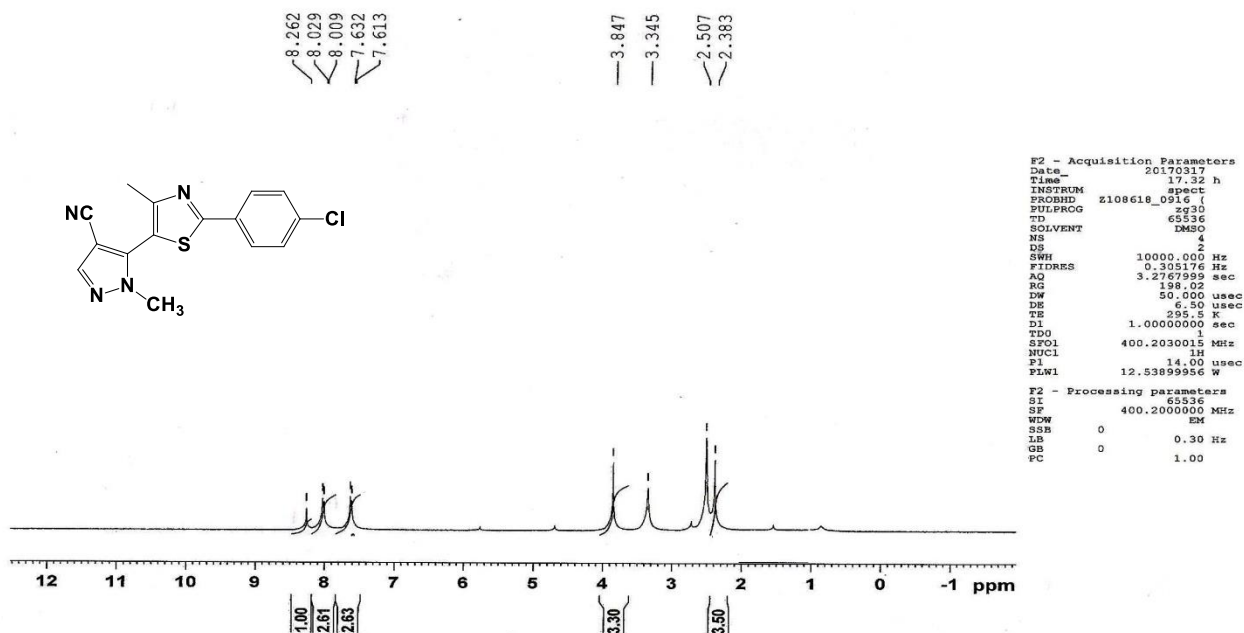
Spectrum No 22: ¹H NMR Spectra(DMSO-d₆) of 5-(2-(4-chlorophenyl)-4-methylthiazol-5-yl)-1-(3-fluorophenyl)-1H-pyrazole-4-carbonitrile 8d



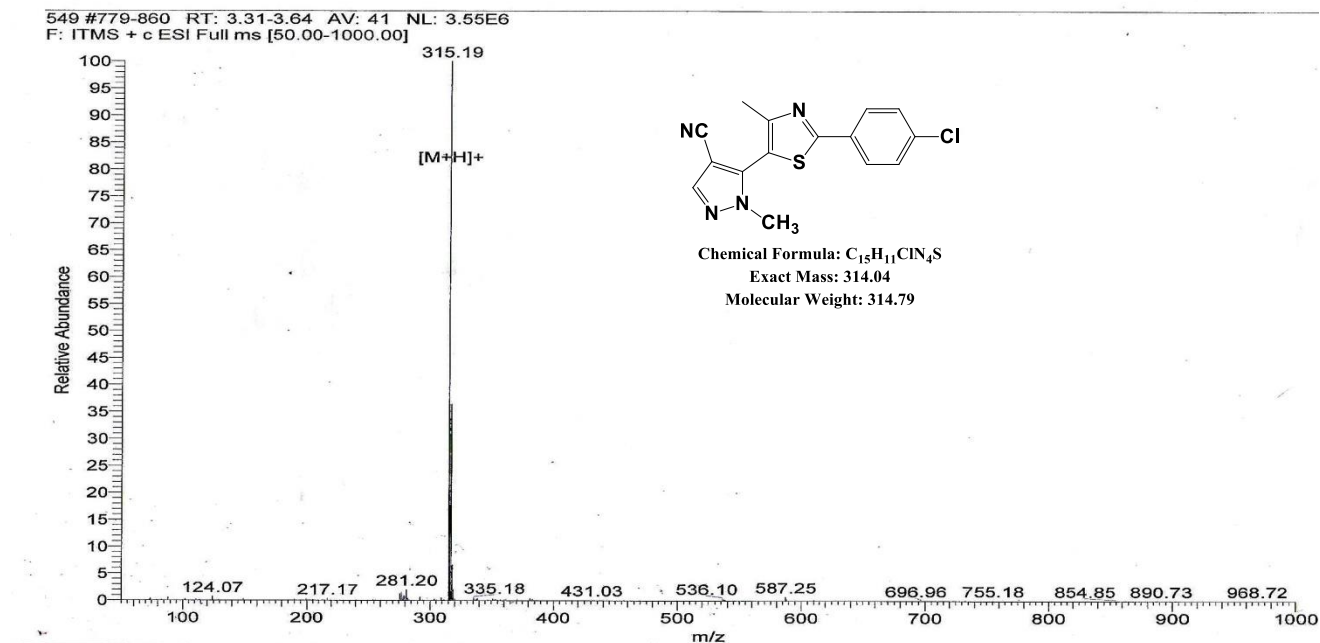
Spectrum No 23: Mass Spectra of 5-(2-(4-chlorophenyl)-4-methylthiazol-5-yl)-1-(3-fluorophenyl)-1H-pyrazole-4-carbonitrile 8d



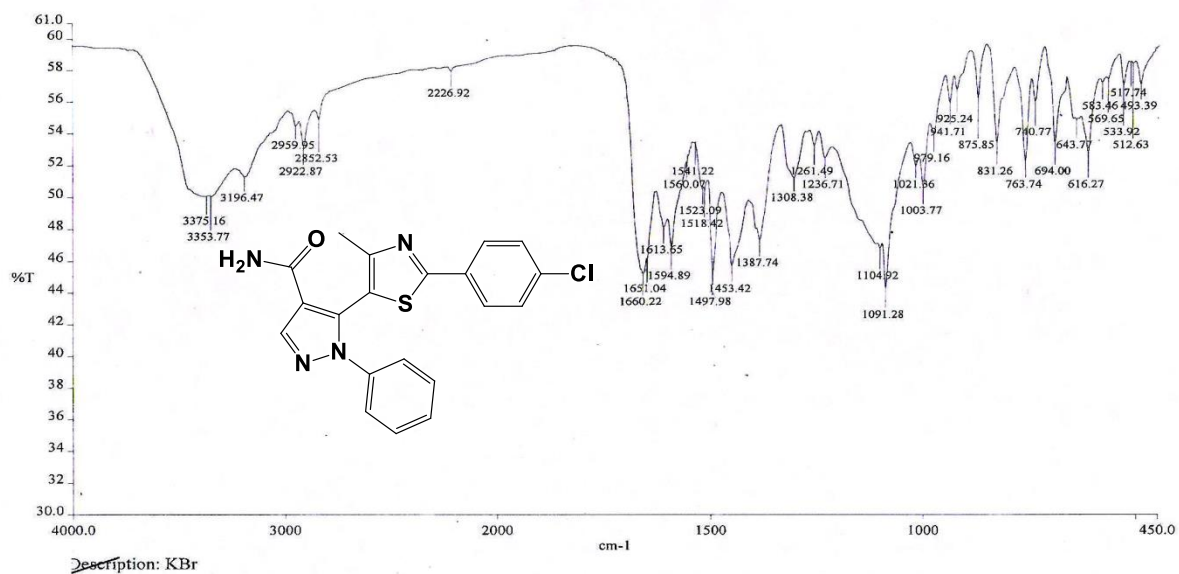
Spectrum No 24: IR Spectra(KBr) of 5-(2-(4-chlorophenyl)-4-methylthiazol-5-yl)-1-methyl-1H-pyrazole-4-carbonitrile 8e



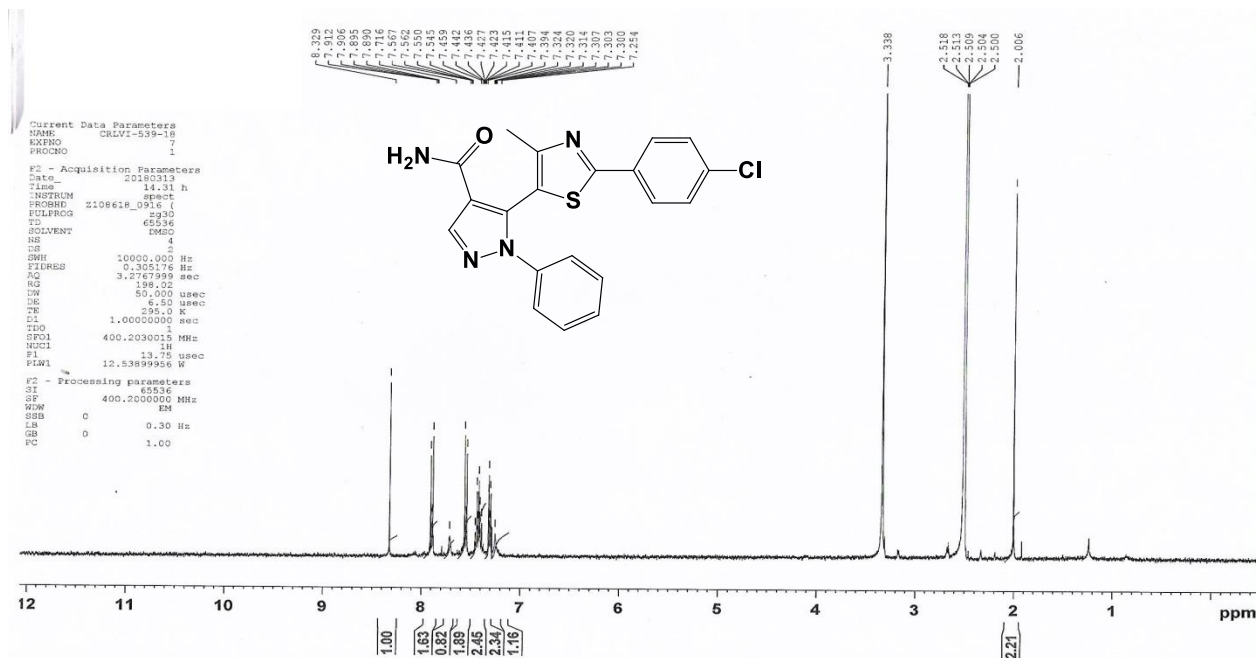
Spectrum No 25: ¹H NMR Spectra(DMSO-d₆) of 5-(2-(4-chlorophenyl)-4-methylthiazol-5-yl)-1-methyl-1H-pyrazole-4-carbonitrile 8e



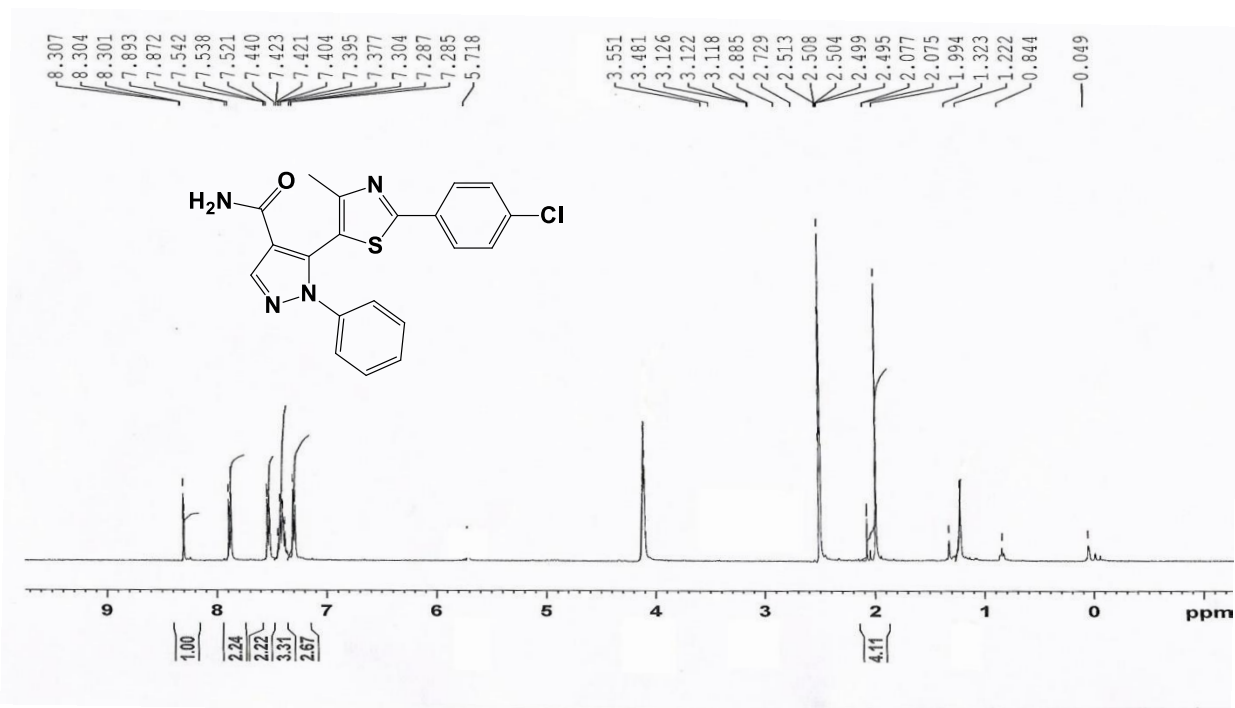
Spectrum No 26: Mass Spectra of 5-(2-(4-chlorophenyl)-4-methylthiazol-5-yl)-1-methyl-1H-pyrazole-4-carbonitrile 8e



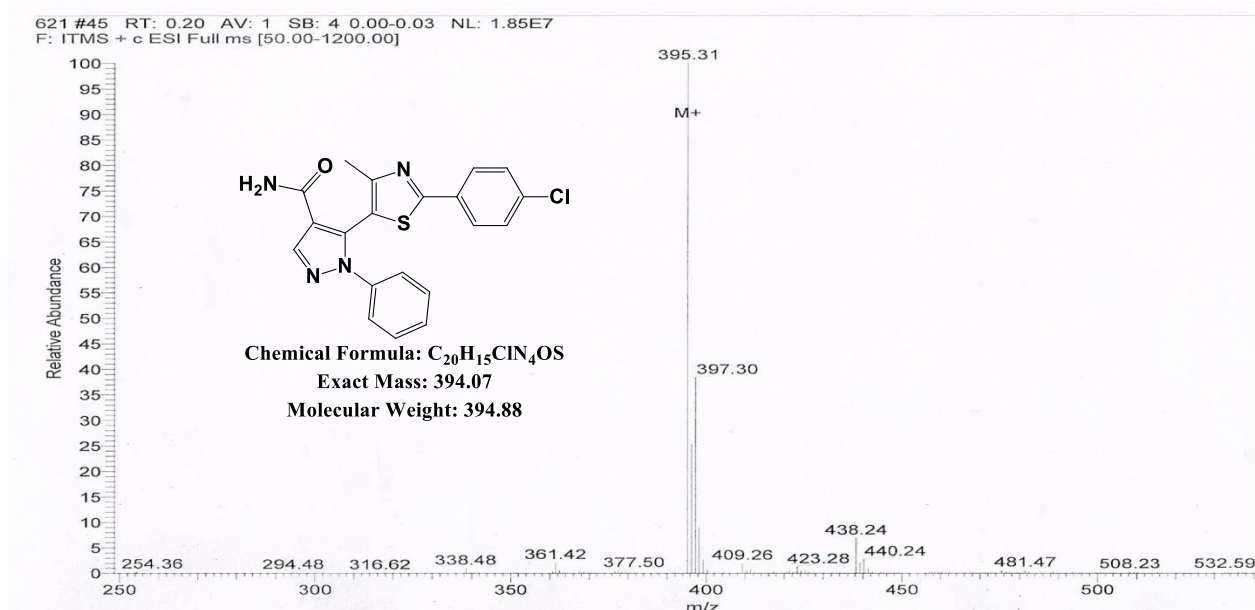
Spectrum No 27: IR Spectra(KBr) of 5-(2-(4-chlorophenyl)-4-methylthiazol-5-yl)-1-phenyl-1H-pyrazole-4-carboxamide 9



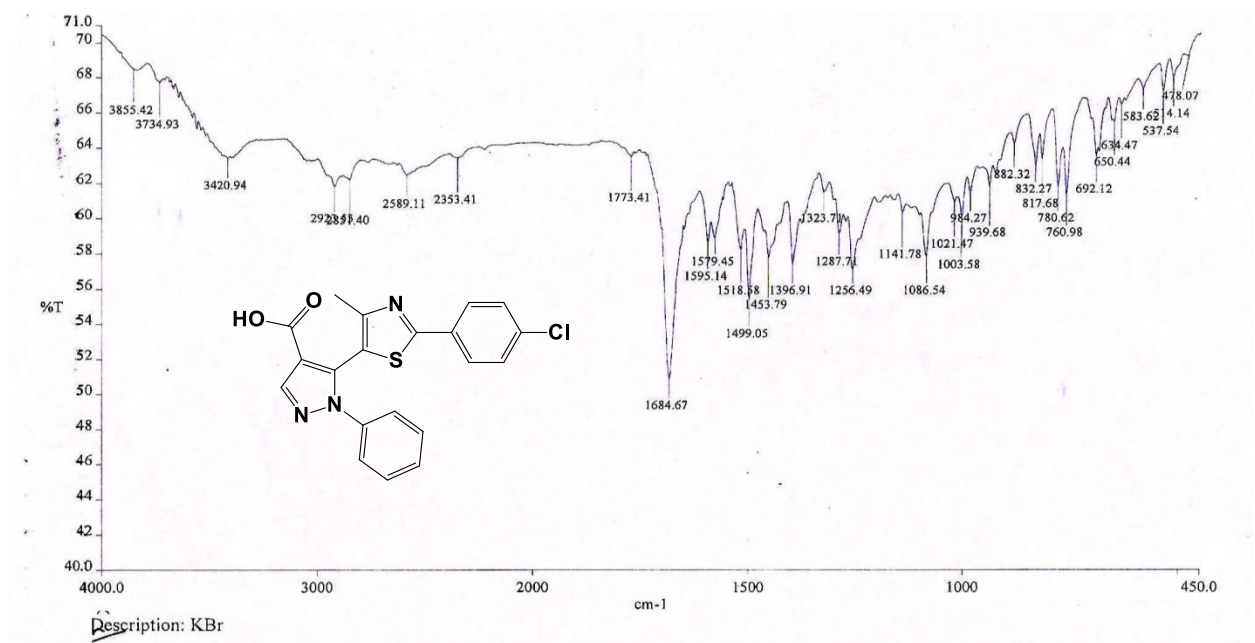
Spectrum No 28: ¹H NMR Spectra(DMSO-d₆) of 5-(2-(4-chlorophenyl)-4-methylthiazol-5-yl)-1-phenyl-1H-pyrazole-4-carboxamide 9



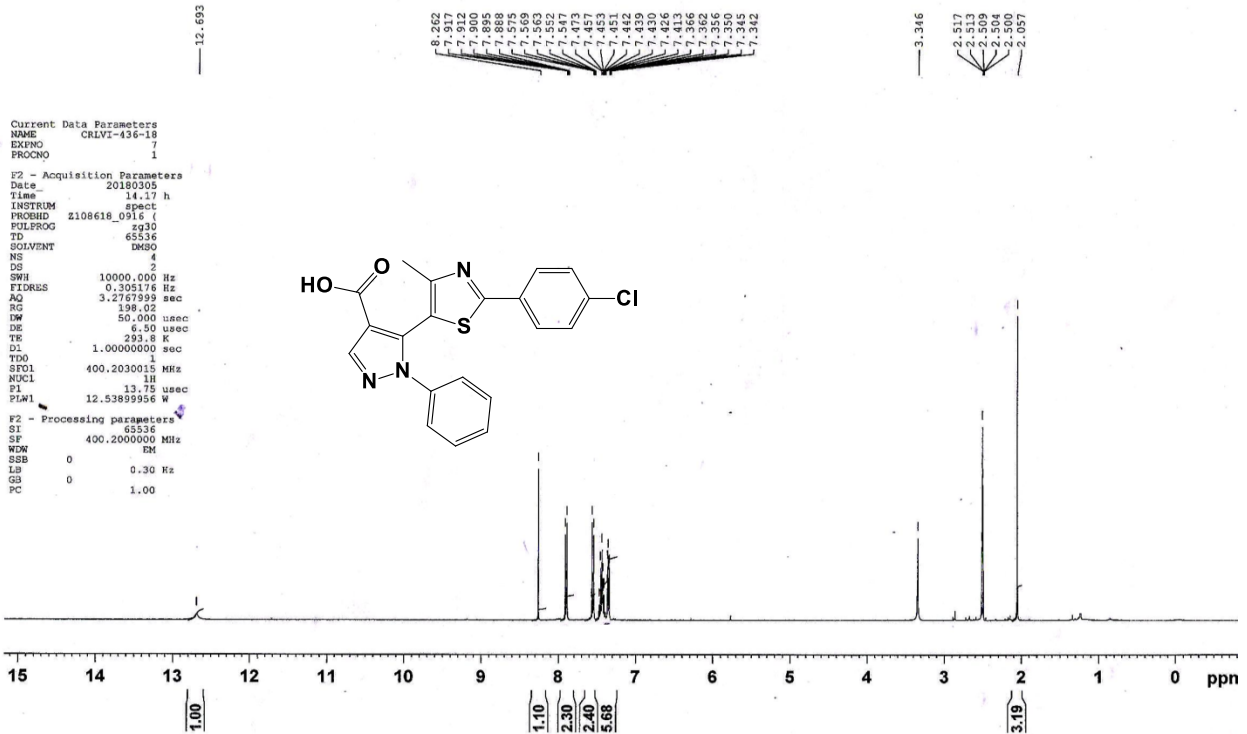
Spectrum No 29 :D₂O NMR Spectra(DMSO-d₆+D₂O) of 5-(2-(4-chlorophenyl)-4-methylthiazol-5-yl)-1-phenyl-1H-pyrazole-4-carboxamide 9



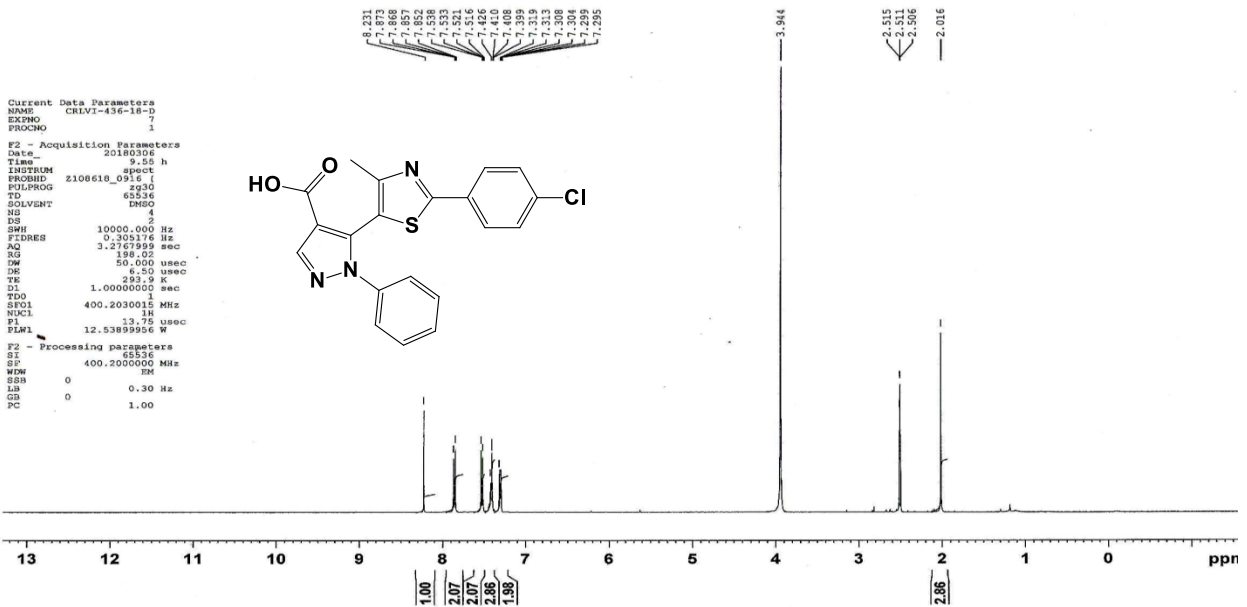
Spectrum No 30: Mass Spectra of 5-(2-(4-chlorophenyl)-4-methylthiazol-5-yl)-1-phenyl-1H-pyrazole-4-carboxamide 9



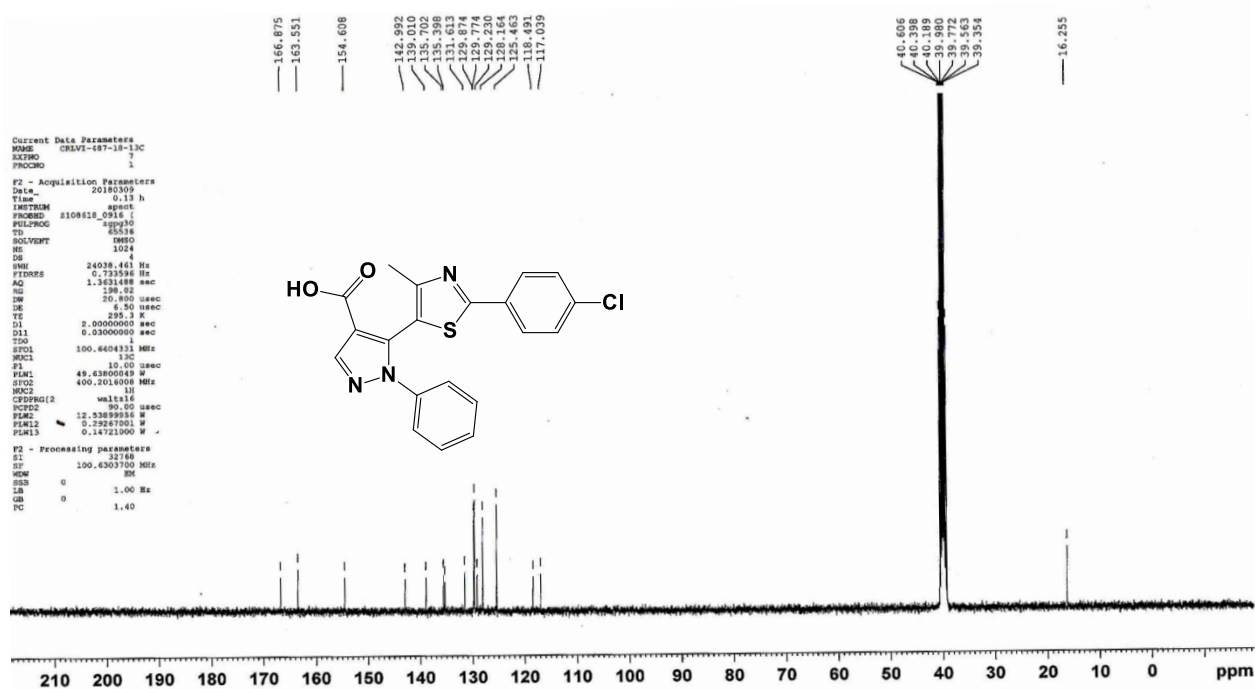
Spectrum No 31 : IR Spectra(KBr) of 5-(2-(4-chlorophenyl)-4-methylthiazol-5-yl)-1-phenyl-1H-pyrazole-4-carboxylic acid 10



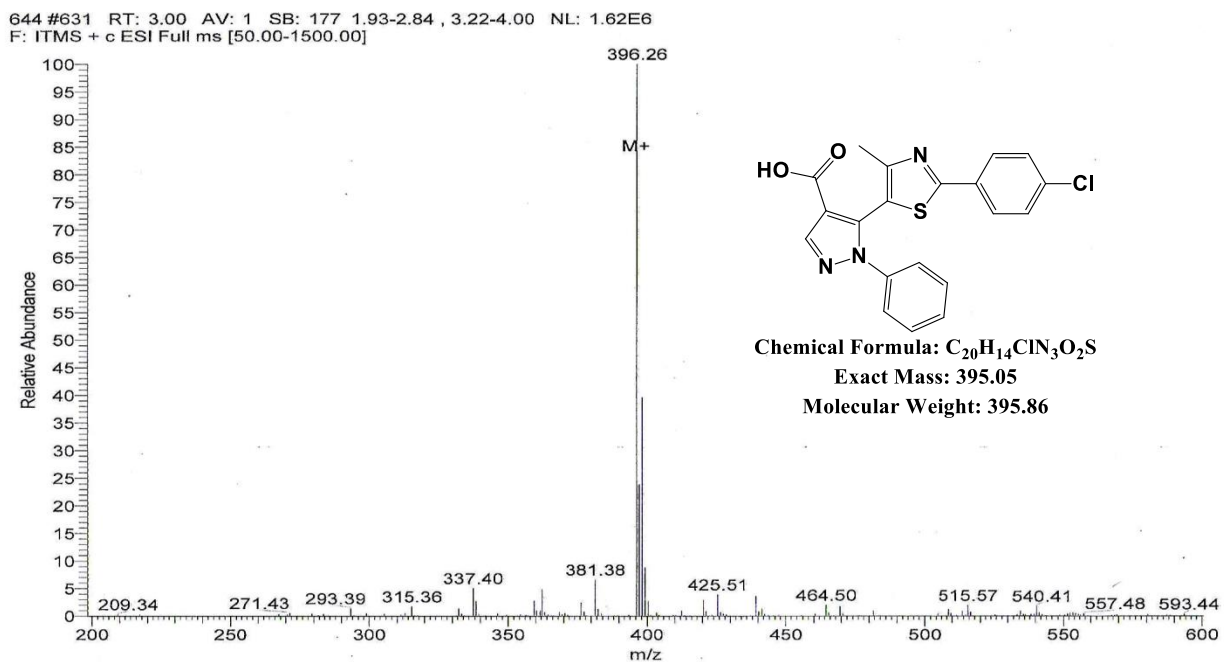
Spectrum No 32: ^1H NMR Spectra(DMSO- d_6) of 5-(2-(4-chlorophenyl)-4-methylthiazol-5-yl)-1-phenyl-1H-pyrazole-4-carboxylic acid 10



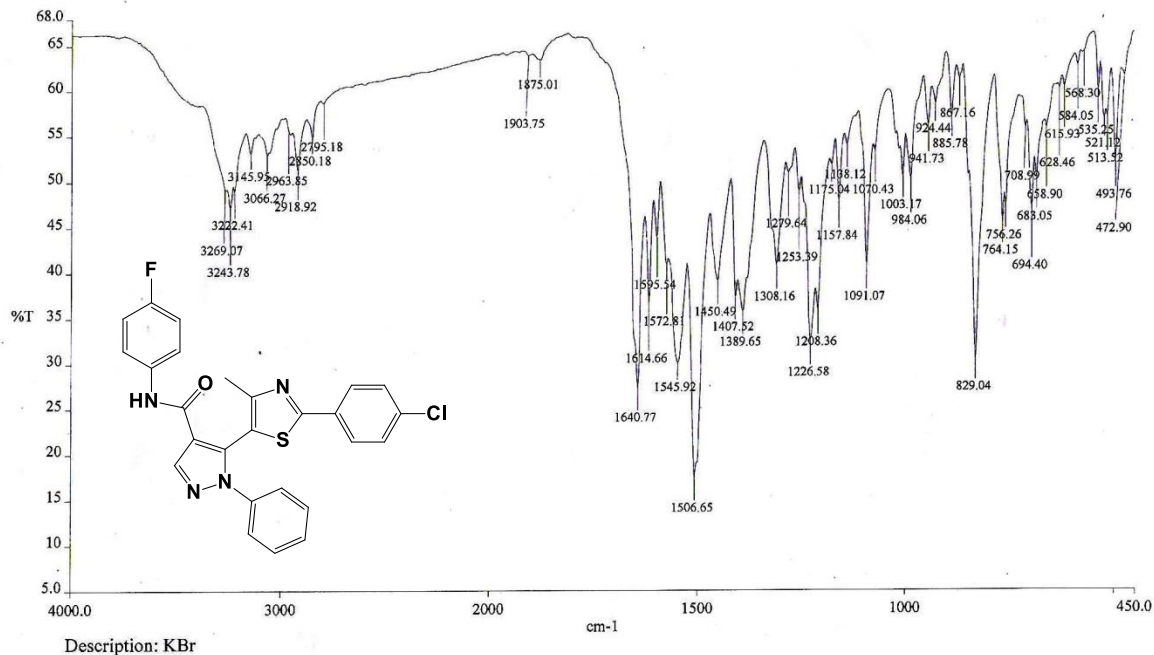
Spectrum No 33 : D_2O NMR Spectra(DMSO- d_6+D_2O) of 5-(2-(4-chlorophenyl)-4-methylthiazol-5-yl)-1-phenyl-1H-pyrazole-4-carboxylic acid 10



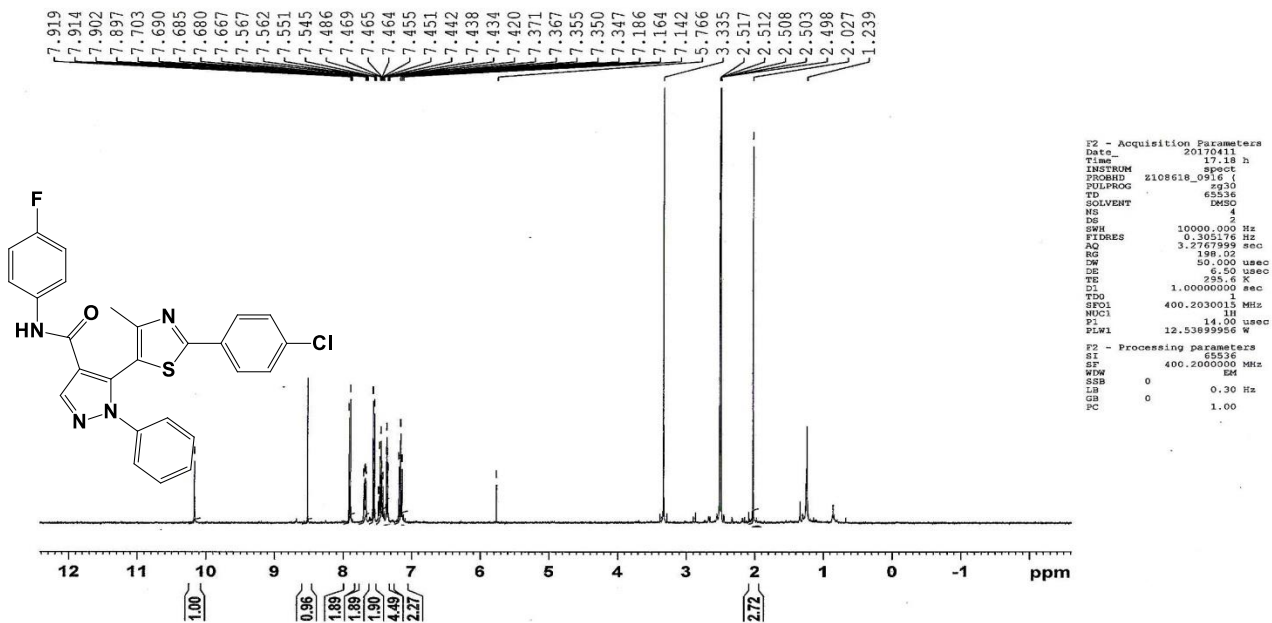
Spectrum No 34 :¹³C NMR Spectra(DMSO-d₆) of 5-(2-(4-chlorophenyl)-4-methylthiazol-5-yl)-1-phenyl-1H-pyrazole-4-carboxylic acid 10



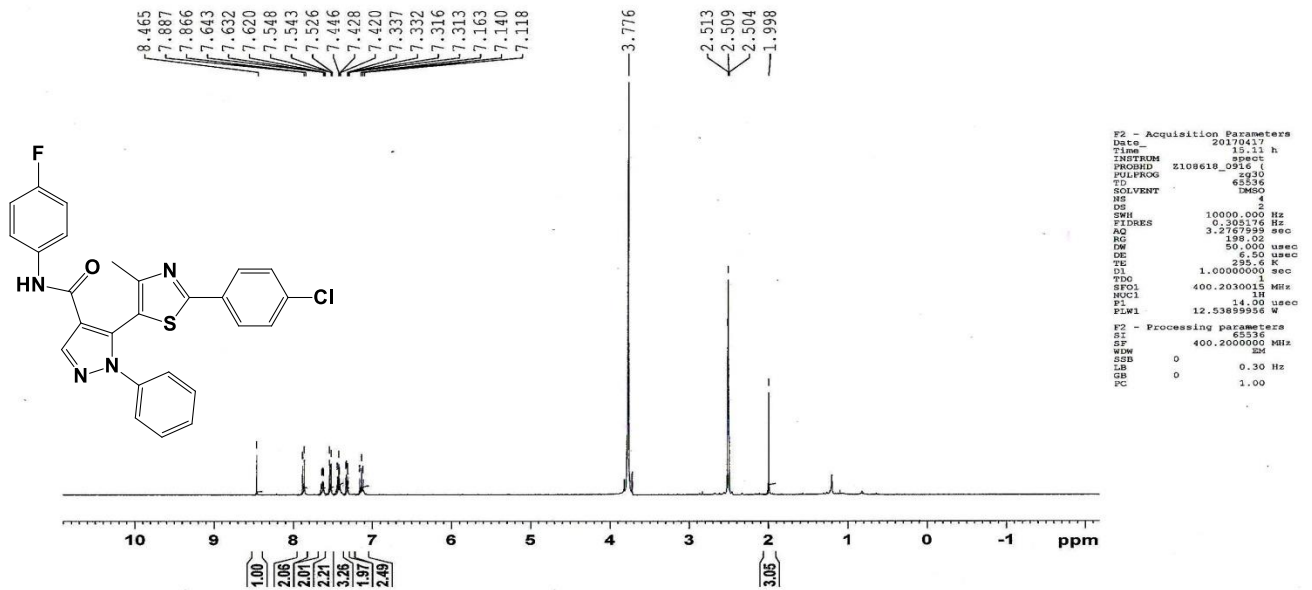
Spectrum No 35: Mass Spectra of 5-(2-(4-chlorophenyl)-4-methylthiazol-5-yl)-1-phenyl-1H-pyrazole-4-carboxylic acid 10



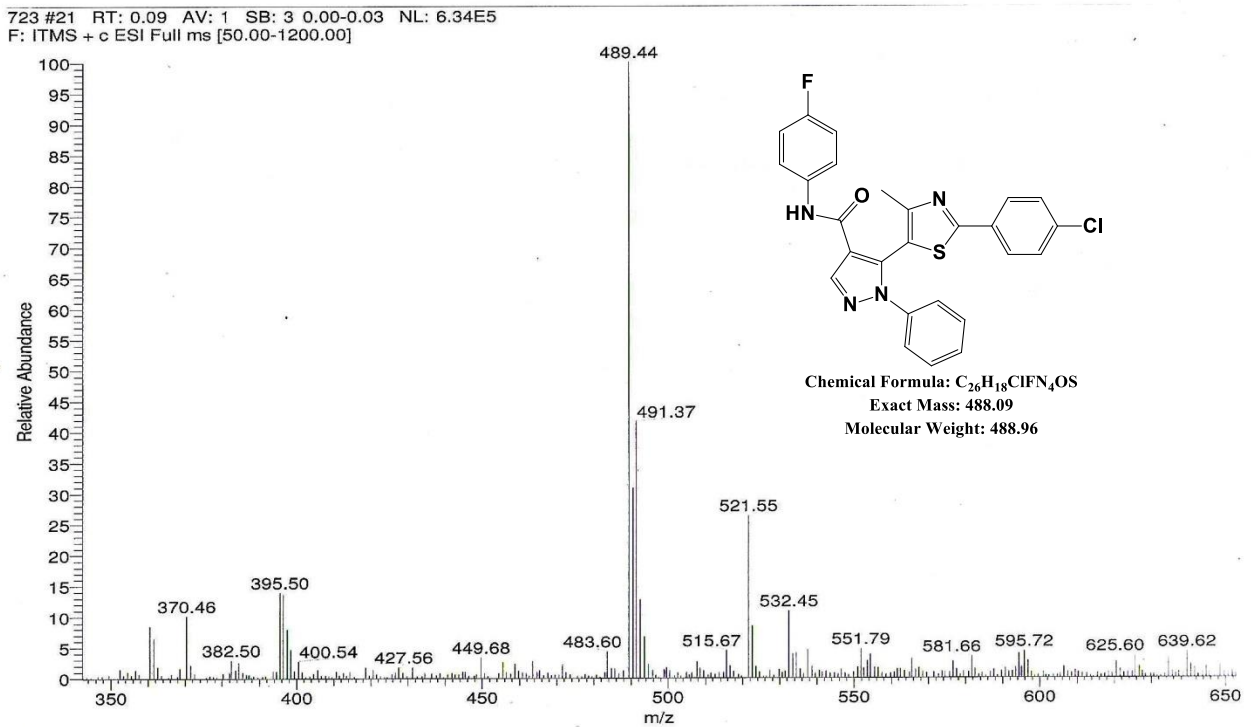
Spectrum No 36: IR Spectra(KBr) of 5-(2-(4-chlorophenyl)-4-methylthiazol-5-yl)-N-(4-fluorophenyl)-1-phenyl-1H-pyrazole-4-carboxamide 11a



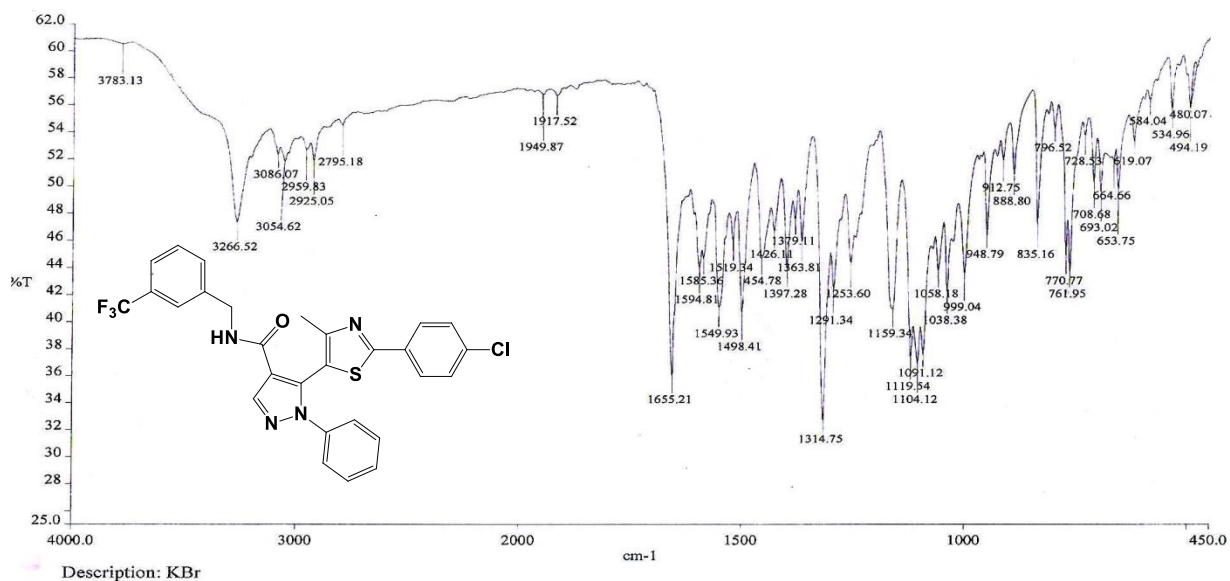
Spectrum No 37: ¹H NMR Spectra(DMSO-d₆) of 5-(2-(4-chlorophenyl)-4-methylthiazol-5-yl)-N-(4-fluorophenyl)-1-phenyl-1H-pyrazole-4-carboxamide 11a



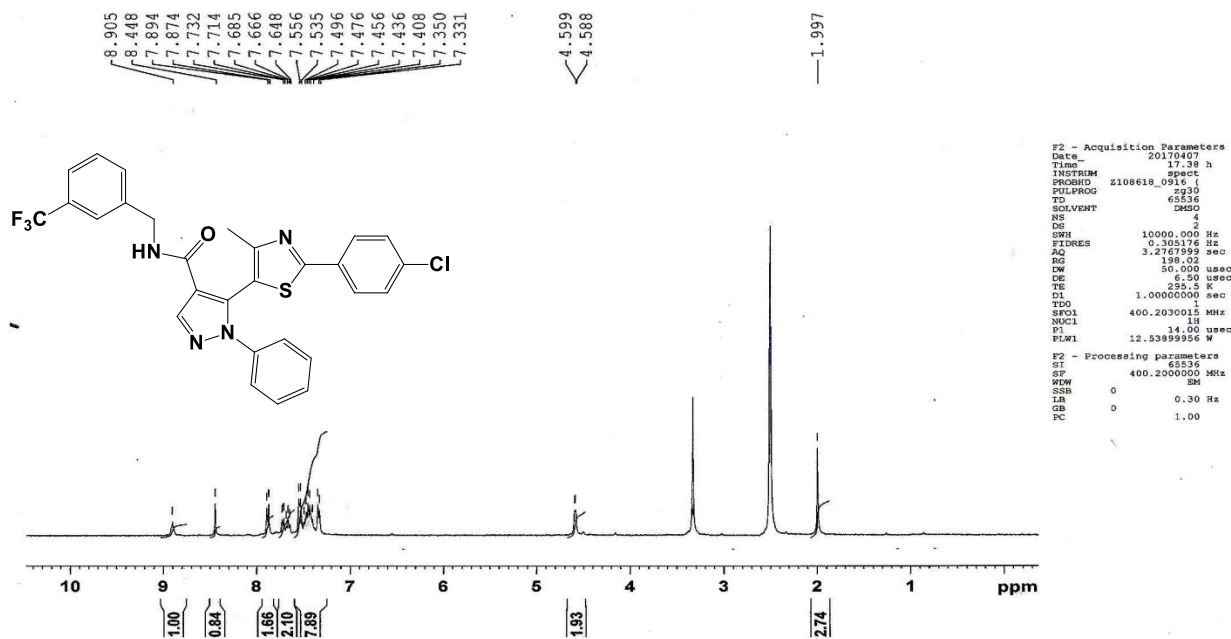
Spectrum No 38 :D₂O NMR Spectra(DMSO-d₆+ D₂O) of 5-(2-(4-chlorophenyl)-4-methylthiazol-5-yl)-N-(4-fluorophenyl)-1-phenyl-1H-pyrazole-4-carboxamide 11a



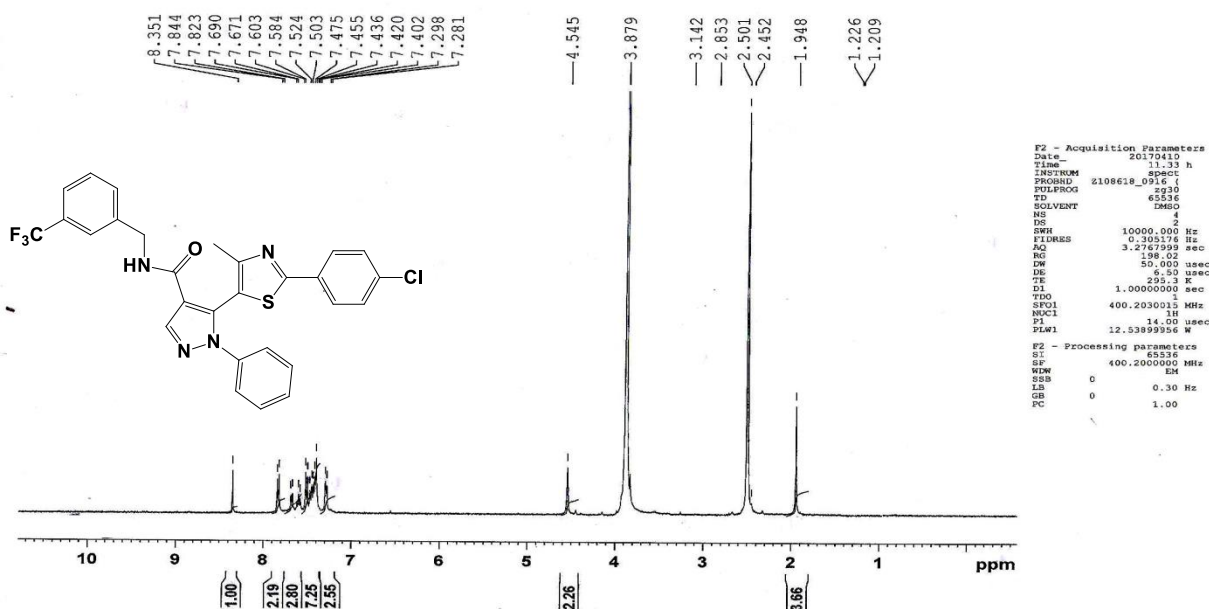
Spectrum No 39: Mass Spectra of 5-(2-(4-chlorophenyl)-4-methylthiazol-5-yl)-N-(4-fluorophenyl)-1-phenyl-1H-pyrazole-4-carboxamide 11a



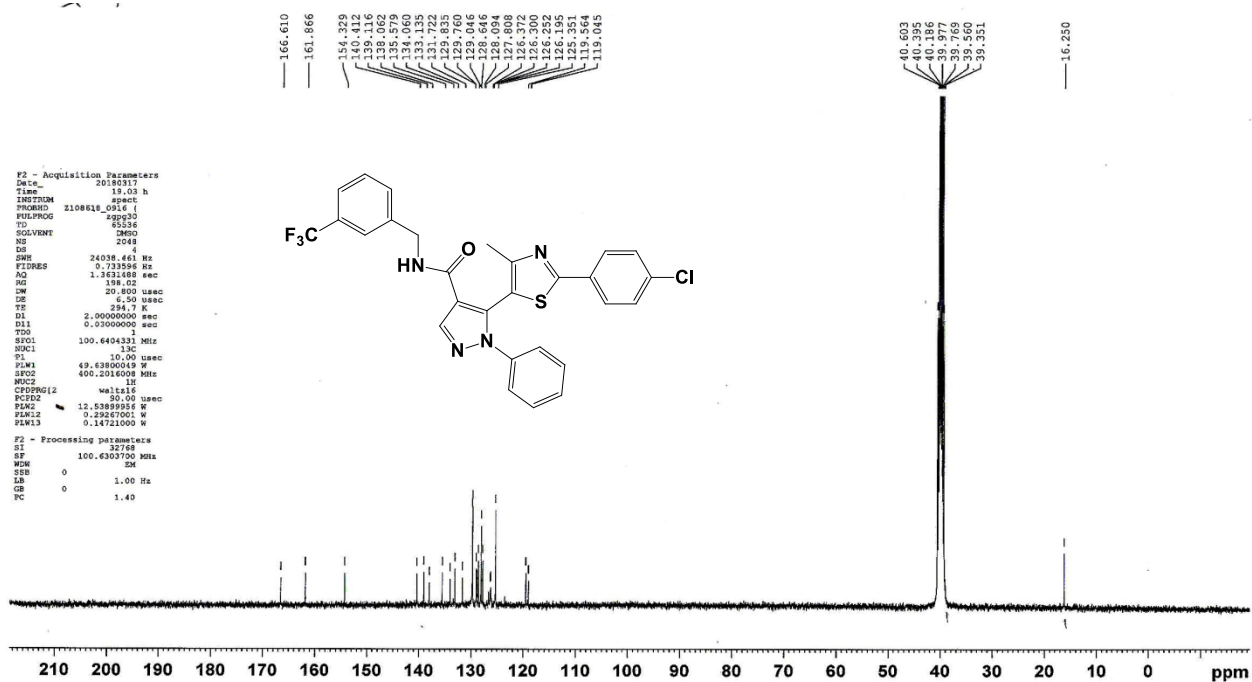
Spectrum No 40: IR Spectra(KBr) of 5-(2-(4-chlorophenyl)-4-methylthiazol-5-yl)-1-phenyl-N-(3-(trifluoromethyl)benzyl)-1H-pyrazole-4-carboxamide 11b



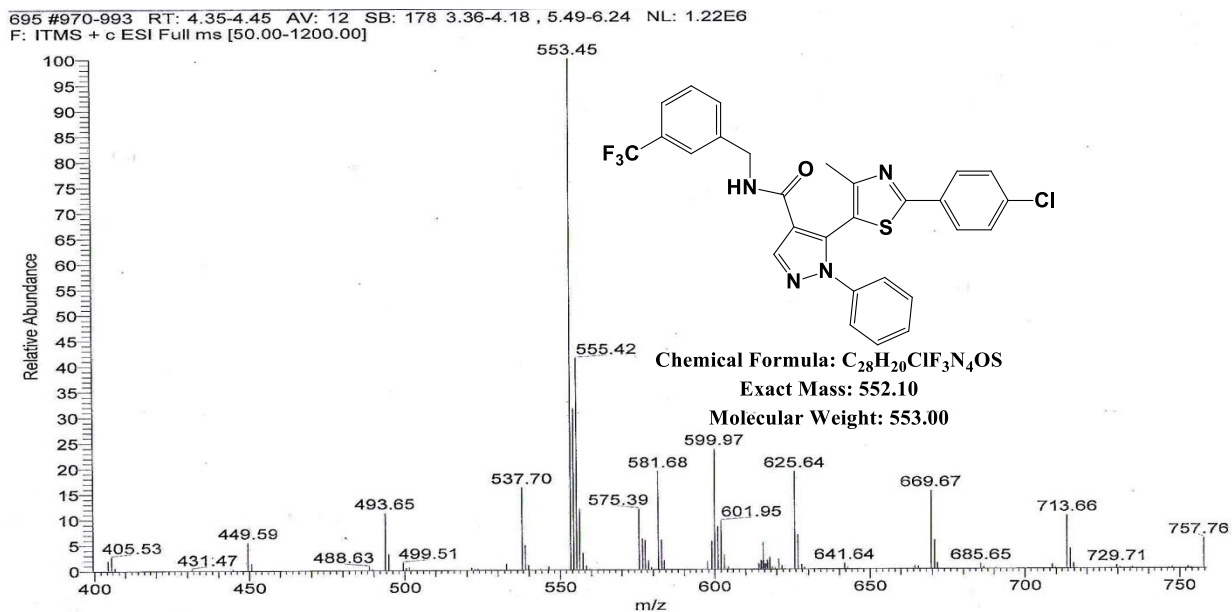
Spectrum No 41: ¹H NMR Spectra(DMSO-d₆) of 5-(2-(4-chlorophenyl)-4-methylthiazol-5-yl)-1-phenyl-N-(3-(trifluoromethyl)benzyl)-1H-pyrazole-4-carboxamide 11b



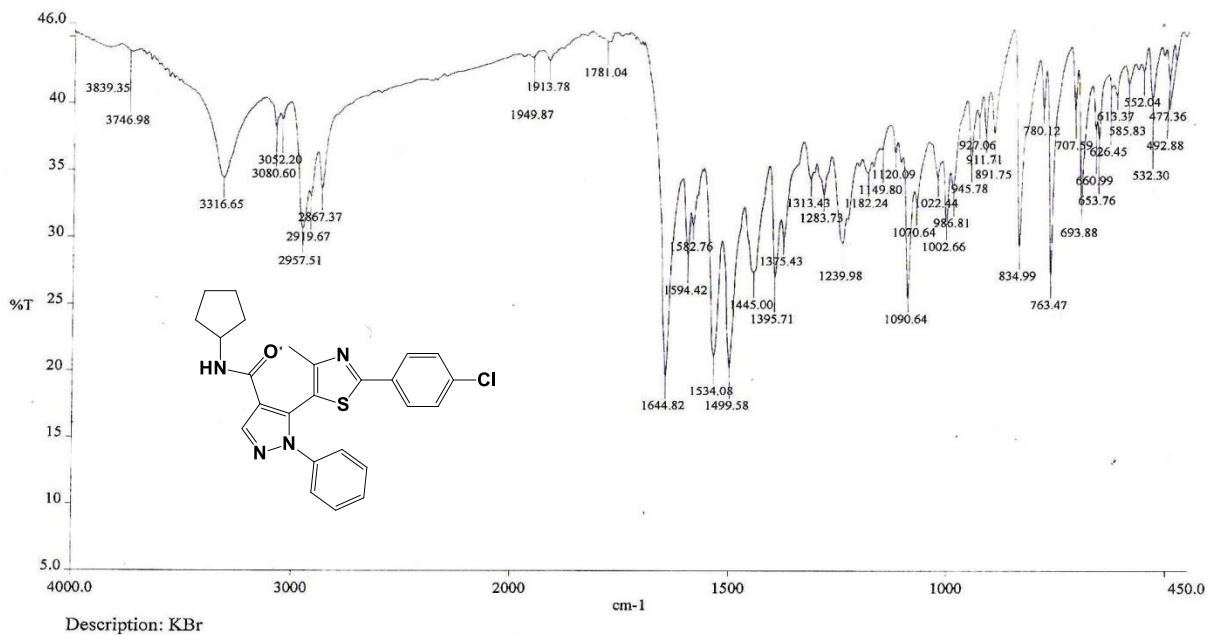
Spectrum No 42 :D₂O NMR Spectra(DMSO-d₆+ D₂O) of 5-(2-(4-chlorophenyl)-4-methylthiazol-5-yl)-1-phenyl-N-(3-(trifluoromethyl)benzyl)-1H-pyrazole-4-carboxamide 11b



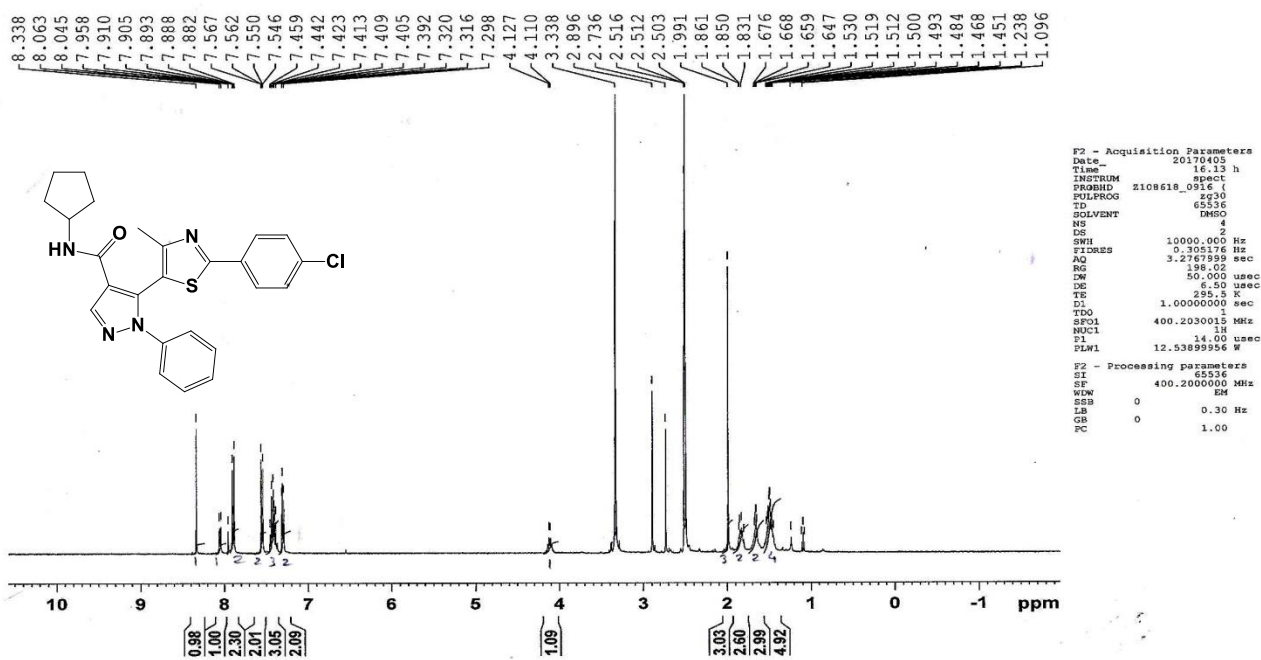
Spectrum No 43 :¹³C NMR Spectra(DMSO-d₆) of 5-(2-(4-chlorophenyl)-4-methylthiazol-5-yl)-1-phenyl-N-(3-(trifluoromethyl)benzyl)-1H-pyrazole-4-carboxamide 11b



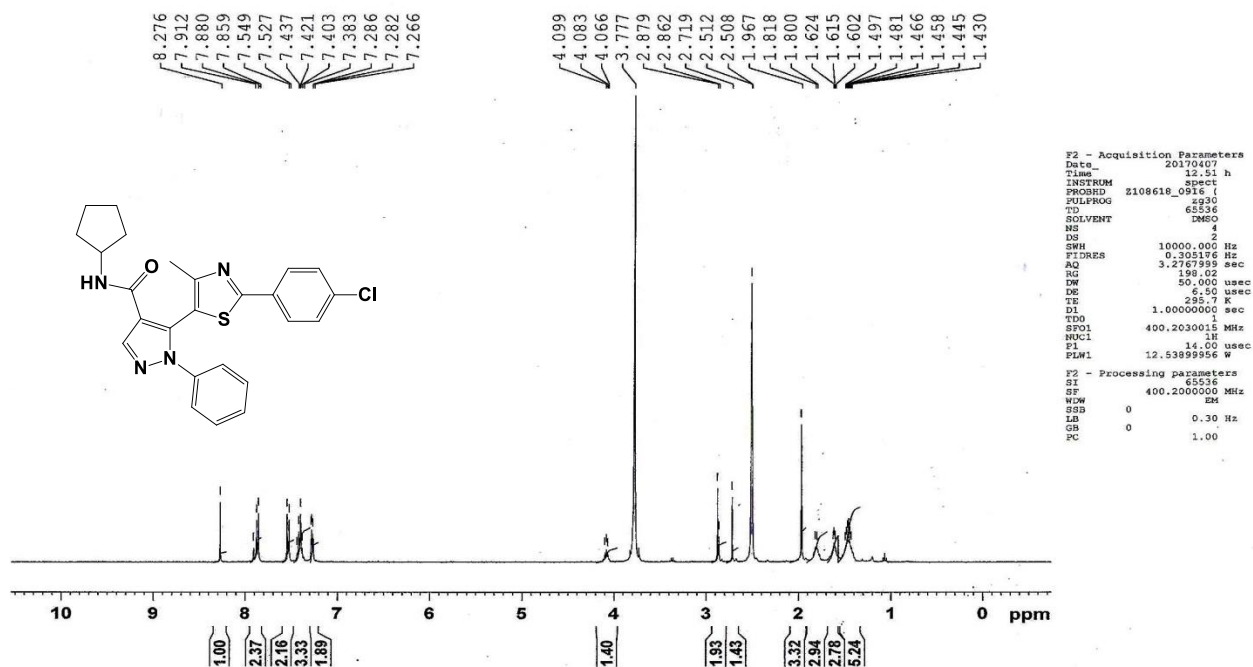
Spectrum No 44: Mass Spectra of 5-(2-(4-chlorophenyl)-4-methylthiazol-5-yl)-1-phenyl-N-(3-(trifluoromethyl)benzyl)-1H-pyrazole-4-carboxamid 11b



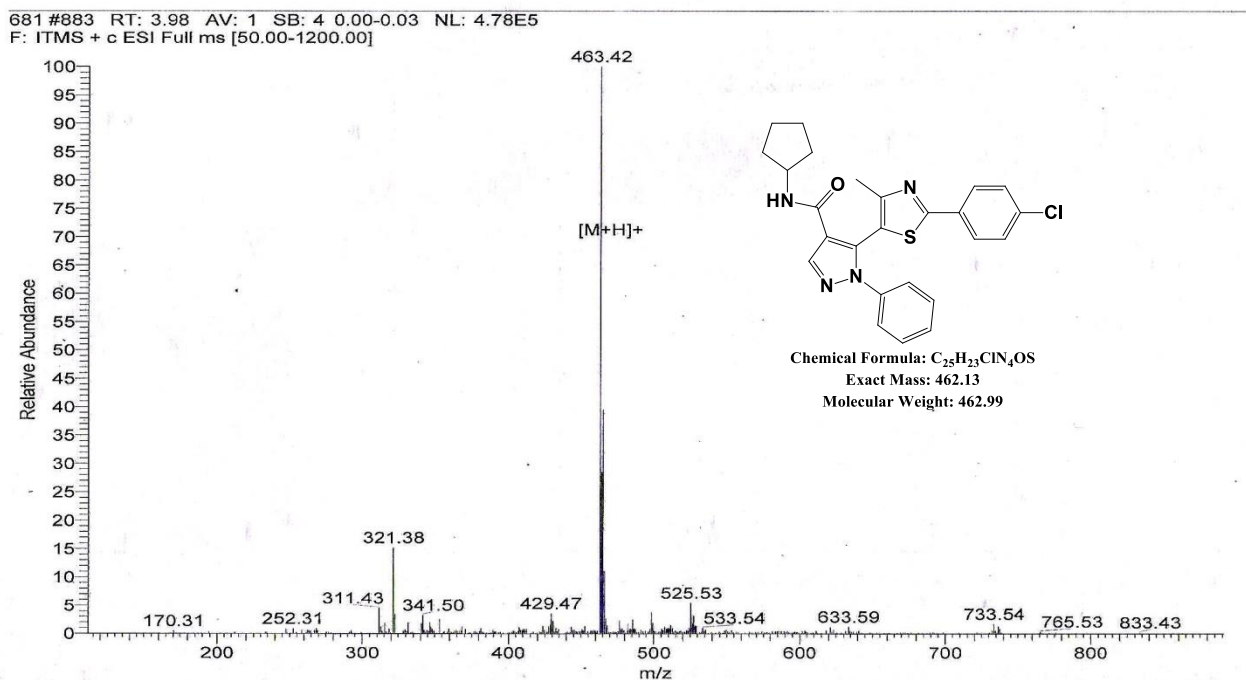
Spectrum No 45: IR Spectra(KBr) of 5-(2-(4-chlorophenyl)-4-methylthiazol-5-yl)-N-cyclopentyl-1-phenyl-1H-pyrazole-4-carboxamide 11c



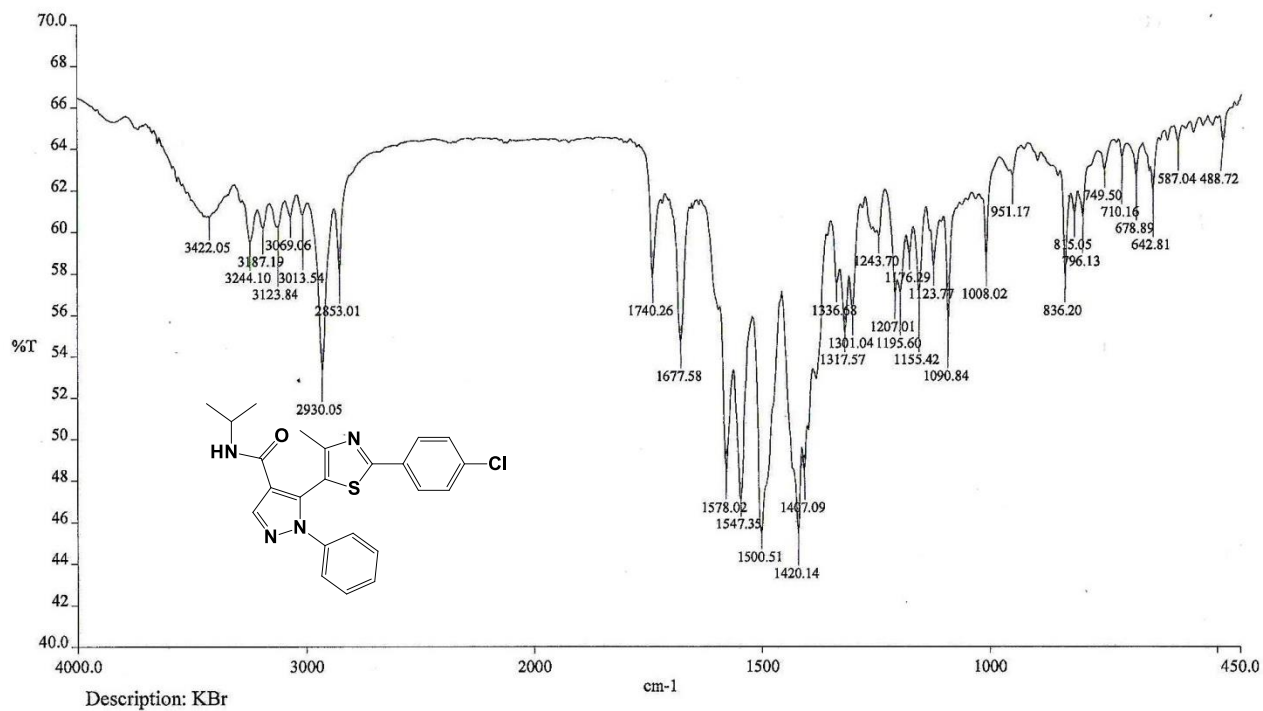
Spectrum No 46: ¹H NMR Spectra(DMSO-d₆) of 5-(2-(4-chlorophenyl)-4-methylthiazol-5-yl)-N-cyclopentyl-1-phenyl-1H-pyrazole-4-carboxamide 11c



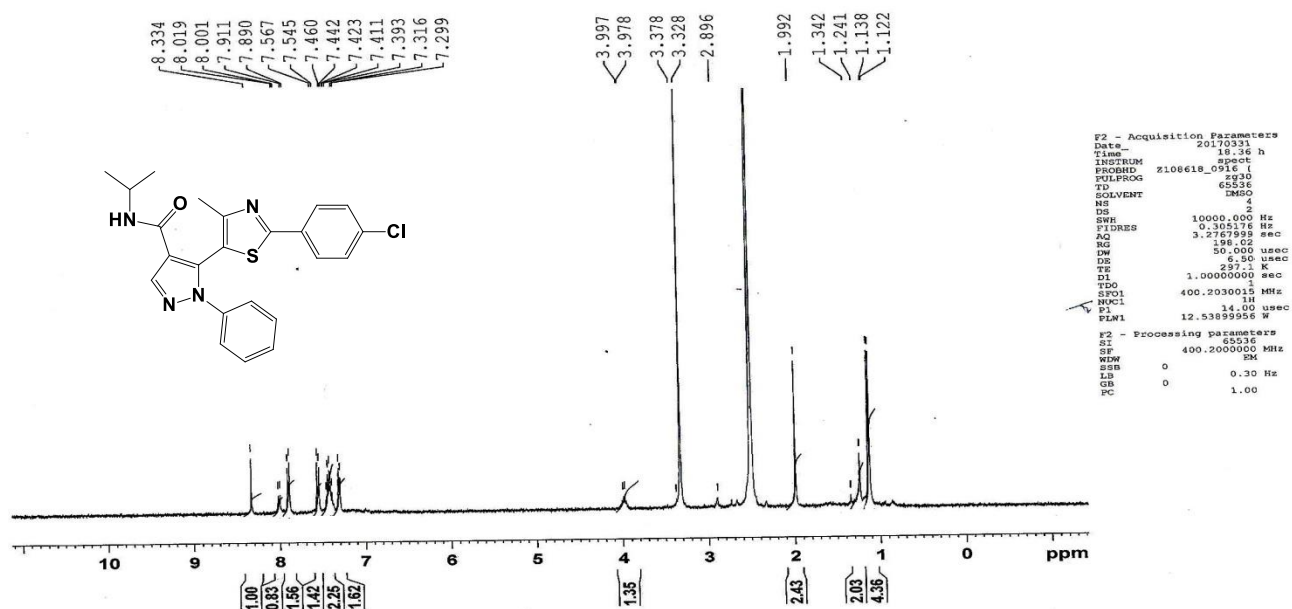
Spectrum No 47:D₂O NMR Spectra(DMSO-d₆+ D₂O) of 5-(2-(4-chlorophenyl)-4-methylthiazol-5-yl)-N-cyclopentyl-1-phenyl-1H-pyrazole-4-carboxamide 11c



Spectrum No 48: Mass Spectra of 5-(2-(4-chlorophenyl)-4-methylthiazol-5-yl)-N-cyclopentyl-1-phenyl-1H-pyrazole-4-carboxamide 11c

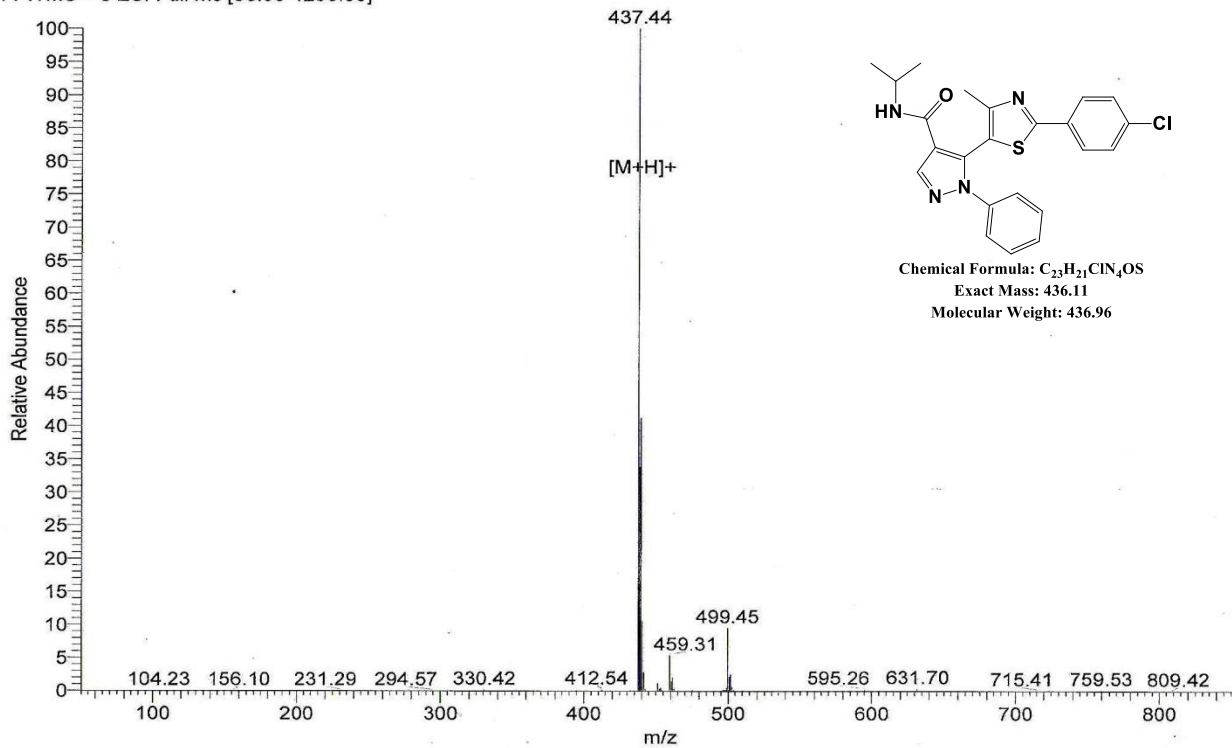


Spectrum No 49: IR Spectra(KBr) of 5-(2-(4-chlorophenyl)-4-methylthiazol-5-yl)-N-isopropyl-1-phenyl-1H-pyrazole-4-carboxamide 11d



Spectrum No 50: ¹H NMR Spectra(DMSO-d₆) of 5-(2-(4-chlorophenyl)-4-methylthiazol-5-yl)-N-isopropyl-1-phenyl-1H-pyrazole-4-carboxamide 11d

661 #1488-1600 RT: 6.69-7.19 AV: 56 SB: 4 0.00-0.03 NL: 9.26E5
F: ITMS + c ESI Full ms [50.00-1200.00]



Spectrum No 51: Mass Spectra of 5-(2-(4-chlorophenyl)-4-methylthiazol-5-yl)-N-isopropyl-1-phenyl-1H-pyrazole-4-carboxamide 11d