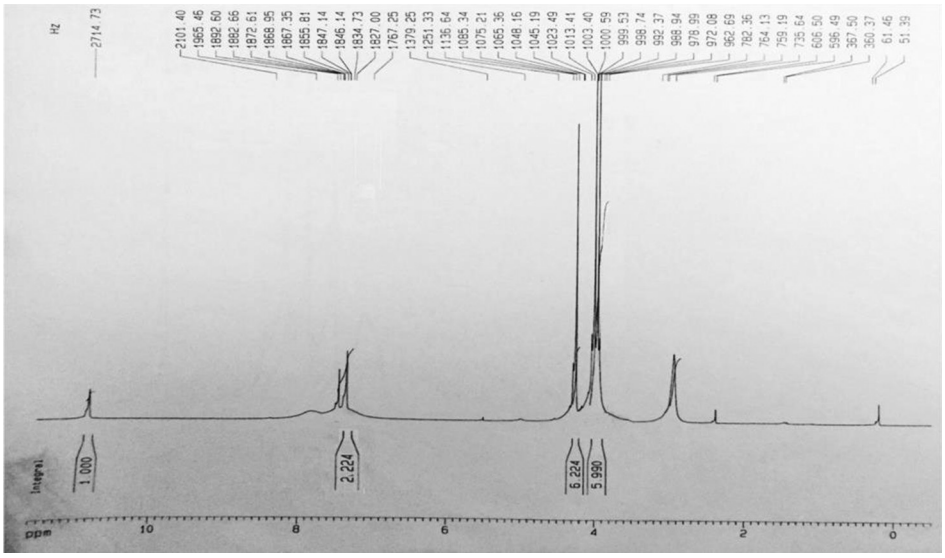
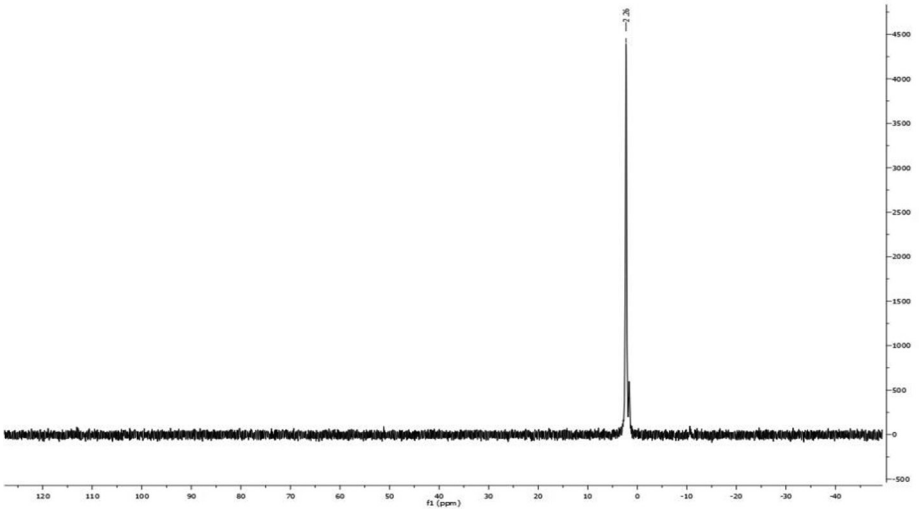
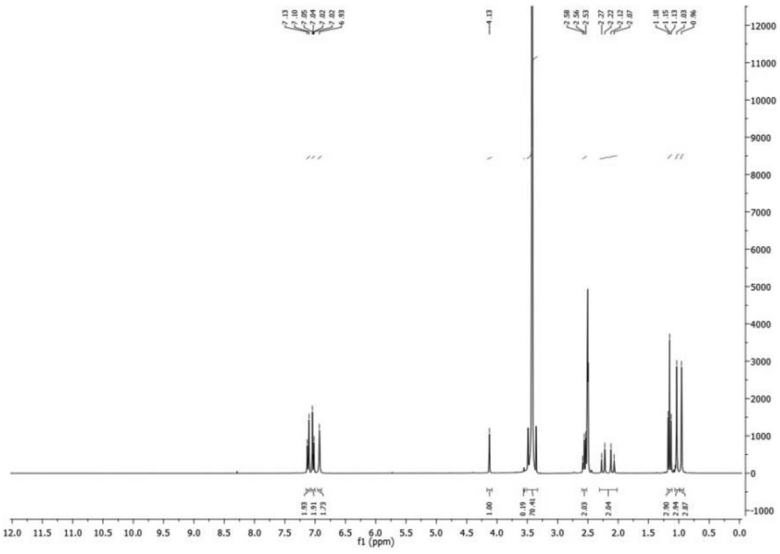
Supporting Information

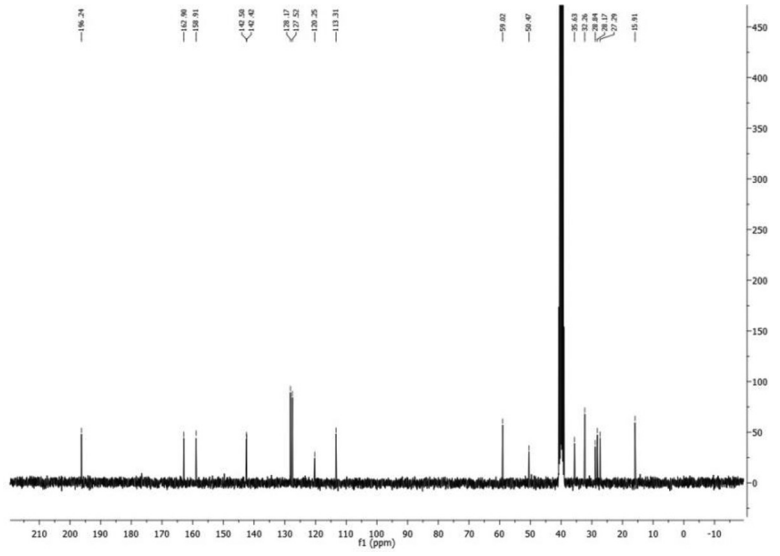
1,3-dimethyl imidazolium dimethylphosphate [DMImd-DMP] :

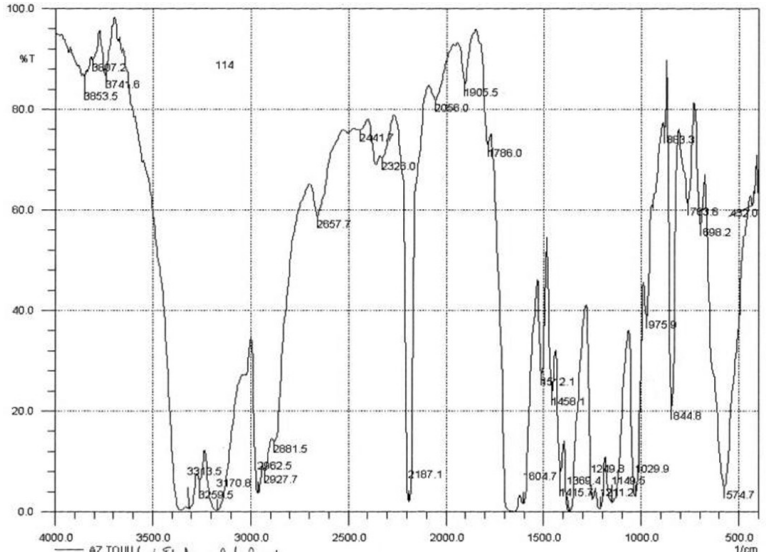




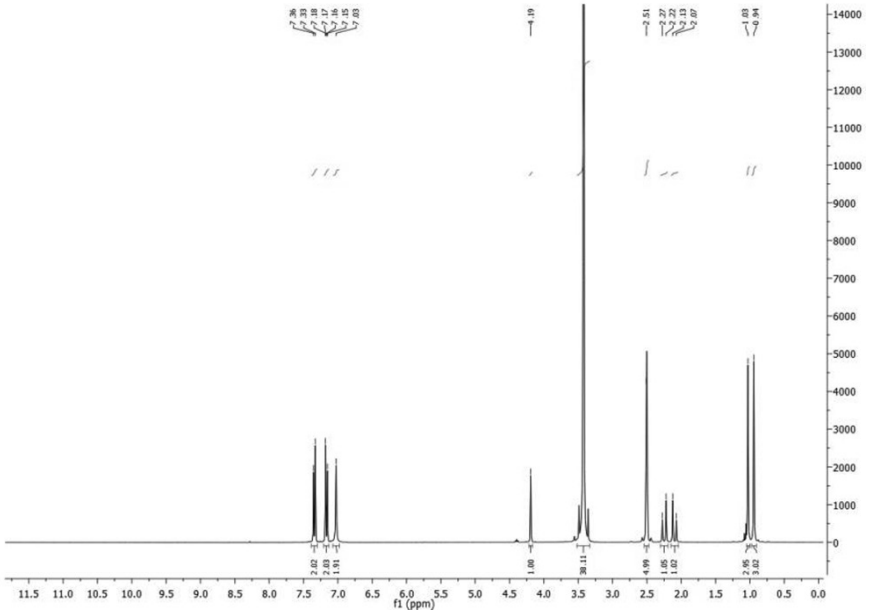
4*H*-benzo-[*b*]pyrans spectra :
2-amino-7,7-dimethyl-5-oxo-4-(4-ethylphenyl)-5,6,7,8-tetrahydro-4H-chromene-3-carbonitrile:

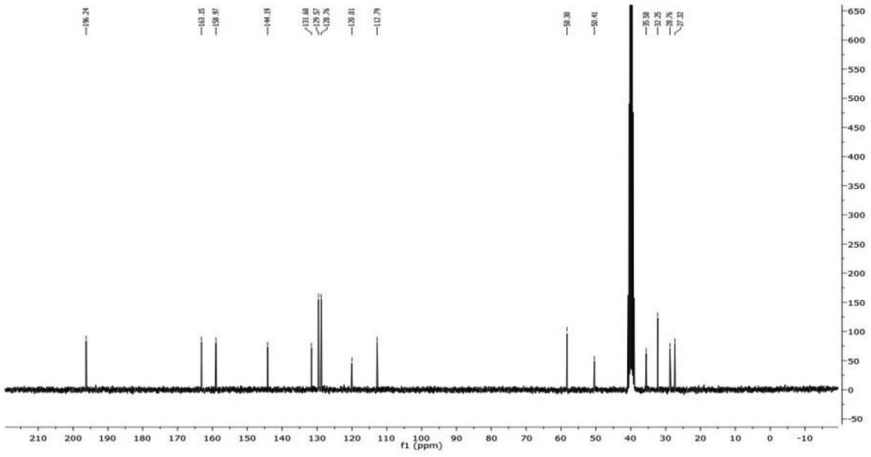


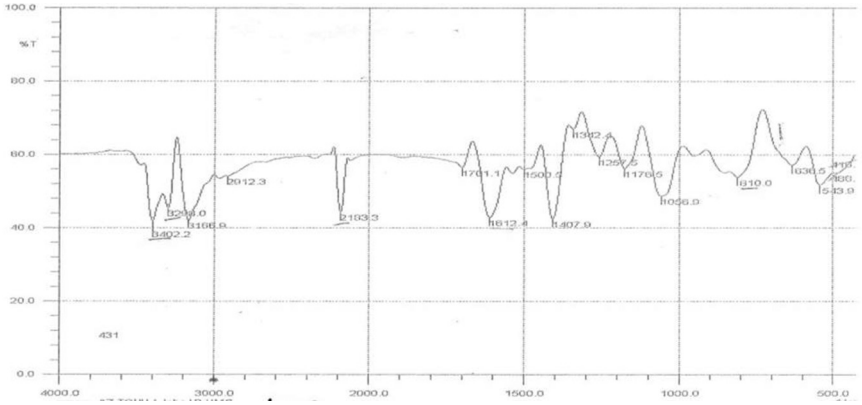




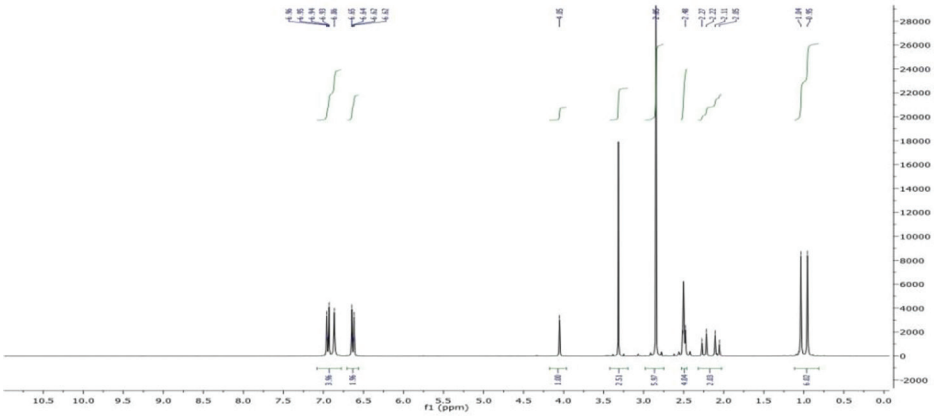
2-amino-7,7-dimethyl-5-oxo-4-(4-chlorophenyl)-5,6,7,8-tetrahydro-4H-chromene-3-carbonitrile:

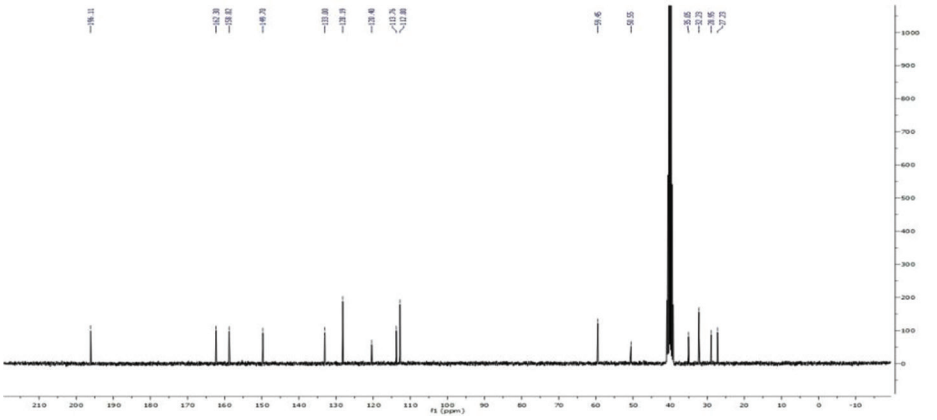


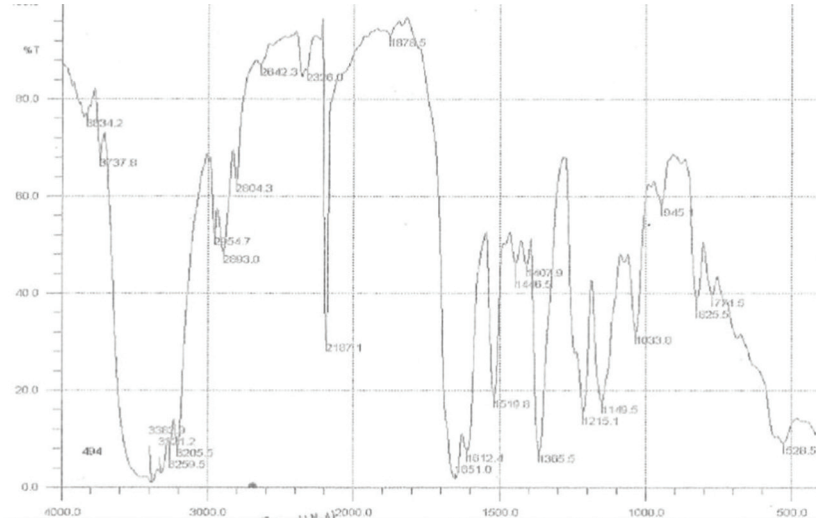




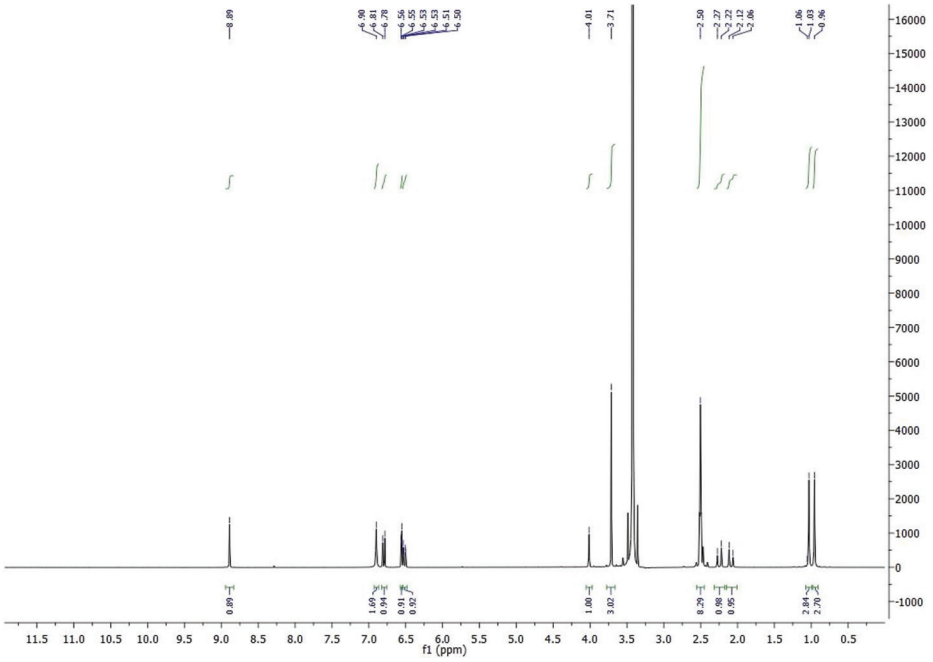
2-amino-7,7-dimethyl-5-oxo-4-(4-dimethylaminophenyl)-5,6,7,8-tetrahydro-4H-chromene-3-carbonitrile:

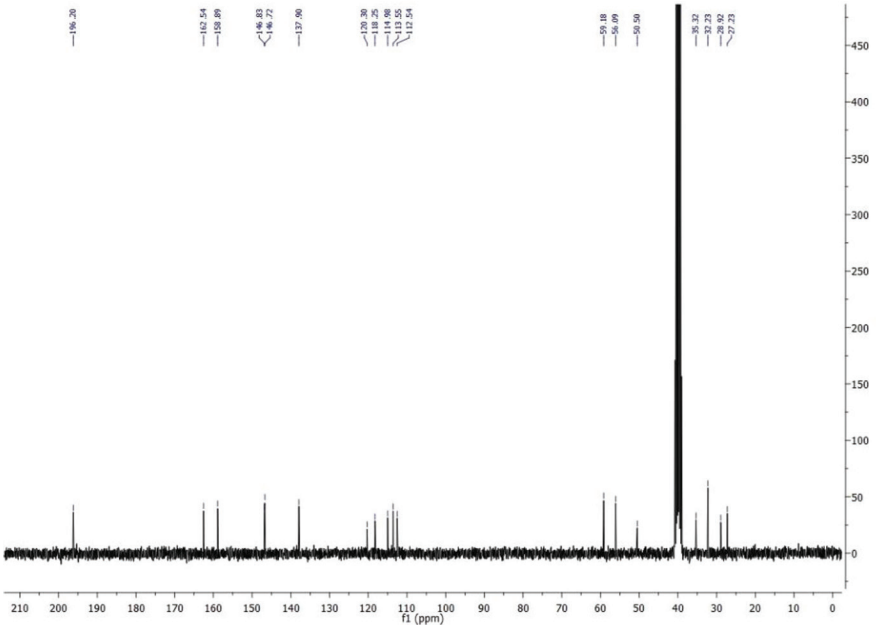




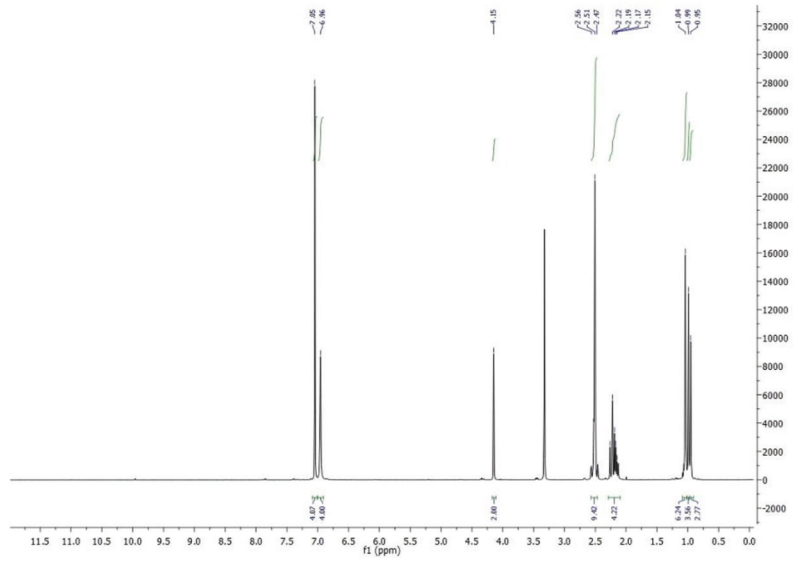


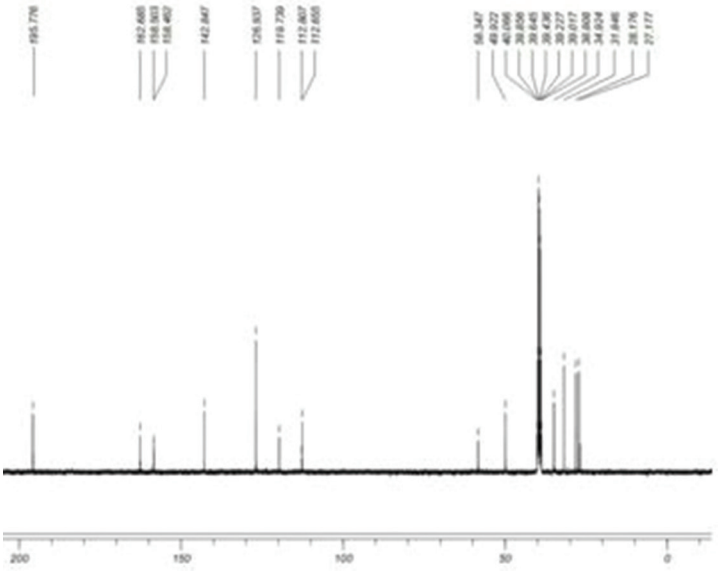
2-amino-7,7-dimethyl-5-oxo-4-(3-hydroxy-4-methoxyphenyl)-5,6,7,8-tetrahydro-4H-chromene-3-carbonitrile:

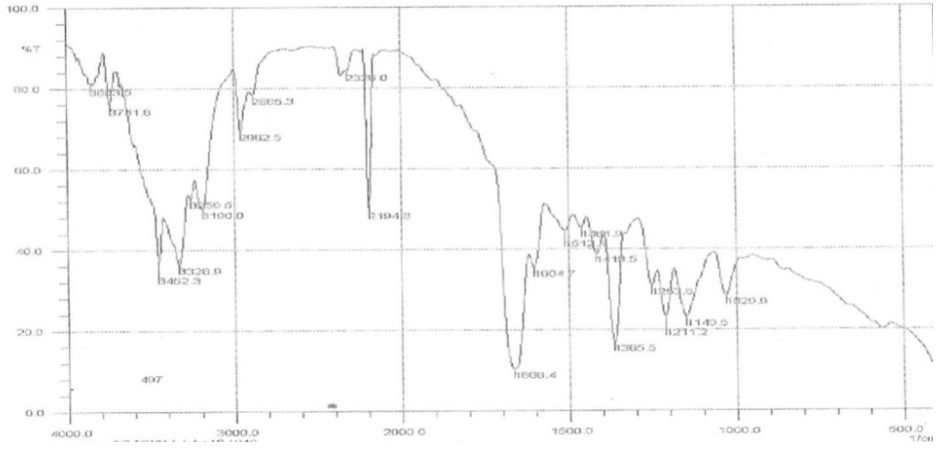




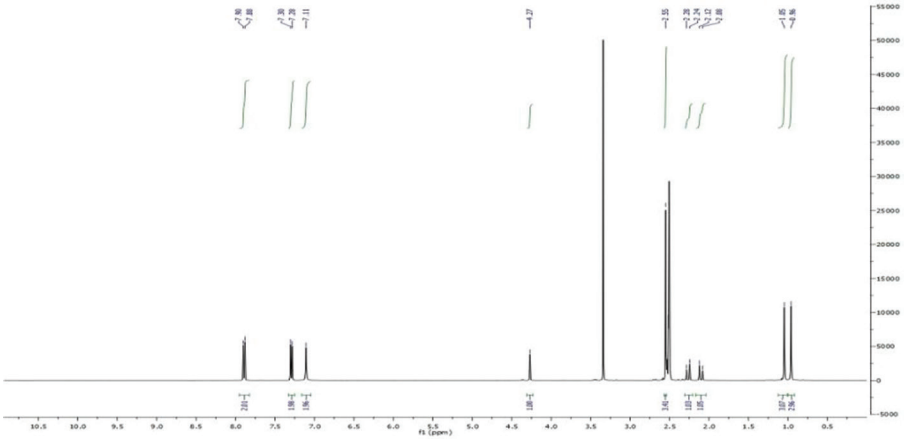
4,4’-(1,4-phenylene)bis(2-amino-7,7-dimethyl-5-oxo-5,6,7,8-tetrahydro-4H-chromene-3-carbonitrile)

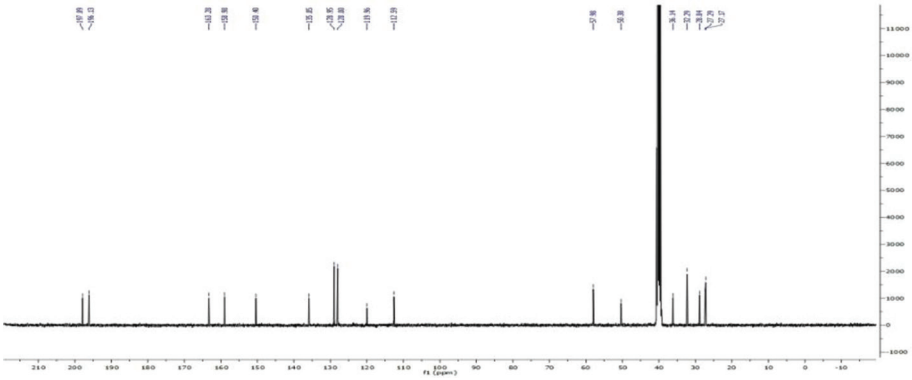


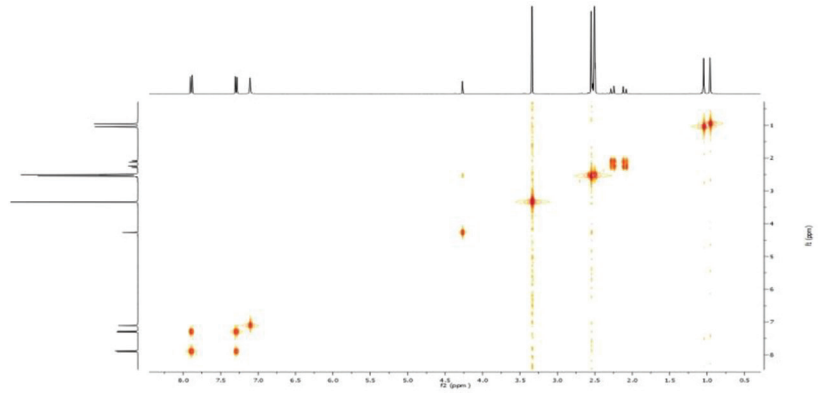


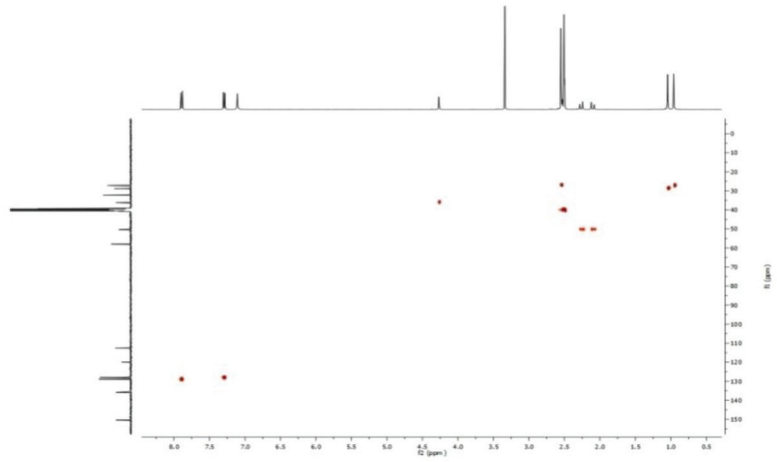


2-amino-7,7-dimethyl-5-oxo-4-(-4-acetylphenyl)-5,6,7,8-tetrahydro-4H-chromene-3-carbonitrile:



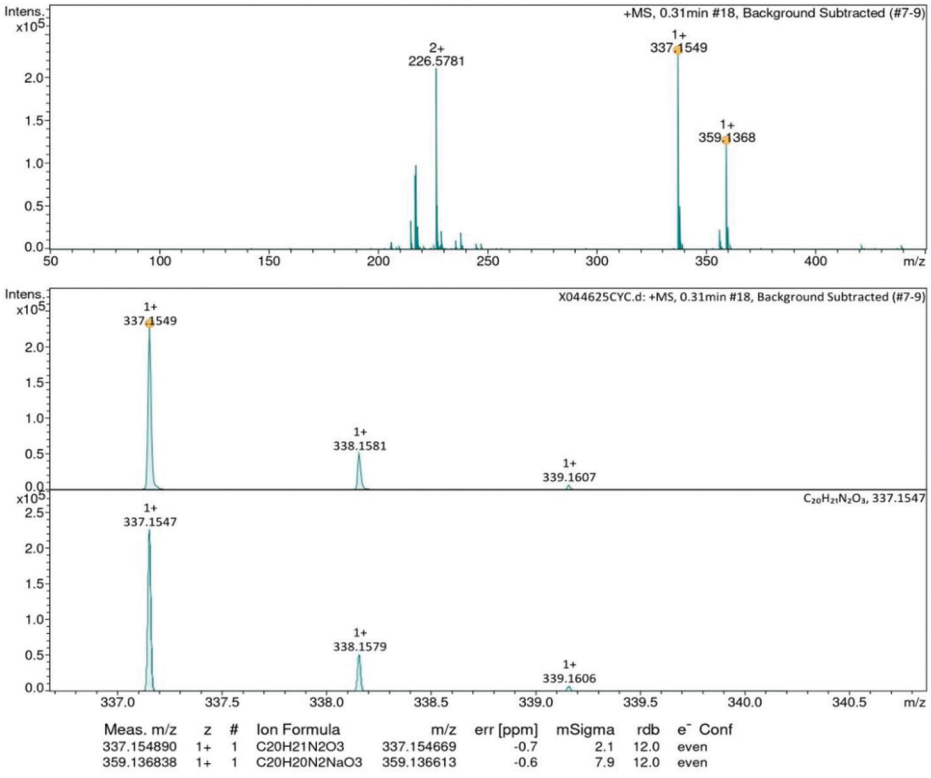




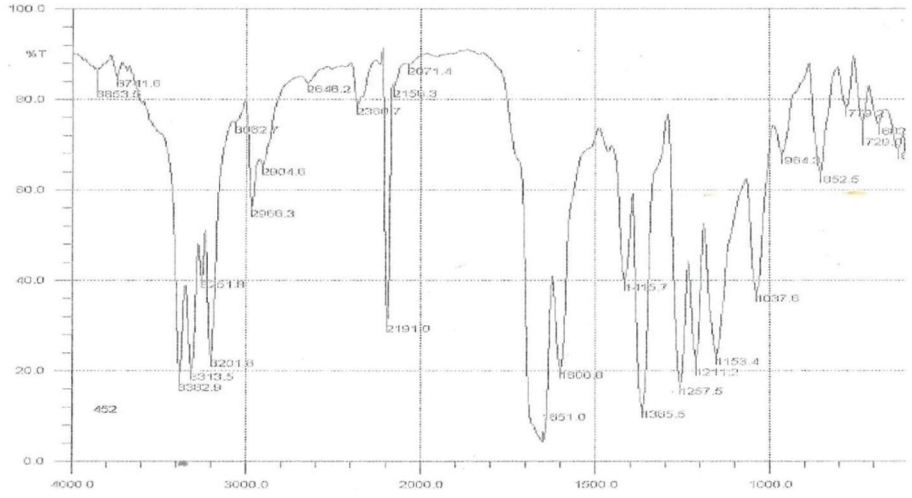


Acquisition Parameter

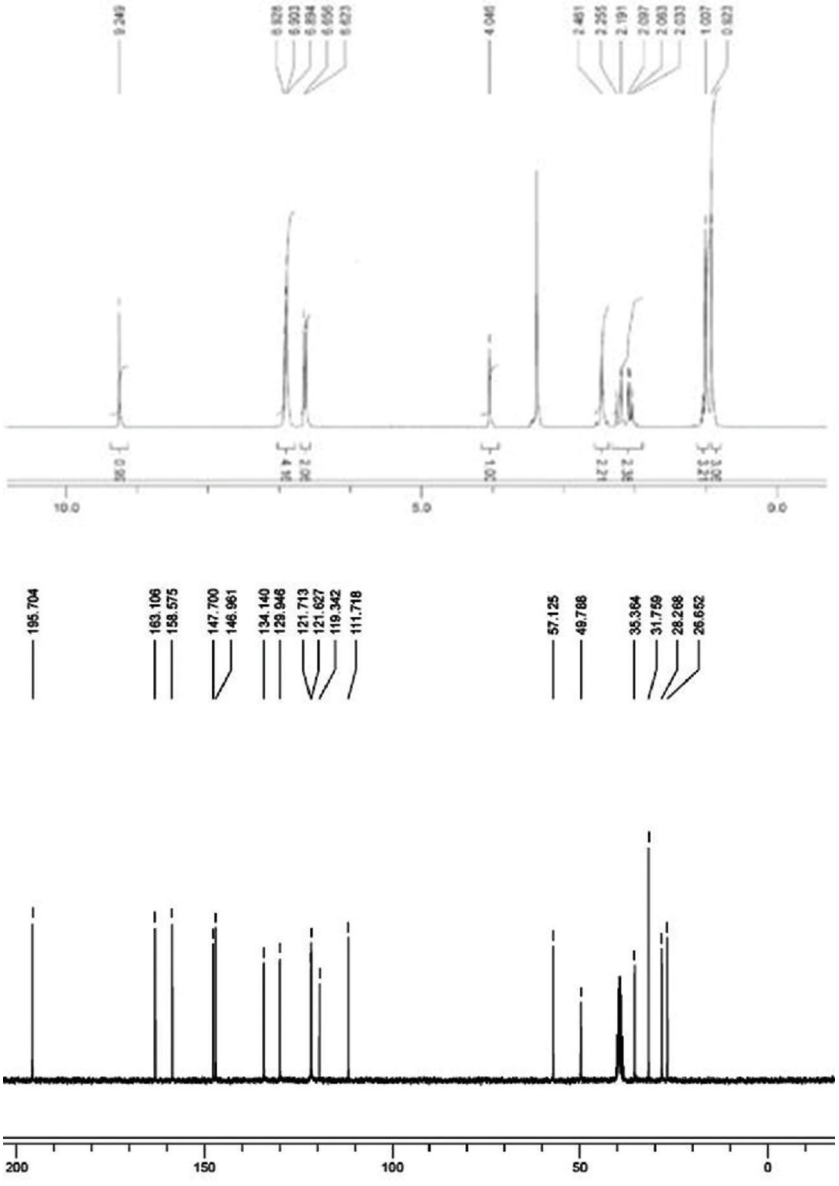
Source Type	ESI	Ion Polarity	Positive	Set Nebulizer	0.6 Bar
Scan Begin	50 m/z	Set Capillary	4500 V	Set Dry Heater	200 °C
Scan End	2500 m/z	Set Collision Cell RF	1800.0 Vpp	Set Dry Gas	7.0 l/min



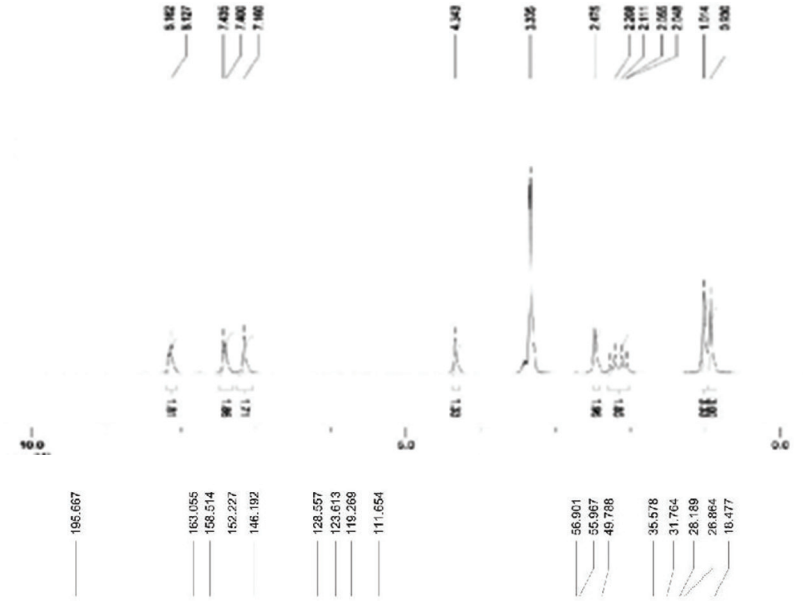
Meas. m/z	z	#	Ion Formula	m/z	err [ppm]	mSigma	rdb	e⁻ Conf
337.154890	1+	1	C20H21N2O3	337.154669	-0.7	2.1	12.0	even
359.136838	1+	1	C20H20N2NaO3	359.136613	-0.6	7.9	12.0	even

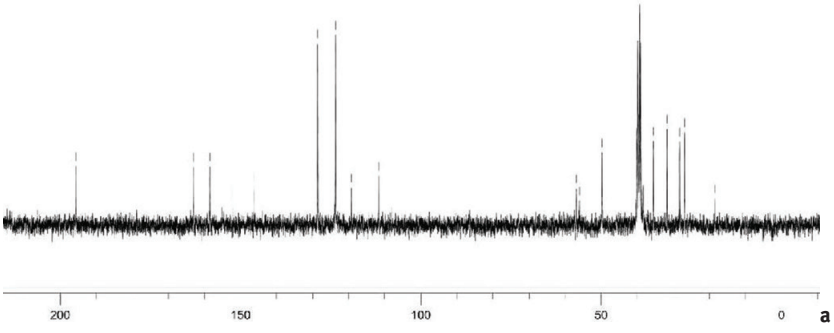


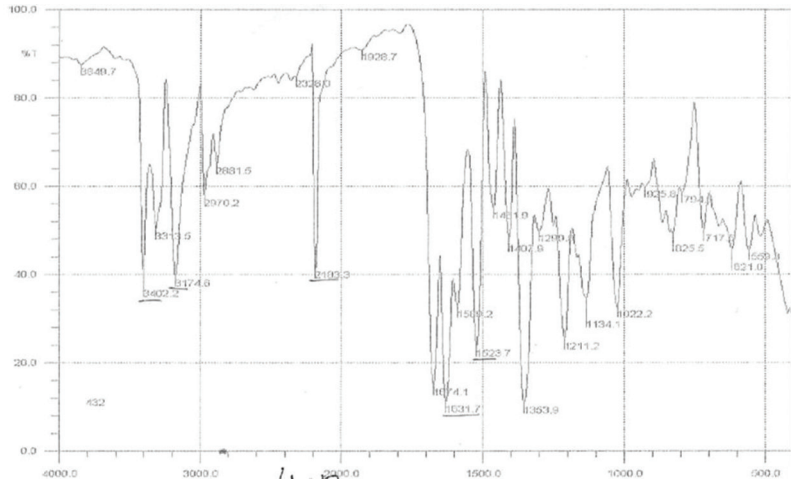
2-amino-7,7-dimethyl-5-oxo-4-(4-hydroxyphenyl)-5,6,7,8-tetrahydro-4H-chromene-3-carbonitrile:



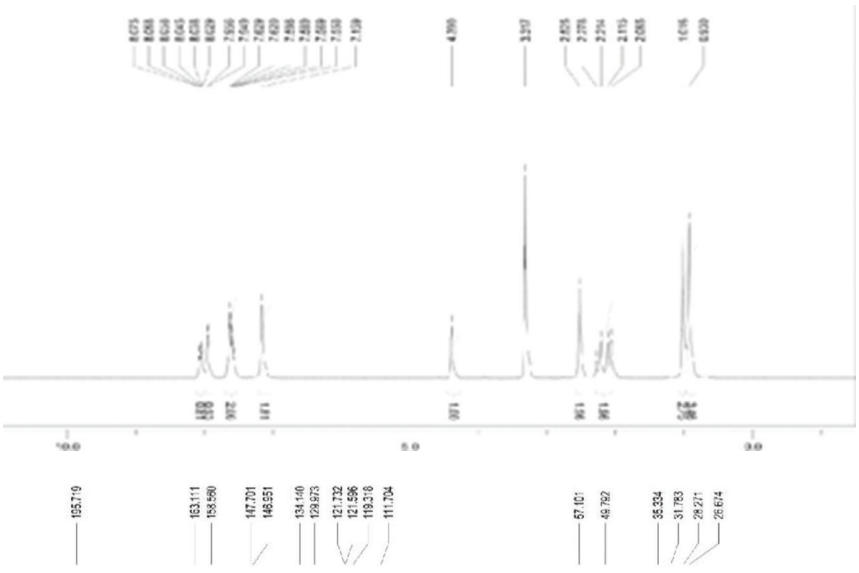
2-amino-7,7-dimethyl-5-oxo-4-(4-nitrophenyl)-5,6,7,8-tetrahydro-4H-chromene-3-carbonitrile:

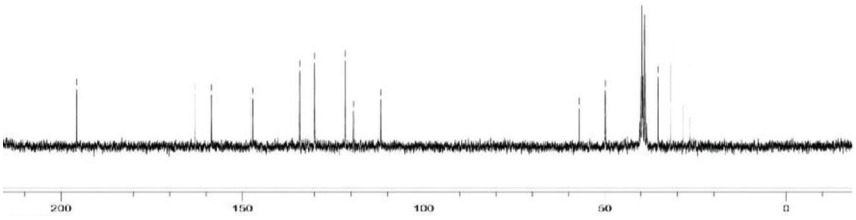


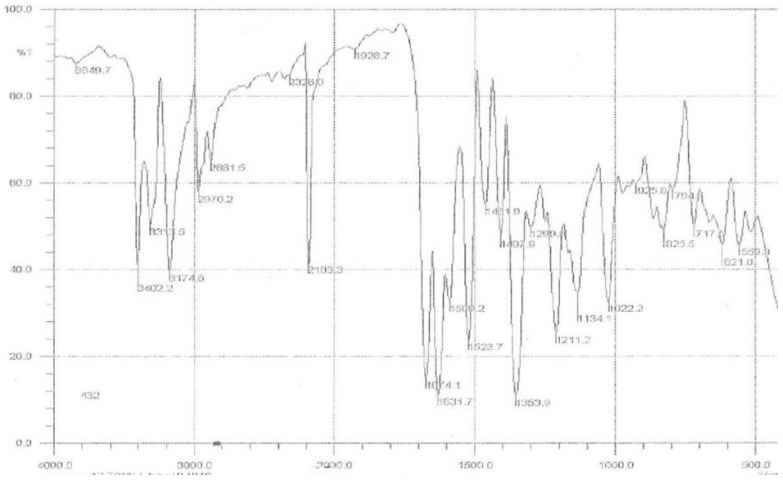




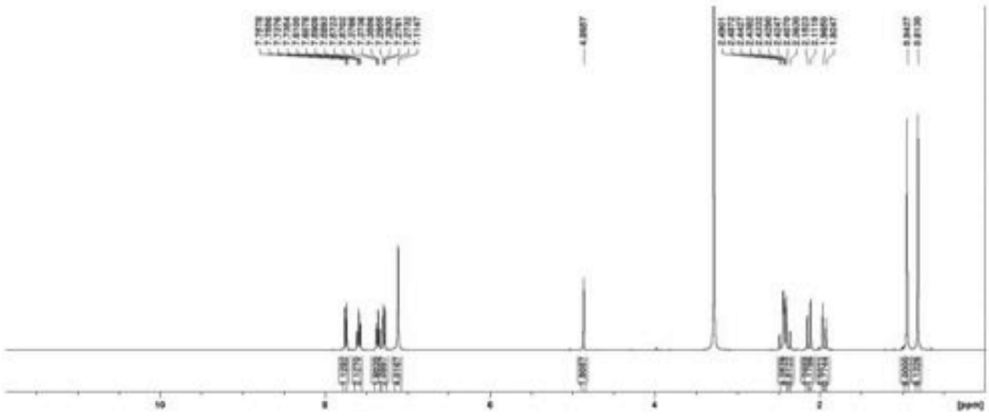
2-amino-7,7-dimethyl-5-oxo-4-(3-nitrophenyl)-5,6,7,8-tetrahydro-4H-chromene-3-carbonitrile:

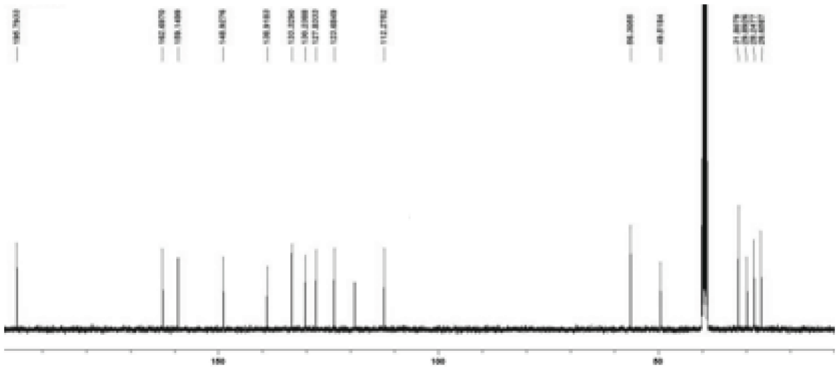


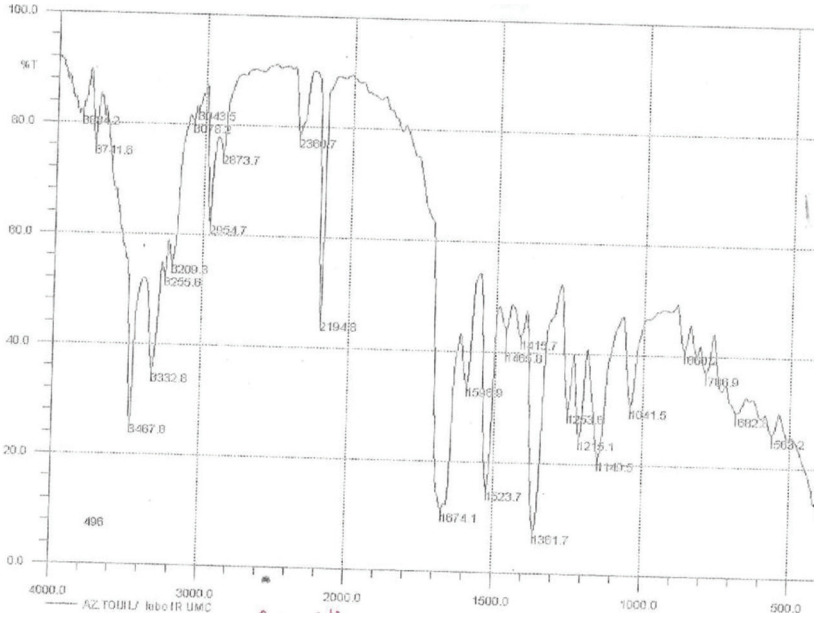




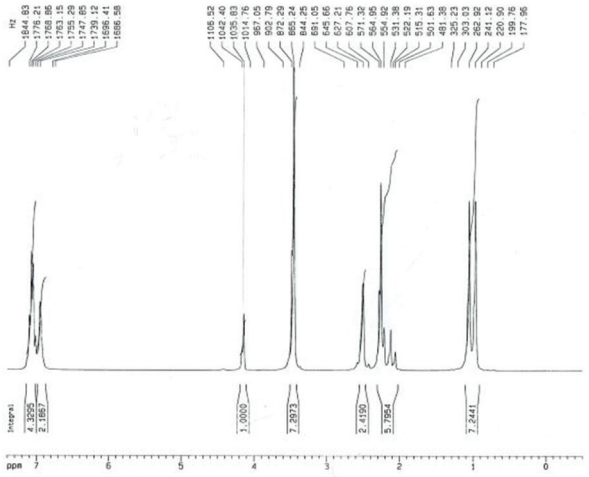
2-amino-7,7-dimethyl-5-oxo-4-(2-nitrophenyl)-5,6,7,8-tetrahydro-4H-chromene-3-carbonitrile:

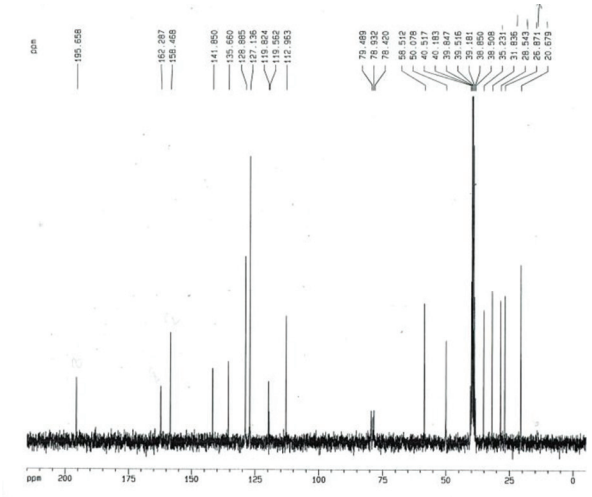


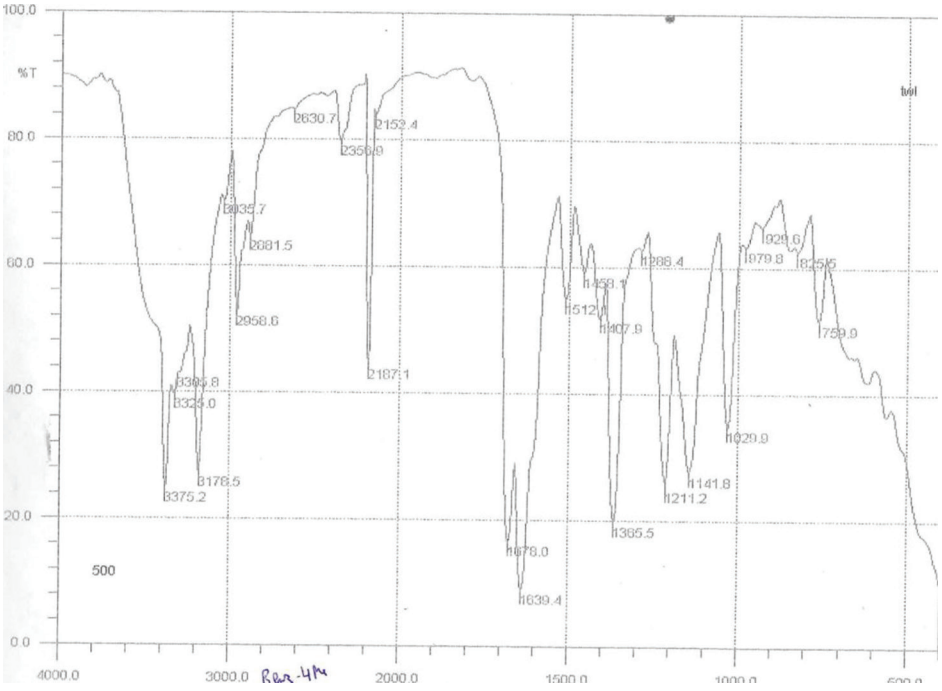




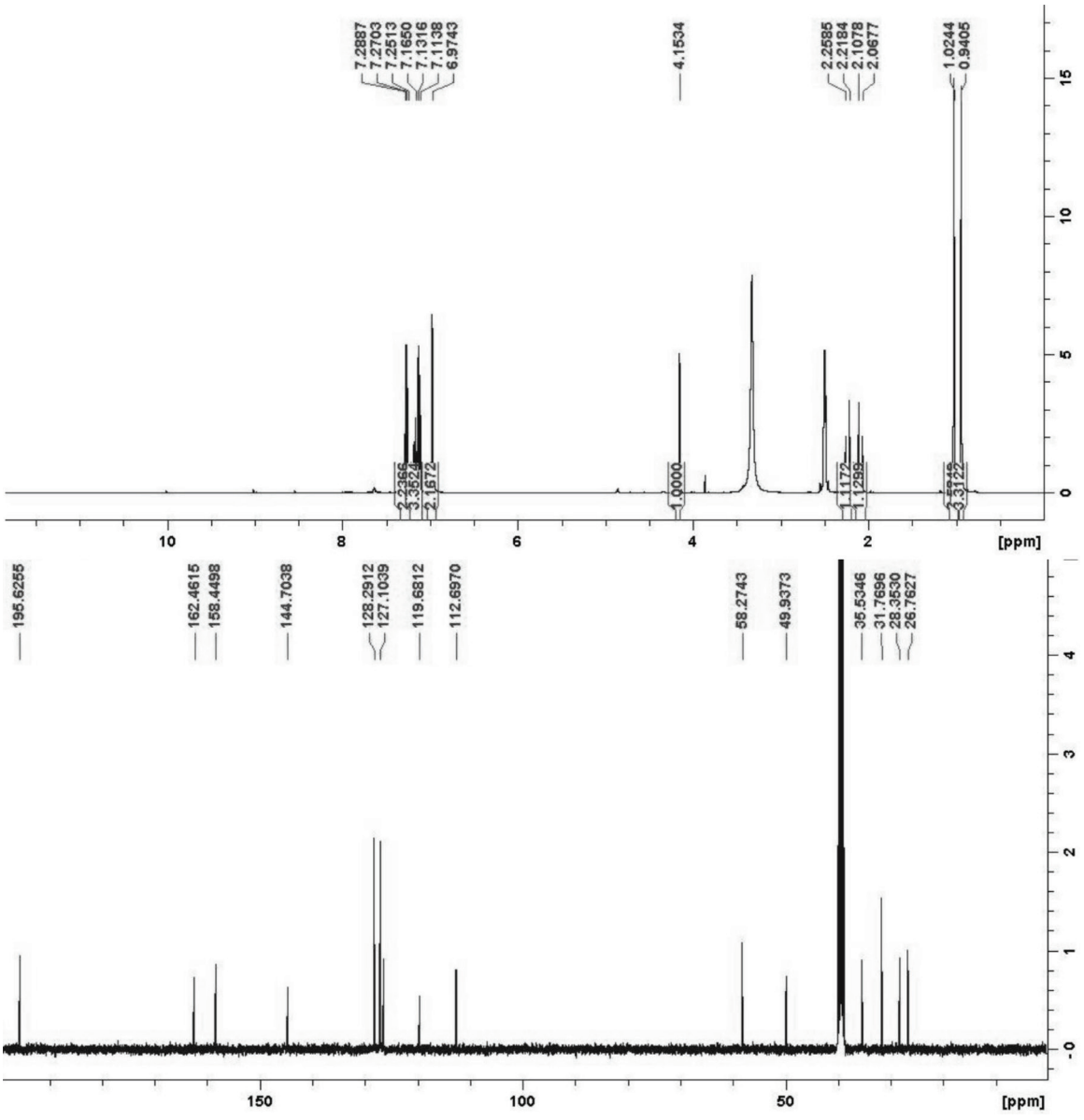
2-amino-7,7-dimethyl-5-oxo-4-(*p*-tolyl)-5,6,7,8-tetrahydro-4H-chromene-3-carbonitrile:



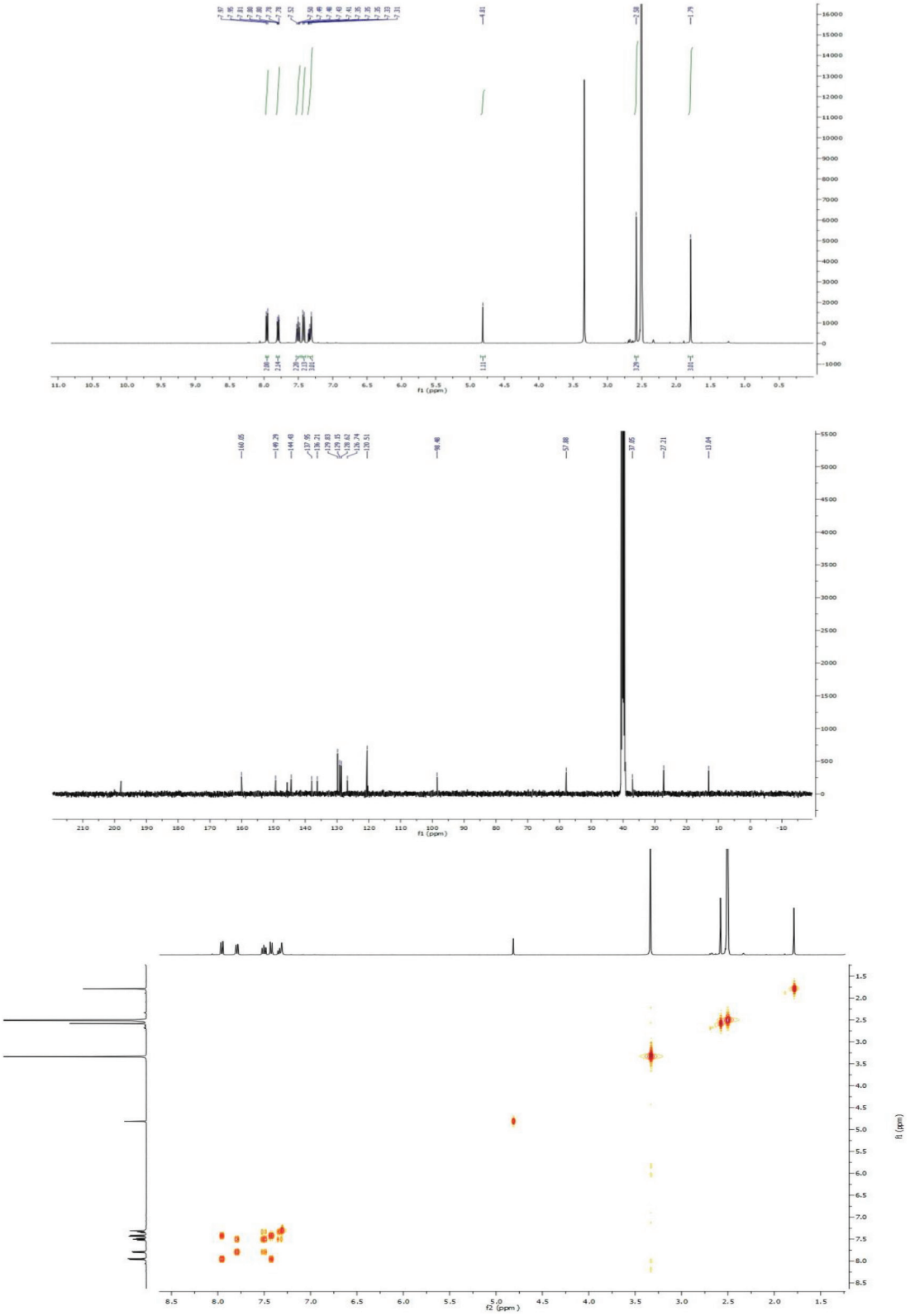


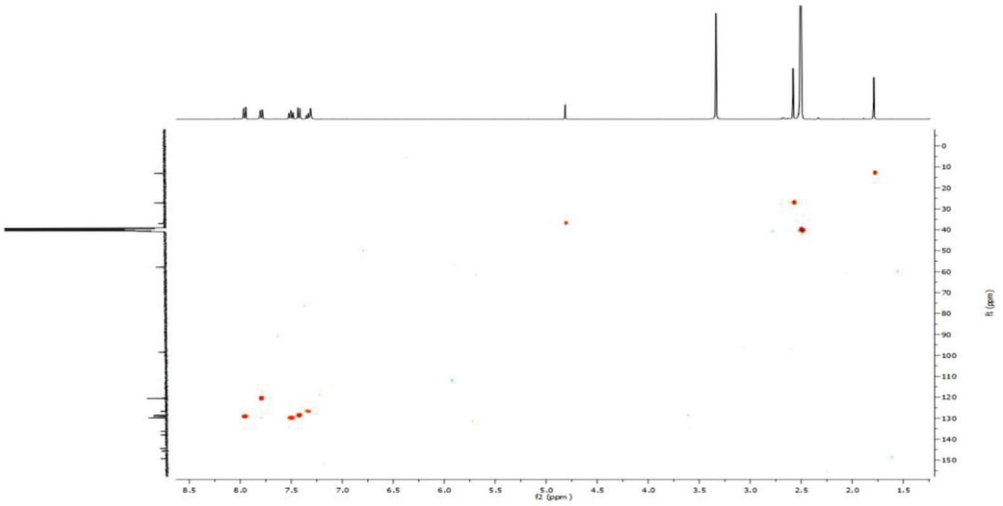


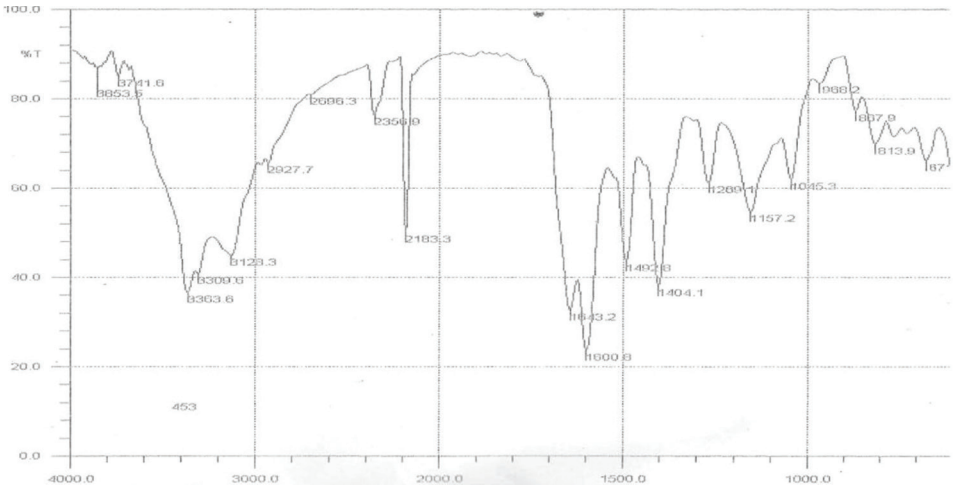
2-amino-7,7-dimethyl-5-oxo-4-phenyl-5,6,7,8-tetrahydro-4H-chromene-3-carbonitrile:



1-phenyl dihydropyrano[2,3-c]pyrazole spectra :
6-amino-3-methyl-1-phenyl-4-(4-acetylphenyl)-1,4-dihydropyrano[2,3-c]pyrazole-5-carbonitrile

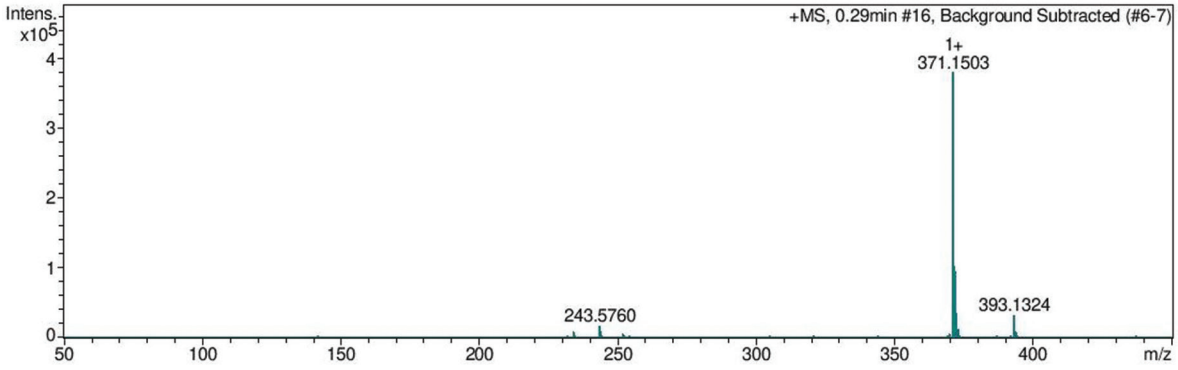


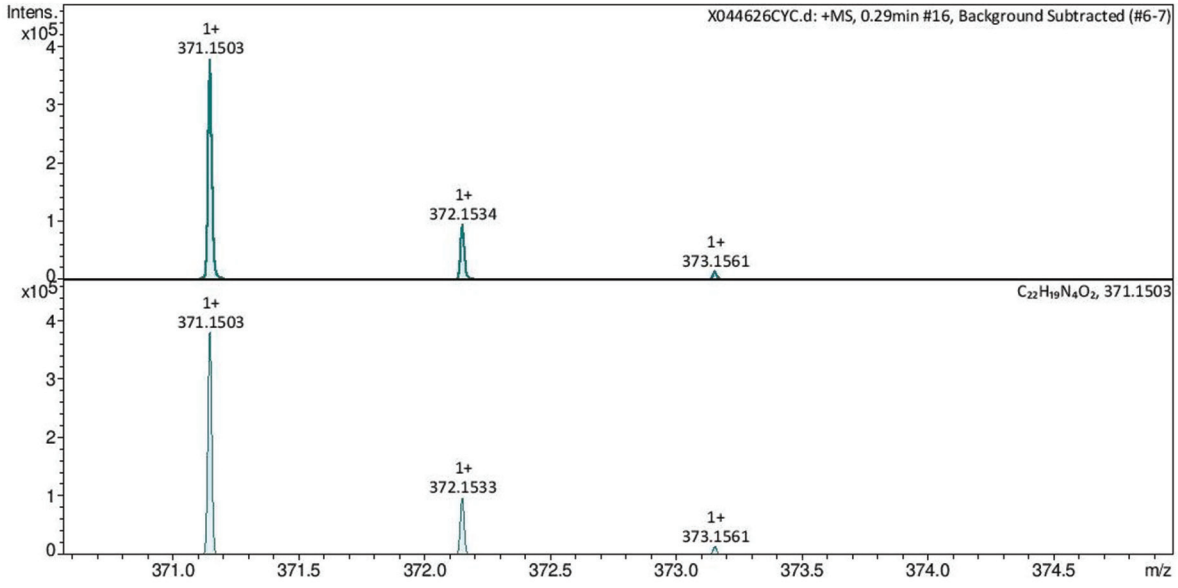

f2 (ppm)
f1 (ppm)


%T
3741.6
3853.6
2686.3
2356.9
2927.7
2183.3
1123.3
3309.0
3363.6
1643.2
1600.8
1492.8
1404.1
1288.1
1157.2
1045.3
968.2
907.9
813.9
453
4000.0
3000.0
2000.0
1500.0
1000.0

Acquisition Parameter

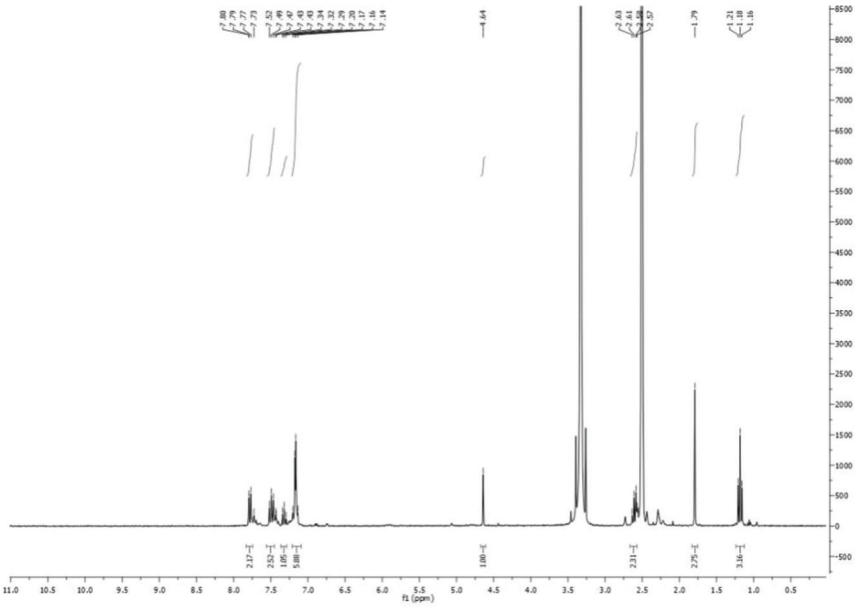
Source Type	ESI	Ion Polarity	Positive	Set Nebulizer	0.6 Bar
Scan Begin	50 m/z	Set Capillary	4500 V	Set Dry Heater	200 °C
Scan End	2500 m/z	Set Collision Cell RF	1800.0 Vpp	Set Dry Gas	7.0 l/min

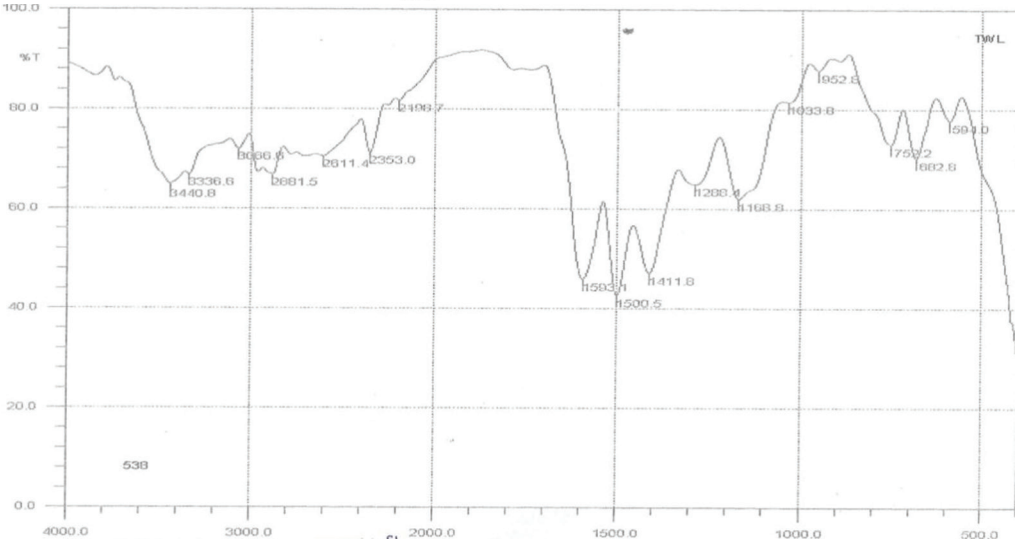




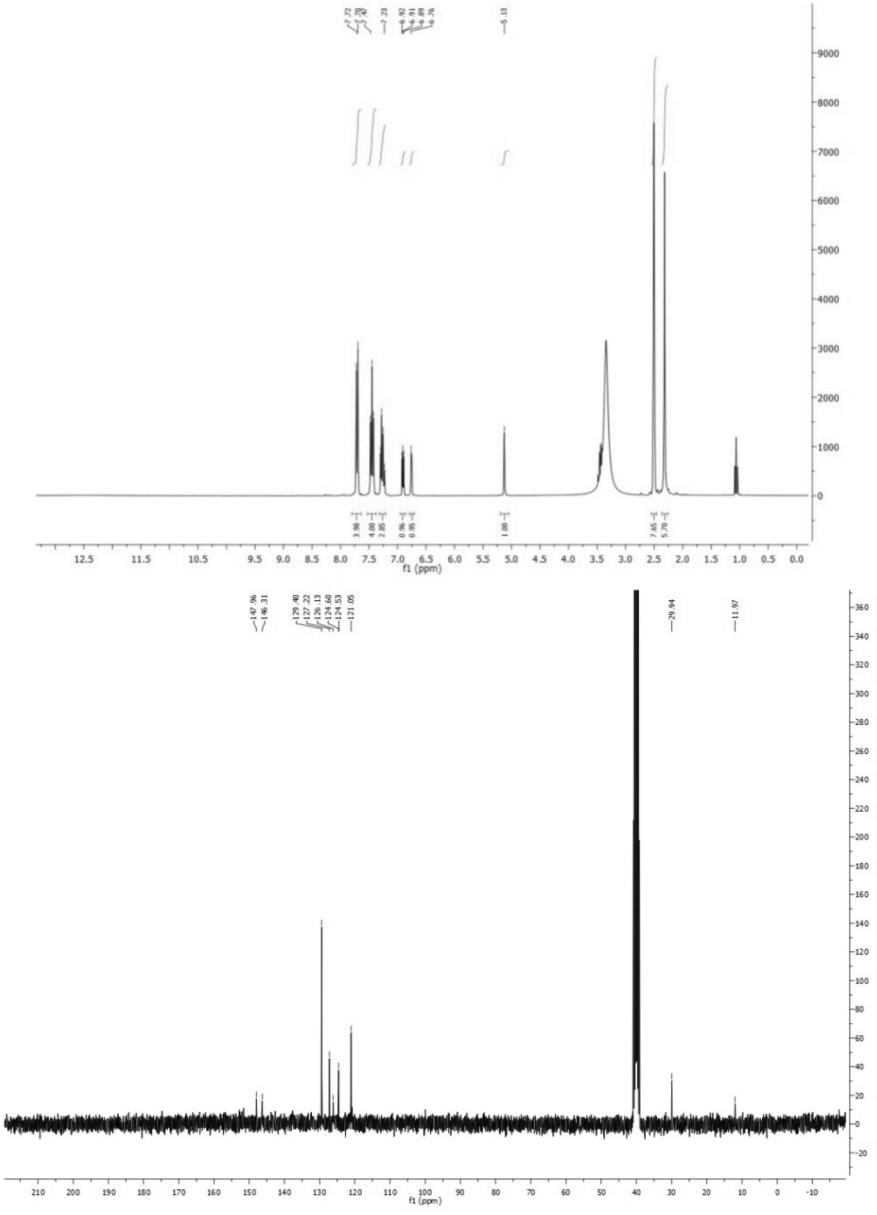
Meas. m/z	z	#	Ion Formula	m/z	err [ppm]	mSigma	rdb	e⁻ Conf
371.150344	1+	1	C22H19N4O2	371.150252	-0.2	3.0	16.0	even
393.132428	1+	1	C22H18N4NaO2	393.132197	-0.6	11.0	16.0	even

6-amino-3-methyl-1-phenyl-4-(4-ethylphenyl)-1,4-dihydropyrano[2,3-c]pyrazole-5-carbonitrile

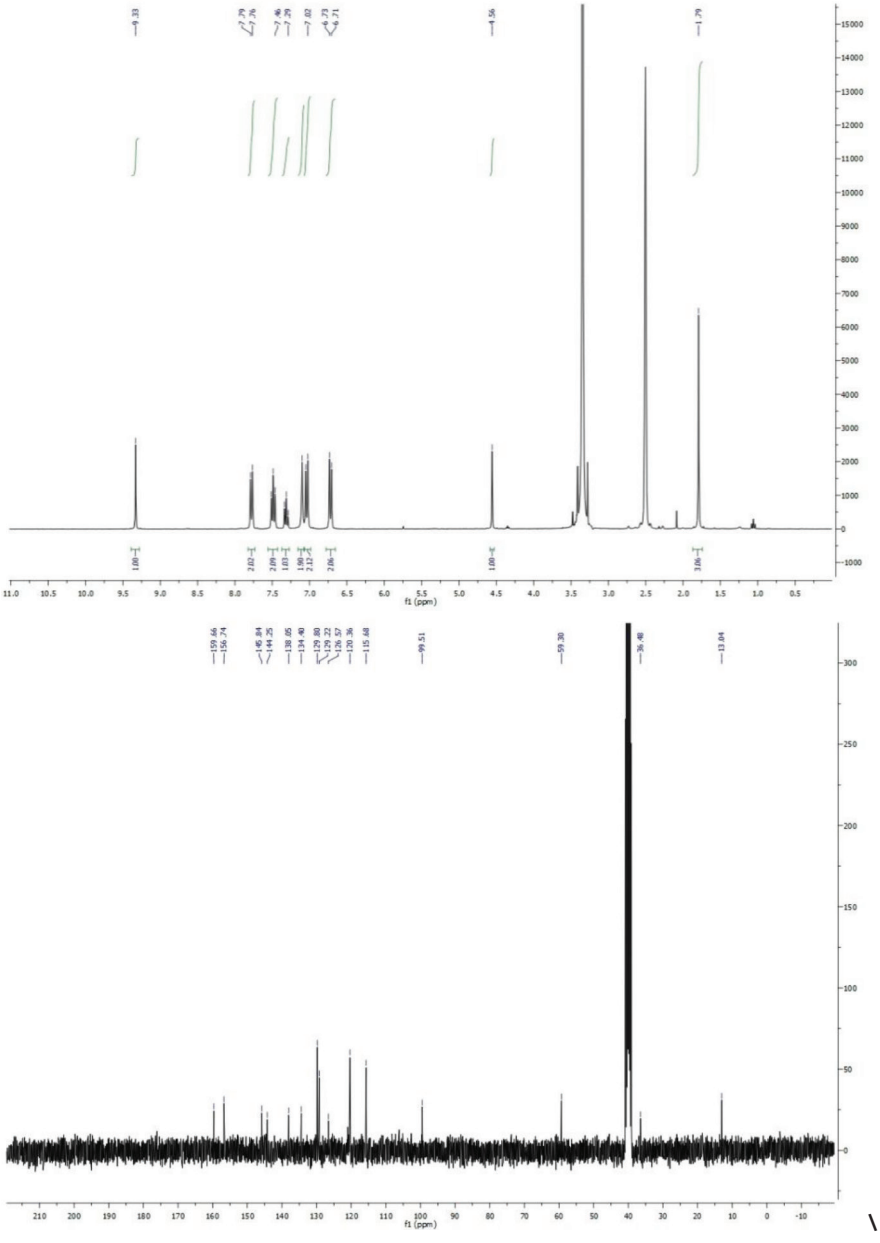




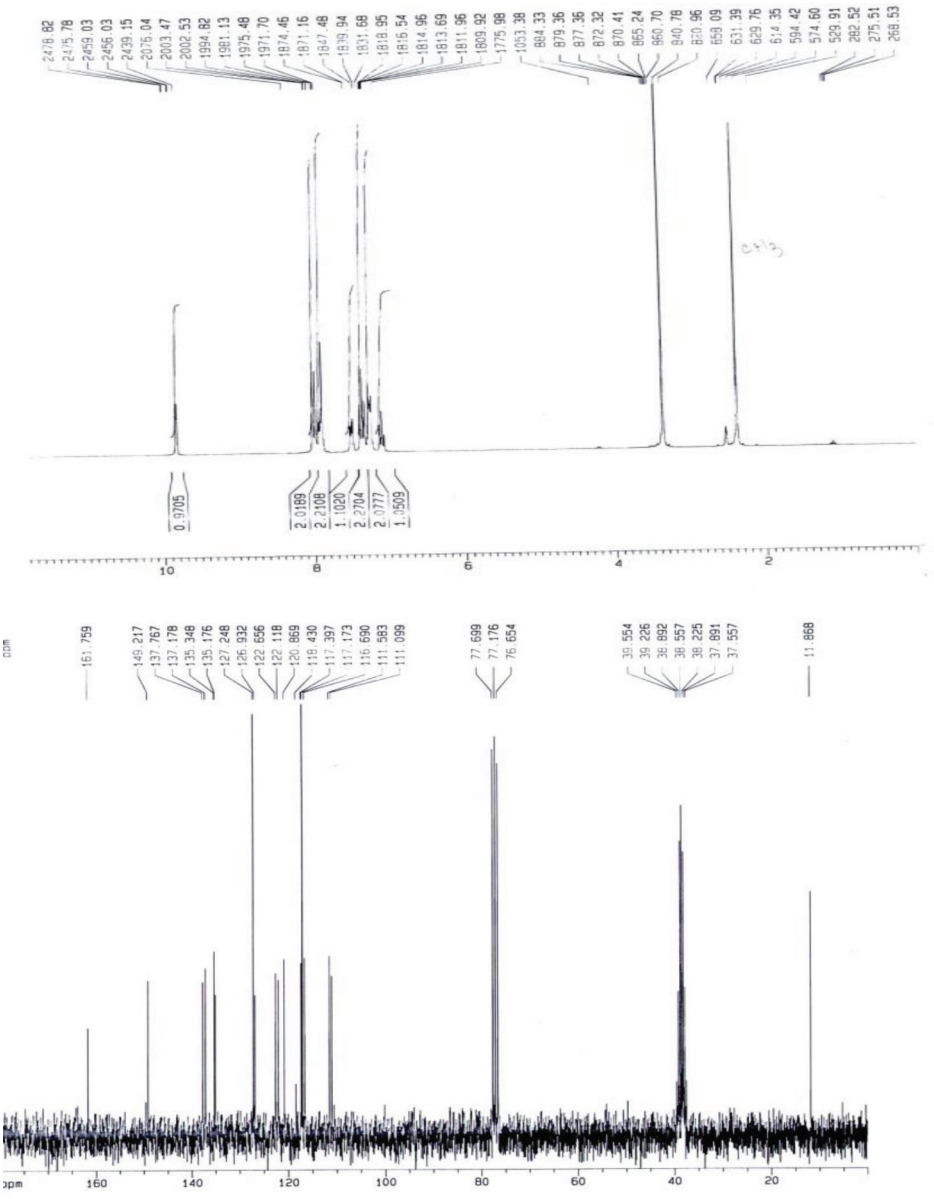
6-amino-3-methyl-1-phenyl-4-(2-thienyl)-1,4-dihydropyrano[2,3-c]pyrazole-5-carbonitrile



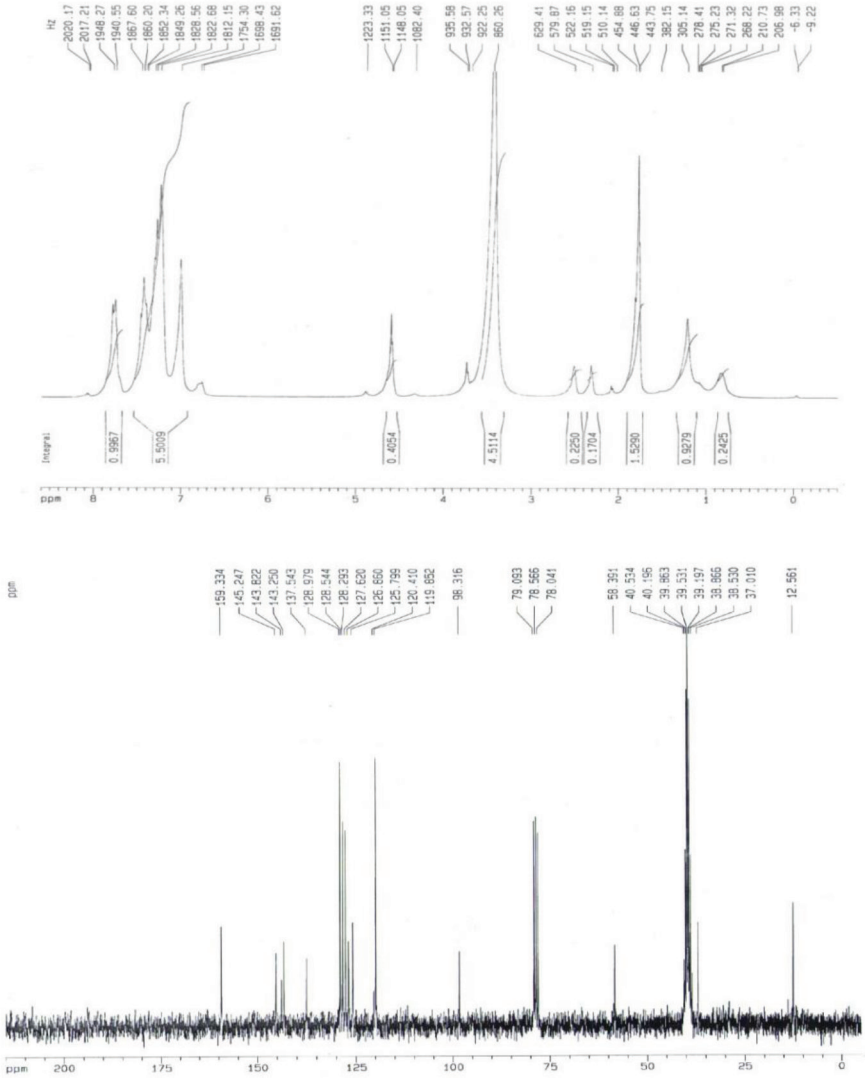
6-amino-3-methyl-1-phenyl-4-(4-hydroxyphenyl)-1,4-dihydropyrano[2,3-c]pyrazole-5-carbonitrile



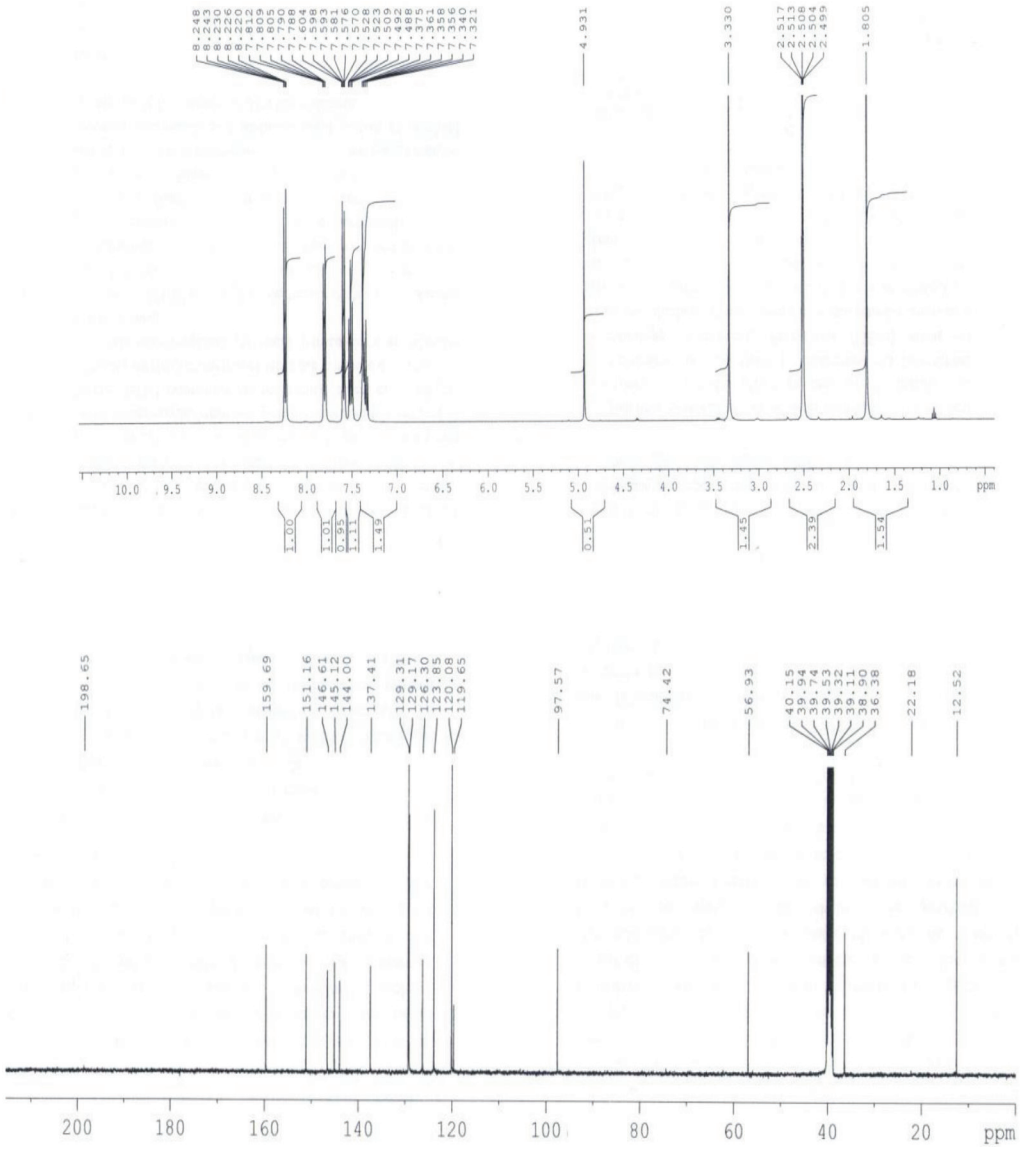
6-amino-3-methyl-1-phenyl-4-(1*H*-indol-3-yl)-1,4-dihydropyrano[2,3-c]pyrazole-5-carbonitrile



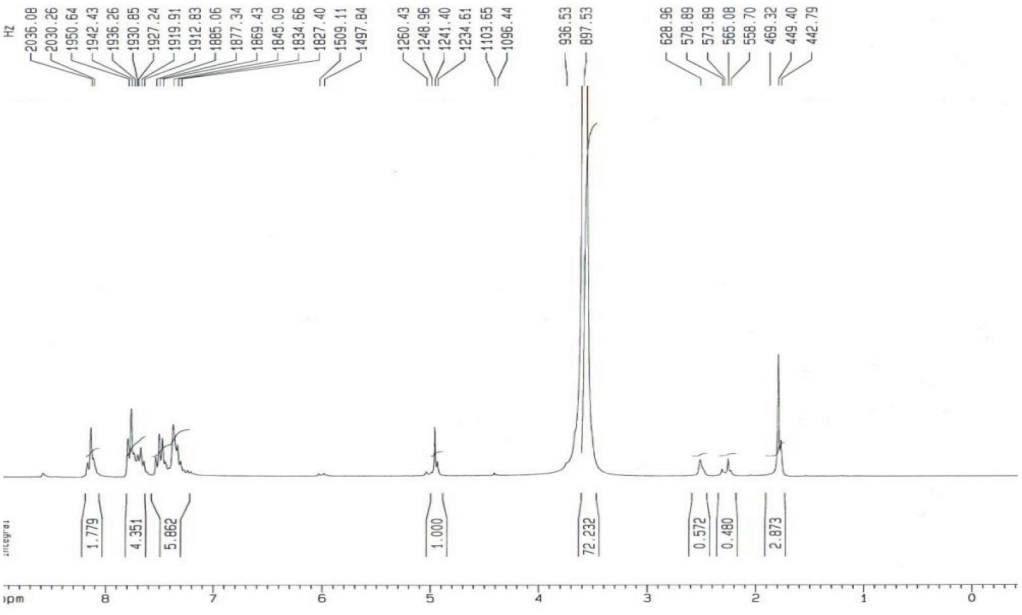
6-amino-3-methyl-1-phenyl-4-phenyl-1,4-dihydropyrano[2,3-c]pyrazole-5-carbonitrile

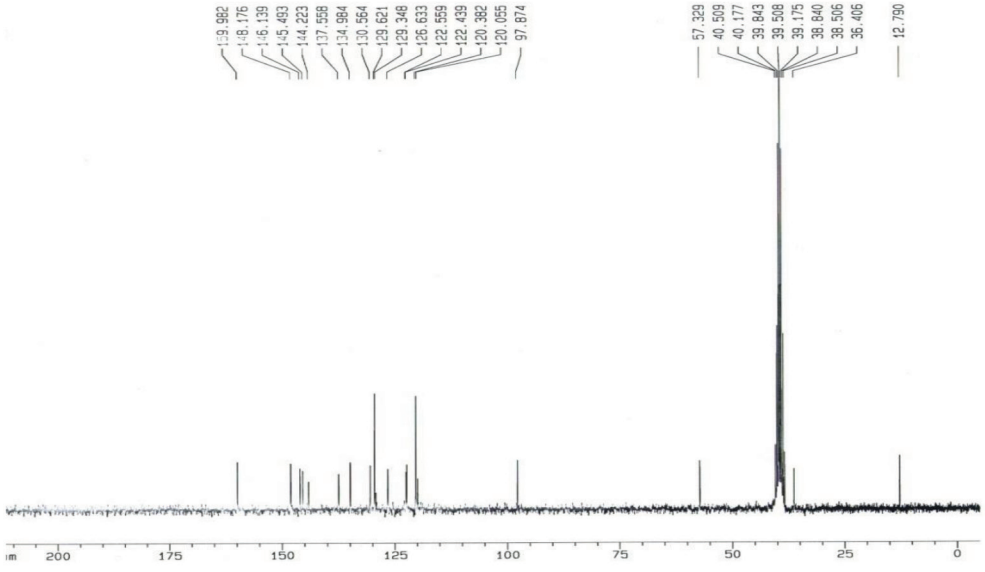


6-amino-3-methyl-1-phenyl-4-(4-nitrophenyl)-1,4-dihydropyrano[2,3-c]pyrazole-5-carbonitrile

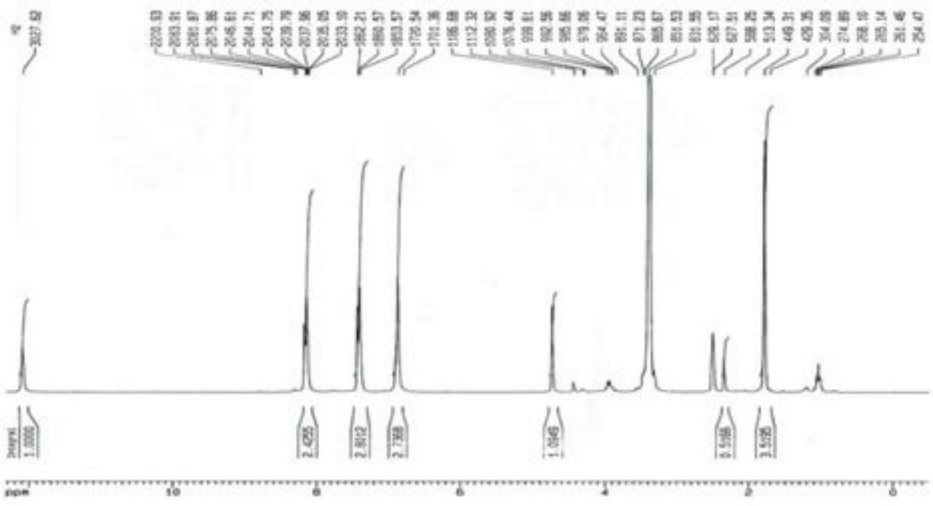


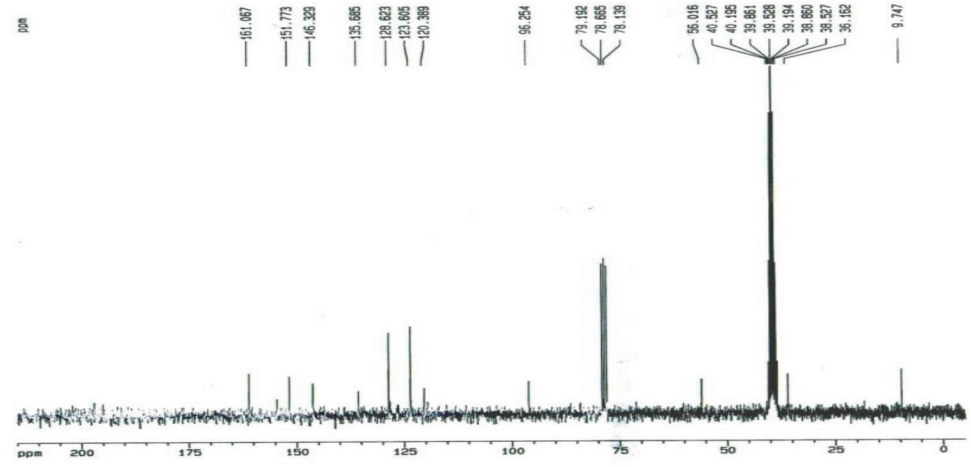
6-amino-3-methyl-1-phenyl-4-(3-nitrophenyl)-1,4-dihydropyrano[2,3-c]pyrazole-5-carbonitrile

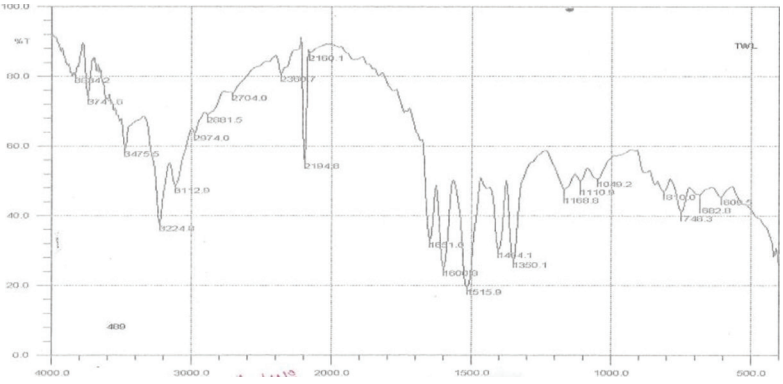




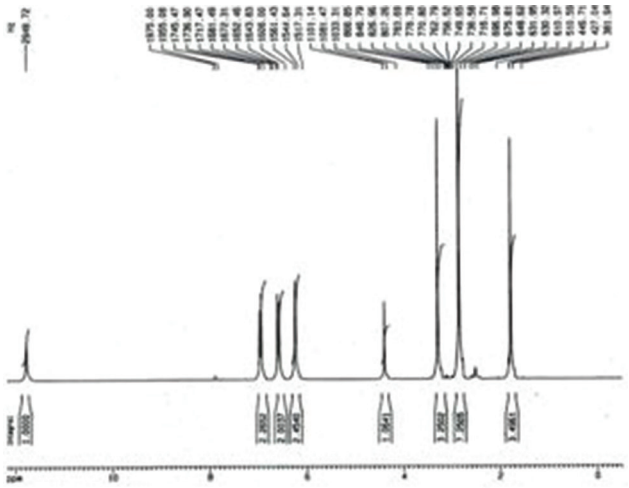
dihydropyrano[2,3-c]pyrazole **spectra :**
6-amino-3-methyl-4-(4-nitrophenyl)-2,4-dihydropyrano[2,3-c]pyrazole-5-carbonitrile

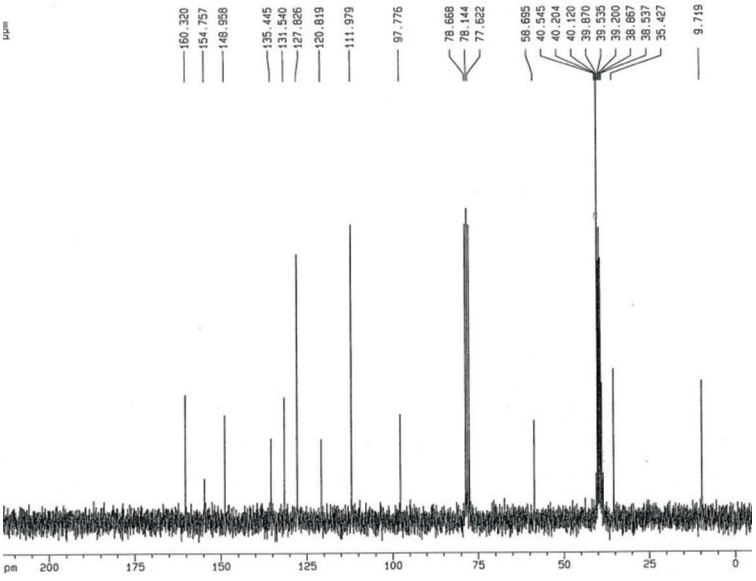


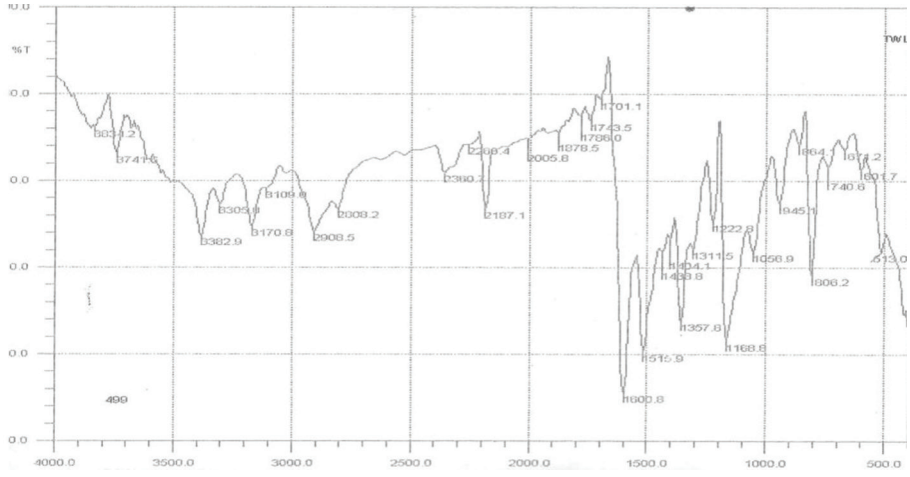




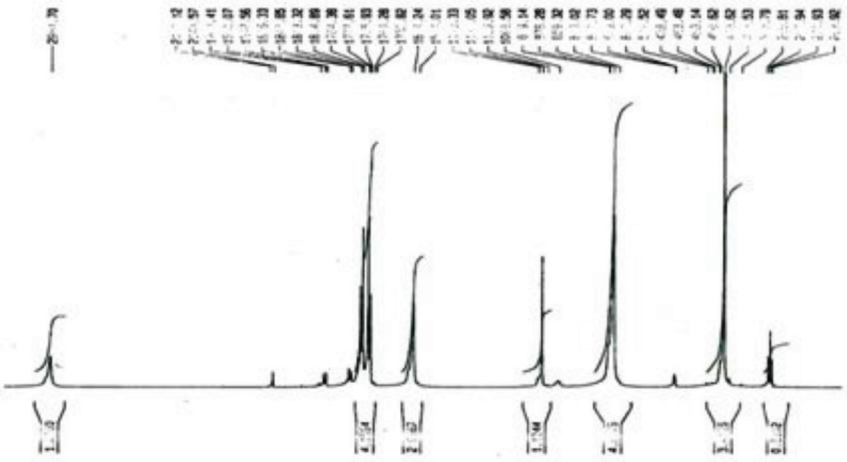
6-amino-3-methyl-4-(4-dimethylaminophenyl)-2,4-dihydropyrano[2,3-c]pyrazole-5-carbonitrile

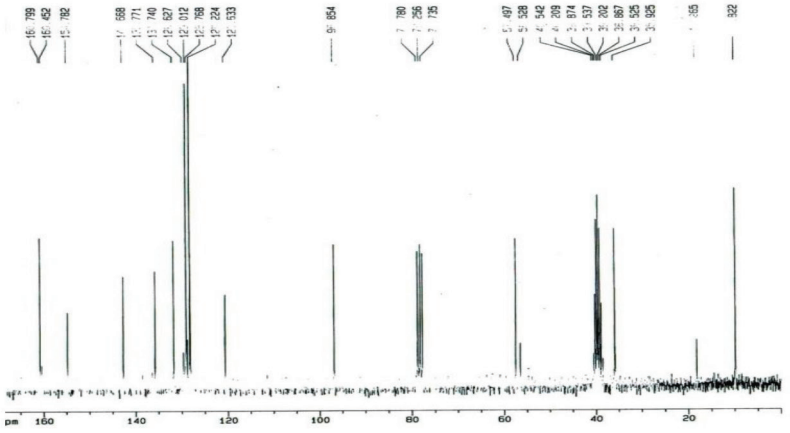


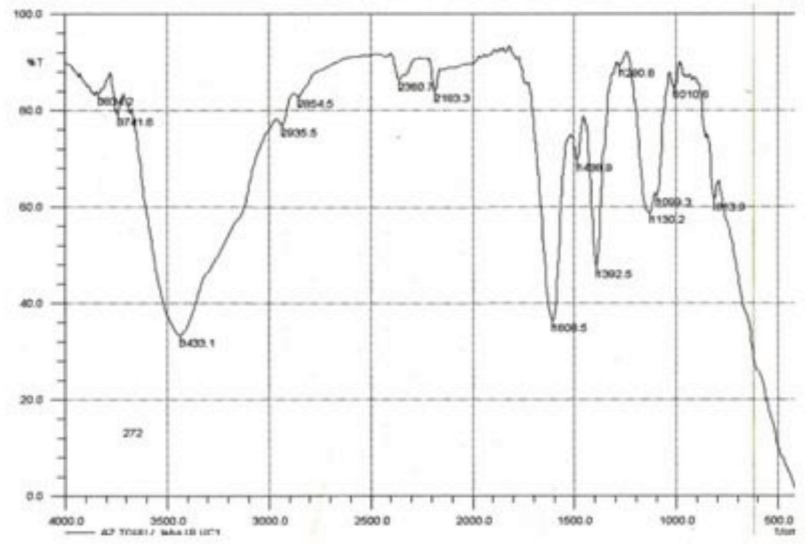




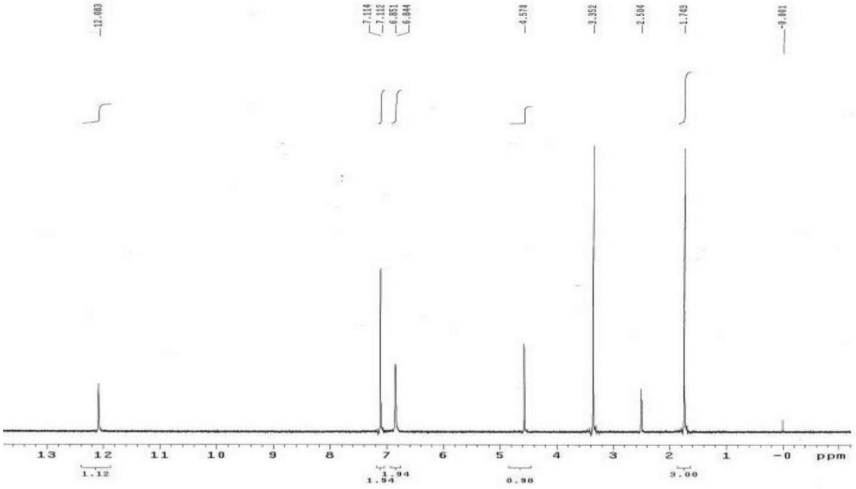
6-amino-3-methyl-4-(4-chlorophenyl)-2,4-dihydropyrano[2,3-c]pyrazole-5-carbonitrile

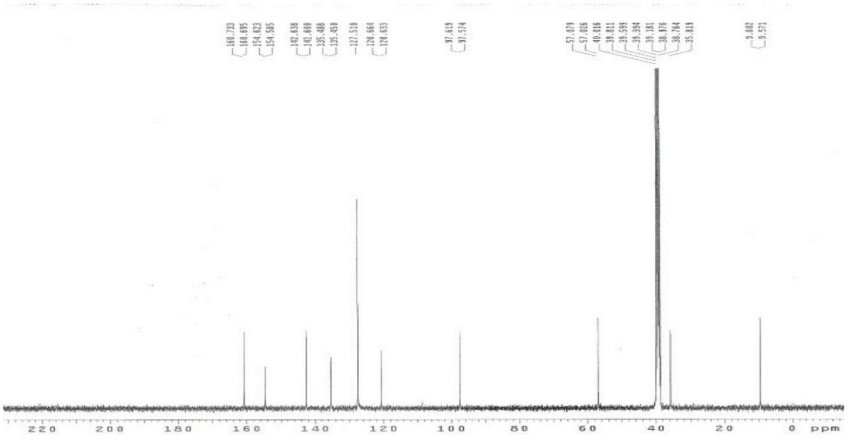


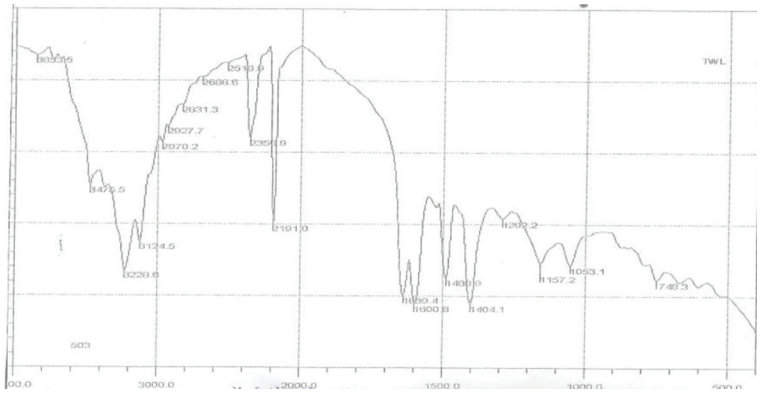




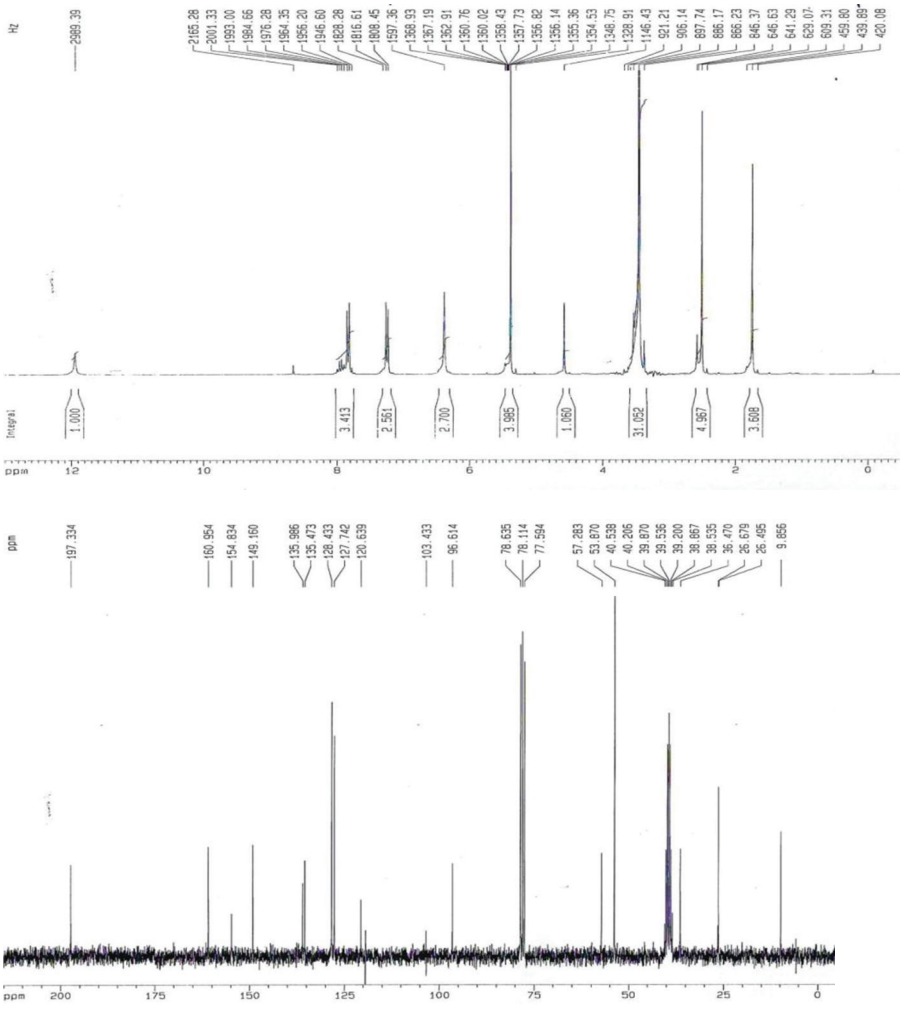
4,4’-(1,4-phenylene)bis(6-amino-3-methyl-2,4-dihydropyrano[2,3-c]pyrazole-5-carbonitrile)







6-amino-3-methyl-4-(p-formylphenyl)-2,4-dihydropyrano[2,3-c]pyrazole-5-carbonitrile



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6-amino-3-methyl-4-(p-tolylphenyl)-2,4-dihydropyrano[2,3-c]pyrazole-5-carbonitrile