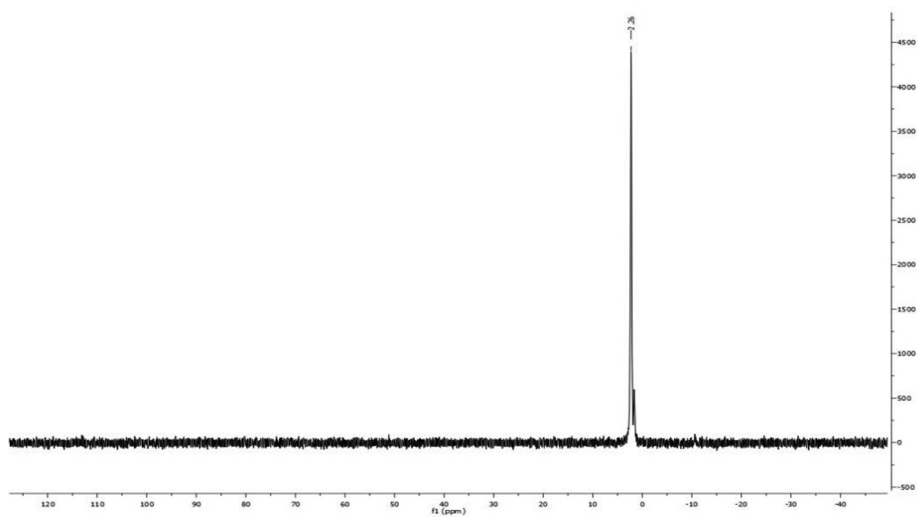
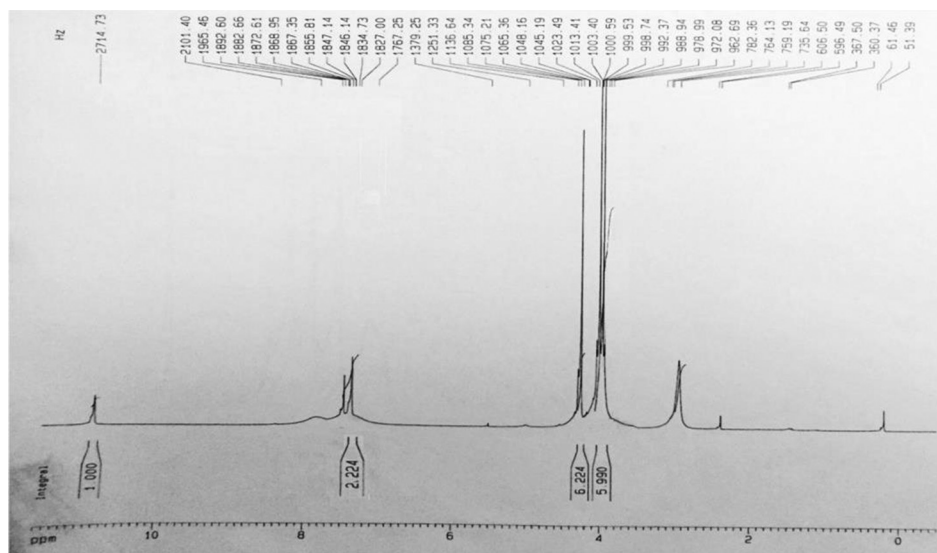
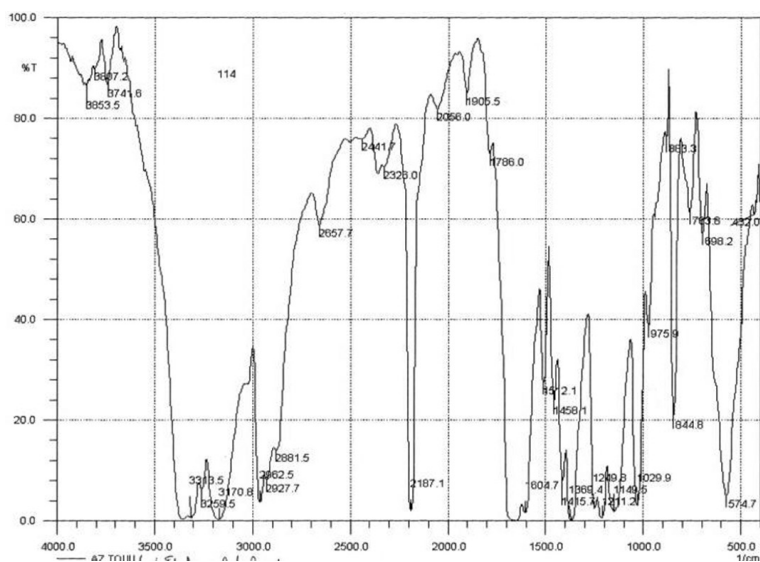
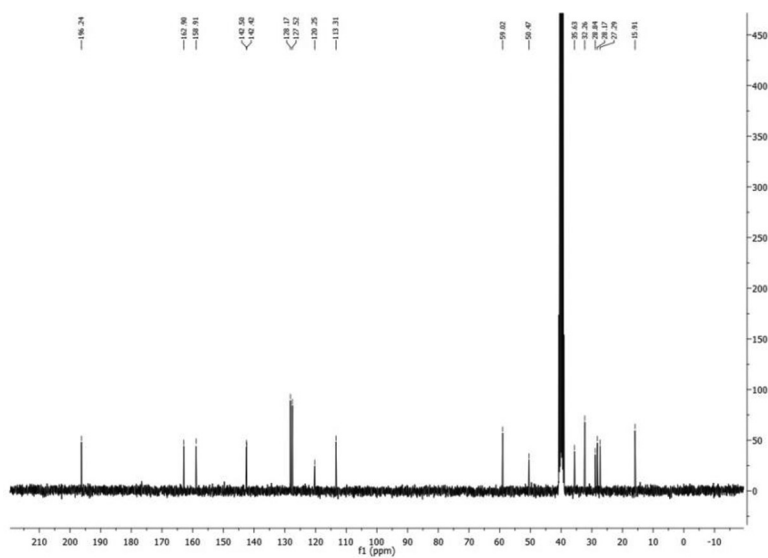
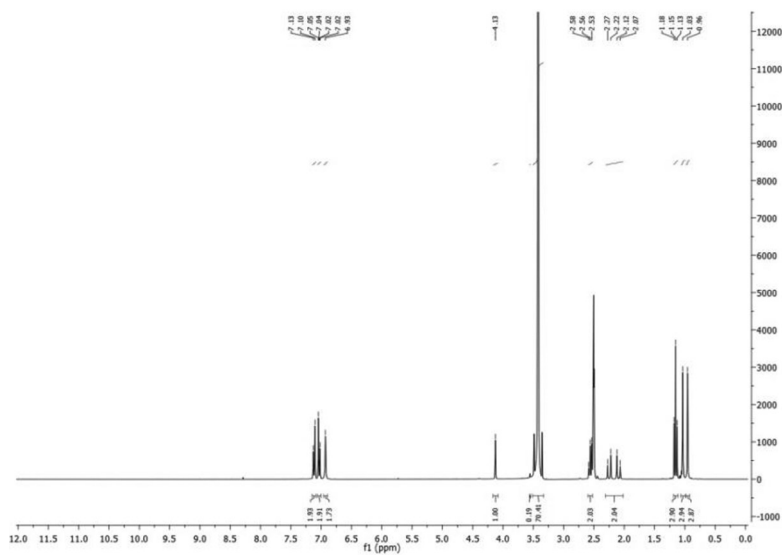
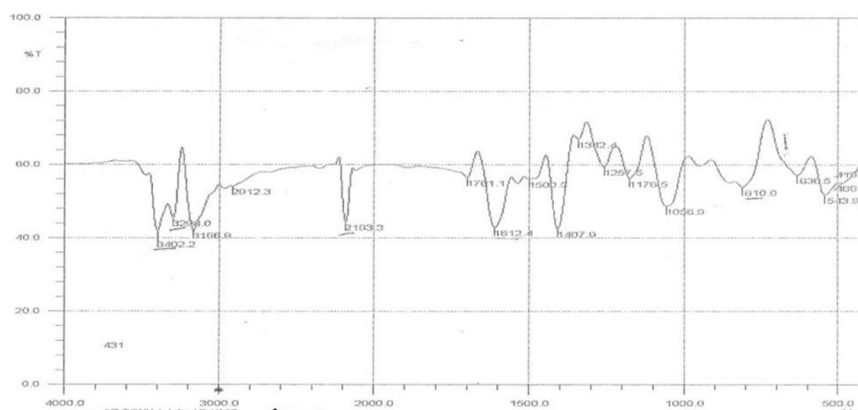
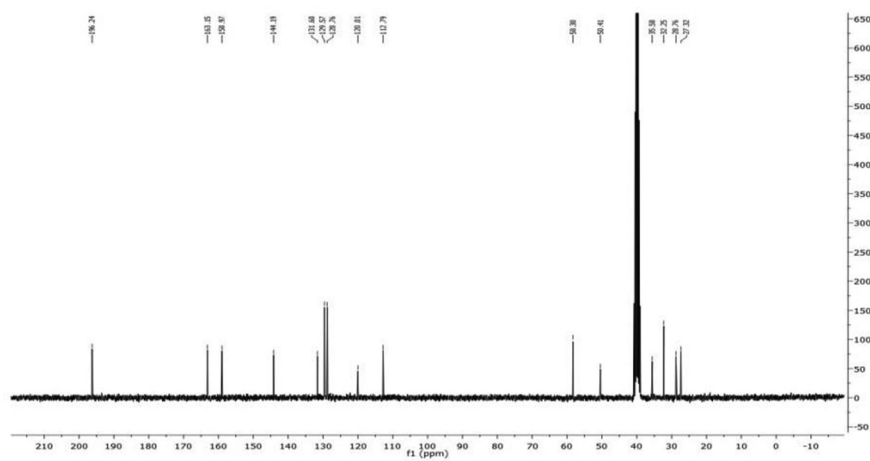
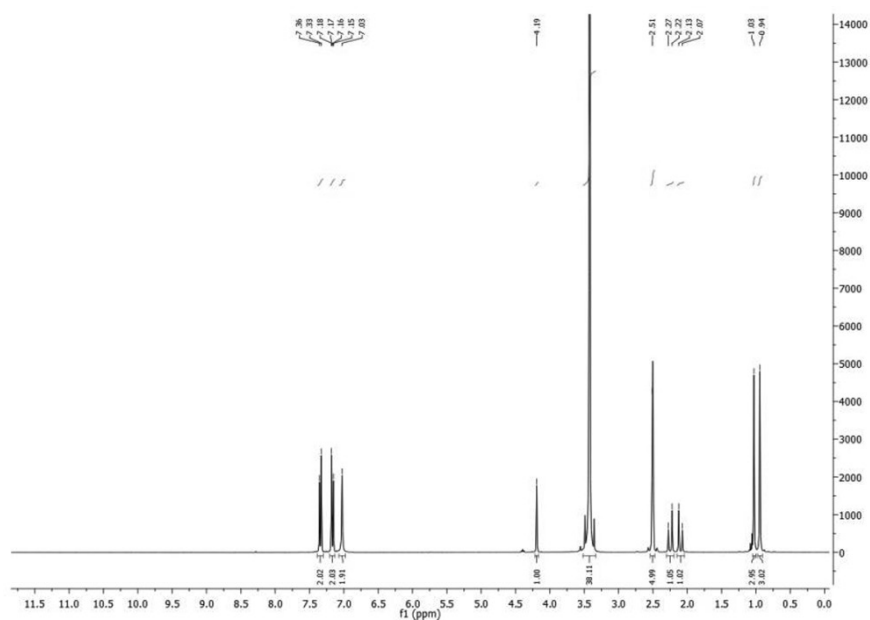


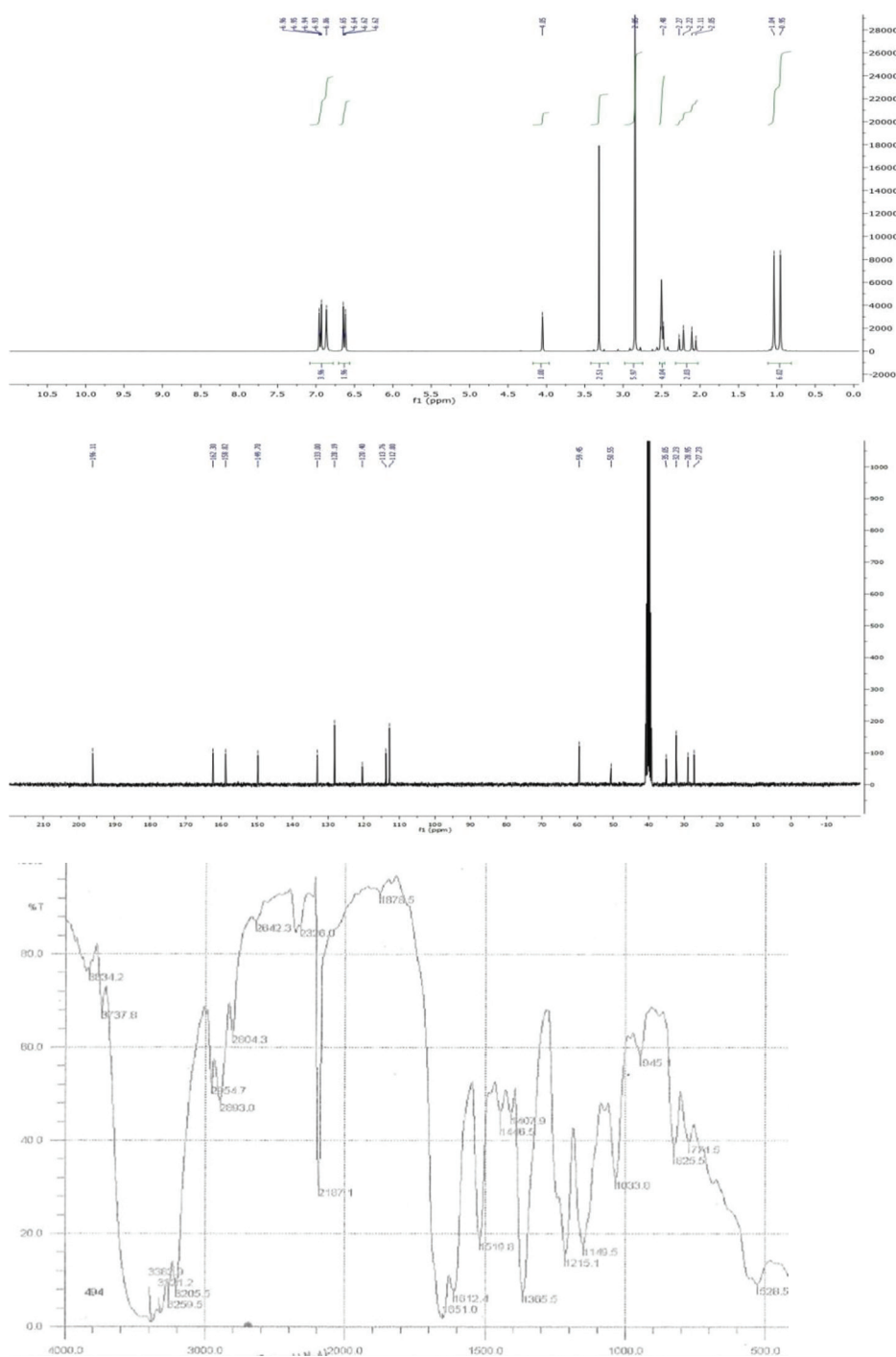
Supporting Information

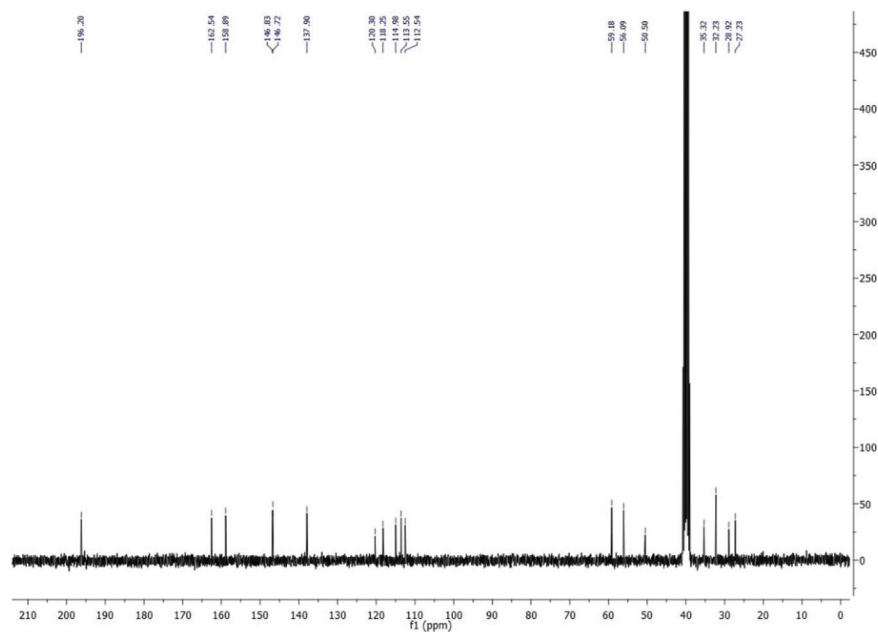
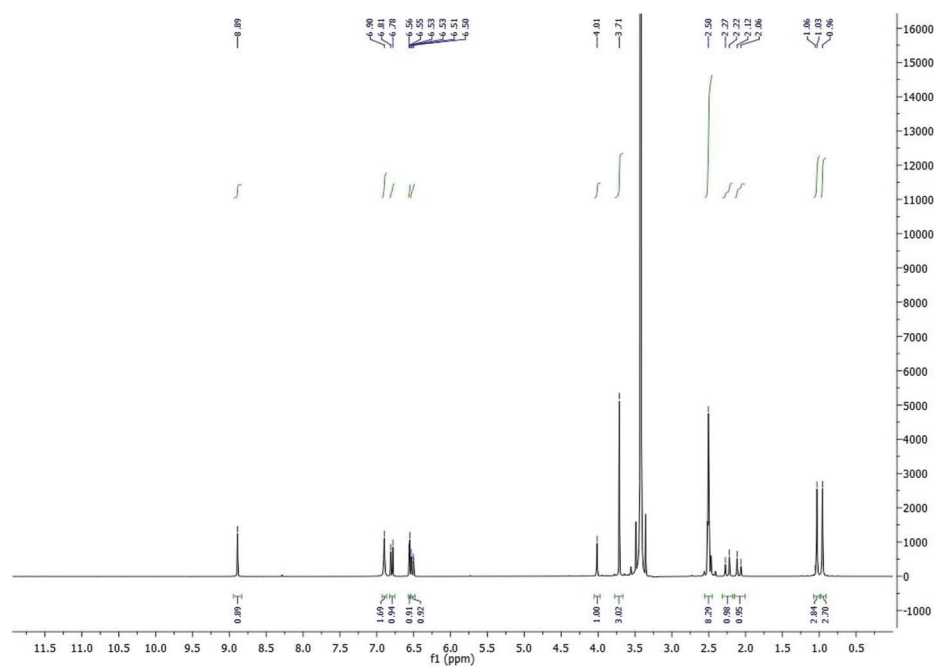
1,3-dimethyl imidazolium dimethylphosphate [DMImd-DMP] :

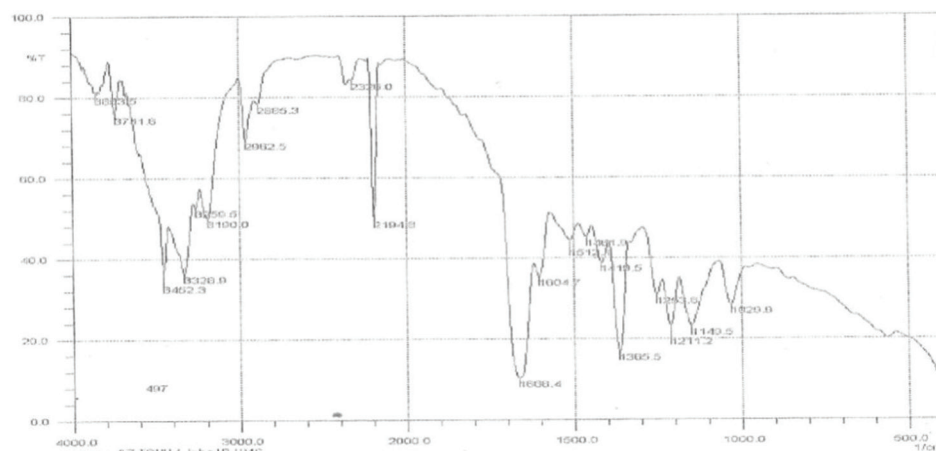
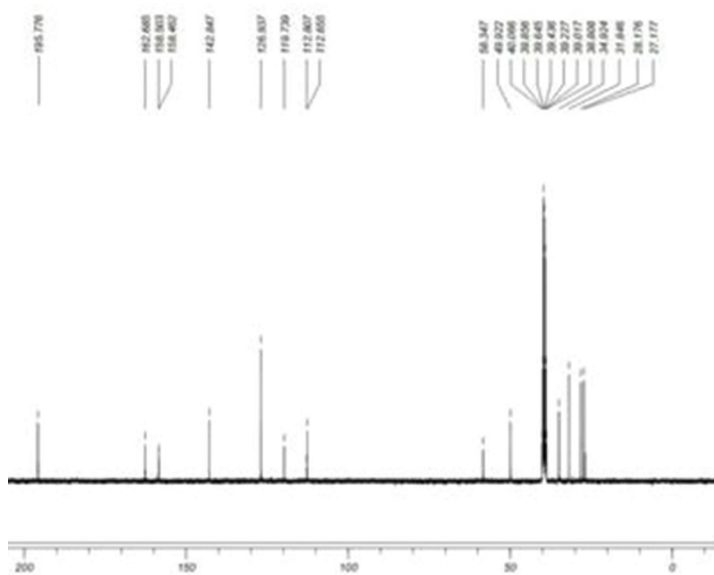


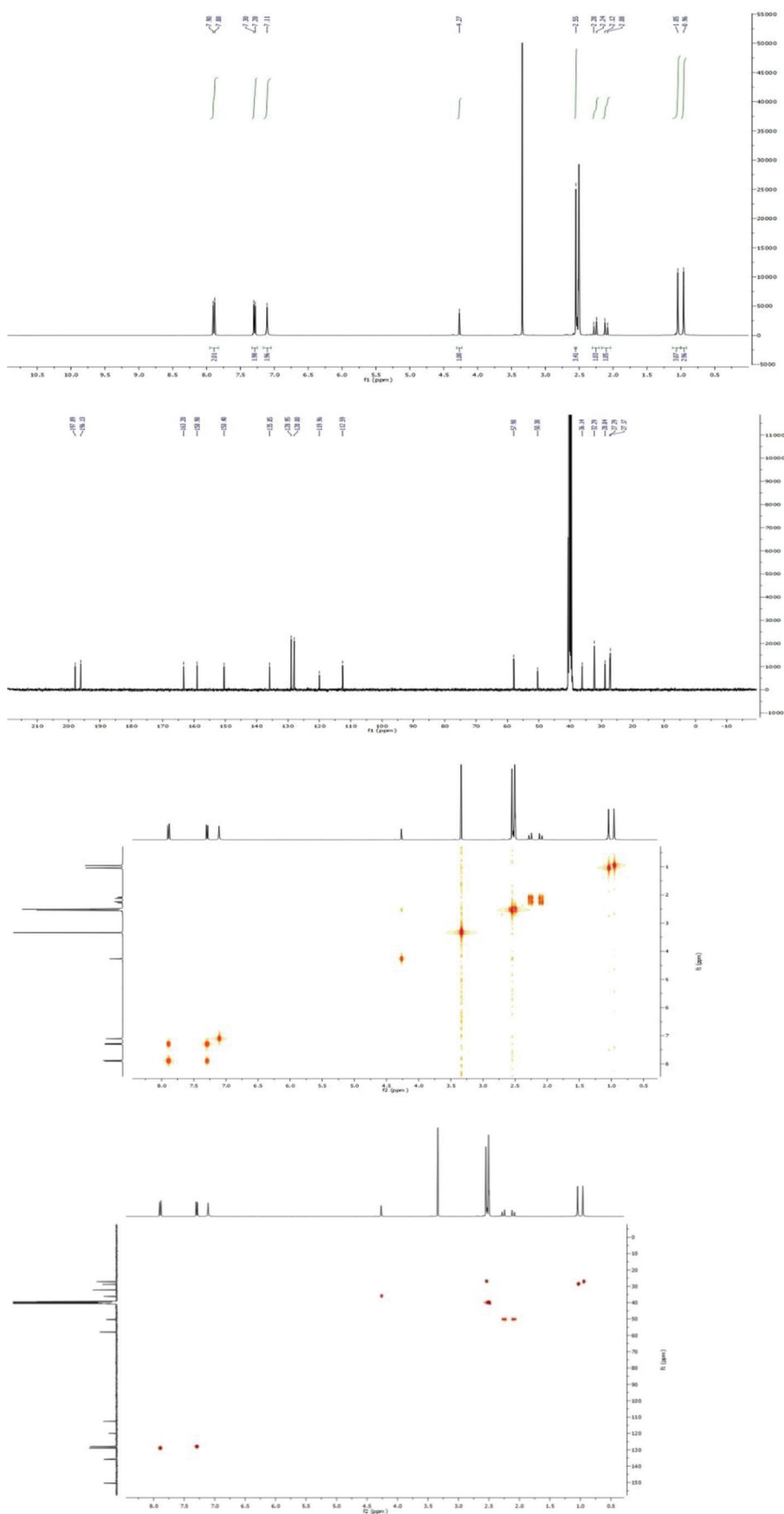
4H-benzo-[b]pyrans spectra :**2-amino-7,7-dimethyl-5-oxo-4-(4-ethylphenyl)-5,6,7,8-tetrahydro-4H-chromene-3-carbonitrile:**

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:

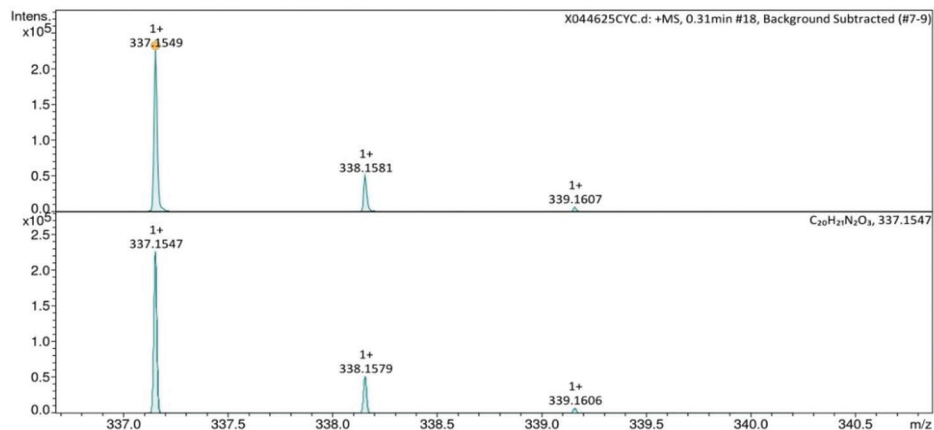
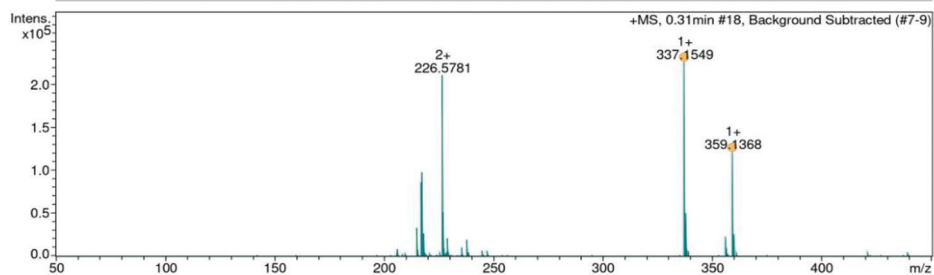
2-amino-7,7-dimethyl-5-oxo-4-(3-hydroxy-4-methoxyphenyl)-5,6,7,8-tetrahydro-4H-chromene-3-carbonitrile:



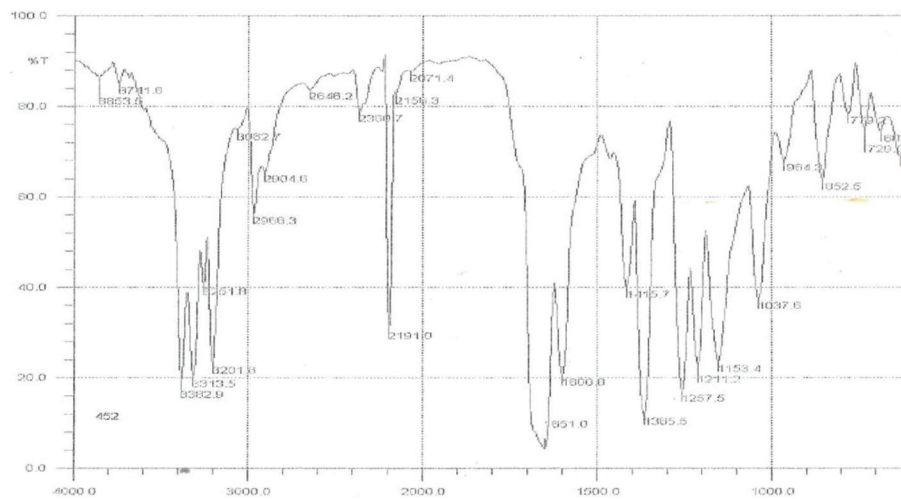
2-amino-7,7-dimethyl-5-oxo-4-(4-acetylphenyl)-5,6,7,8-tetrahydro-4H-chromene-3-carbonitrile:

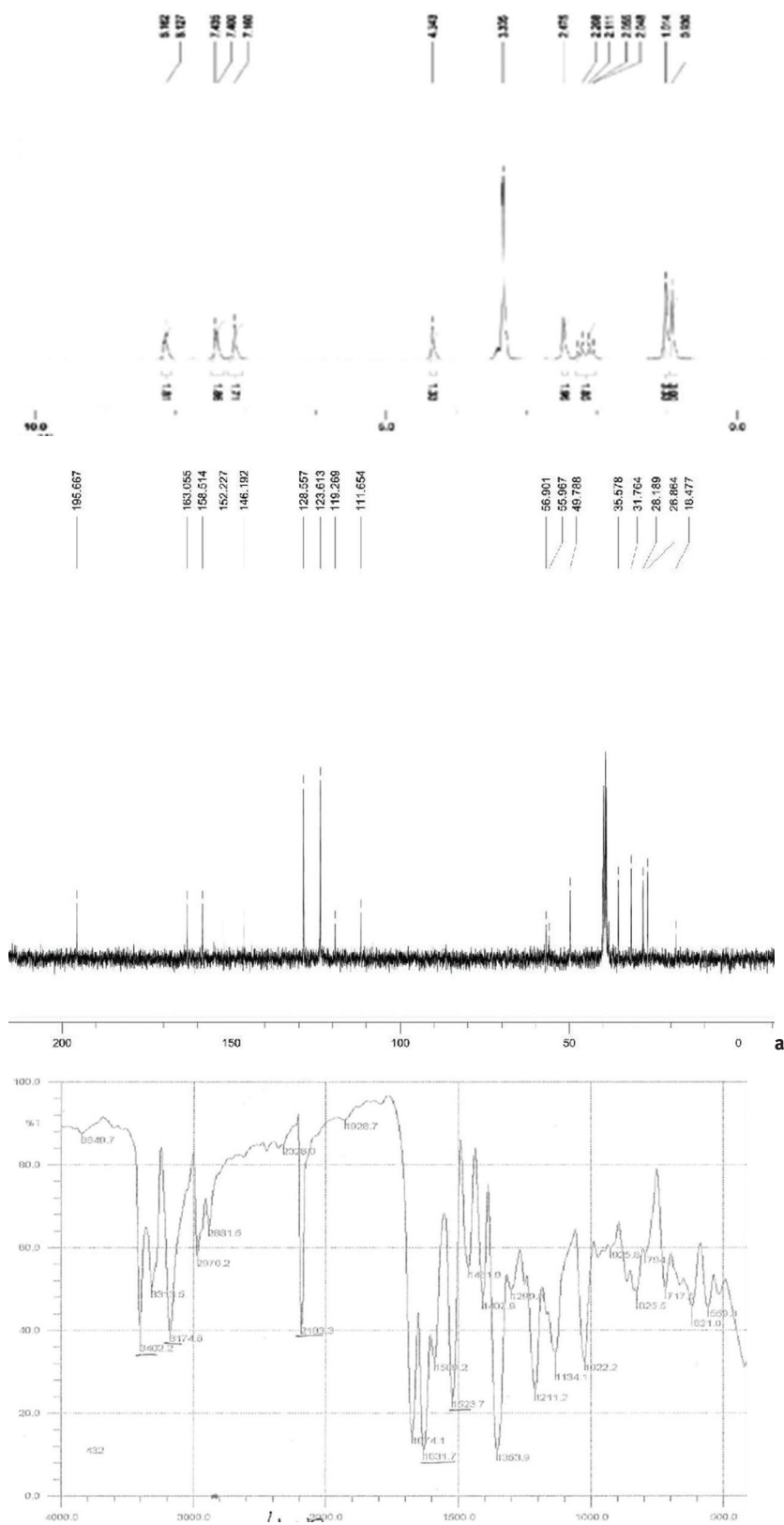
Acquisition Parameter

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



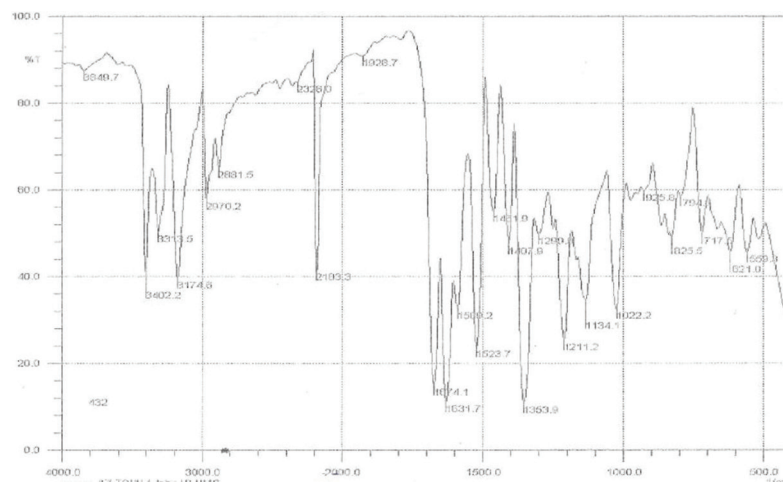
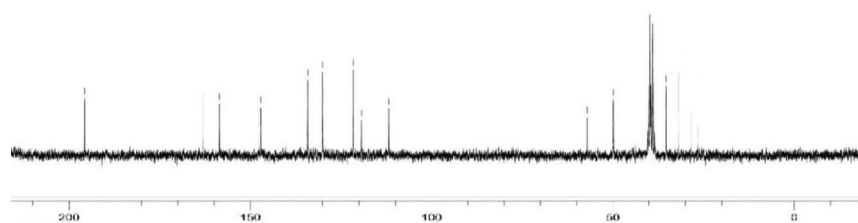
Meas. m/z	z	#	Ion Formula	m/z	err [ppm]	mSigma	rdb	e ⁻	Conf
337.154890	1+	1	C ₂₀ H ₂₁ N ₂ O ₃	337.154669	-0.7	2.1	12.0	even	
359.136838	1+	1	C ₂₀ H ₂₀ N ₂ NaO ₃	359.136613	-0.6	7.9	12.0	even	



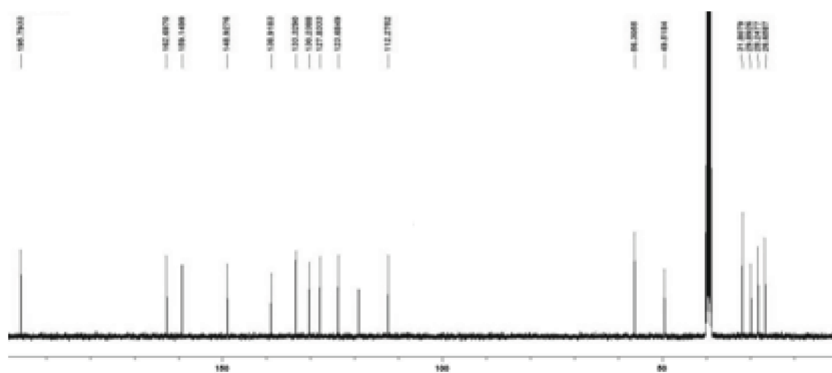
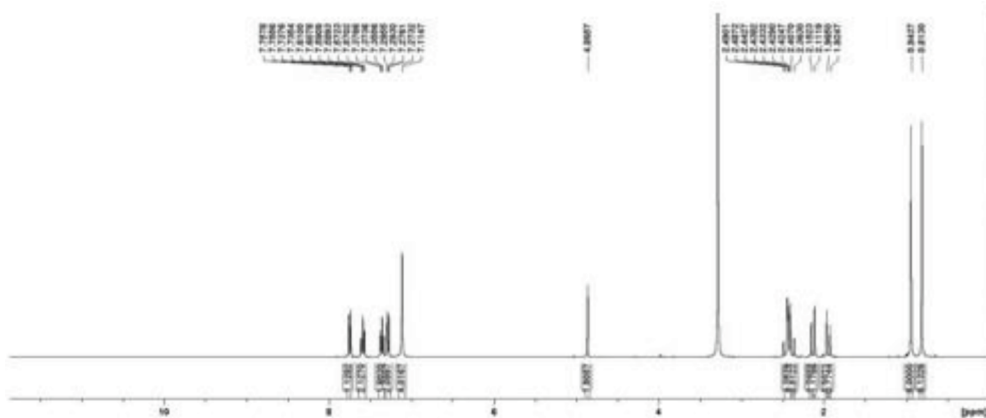
2-amino-7,7-dimethyl-5-oxo-4-(4-nitrophenyl)-5,6,7,8-tetrahydro-4H-chromene-3-carbonitrile:

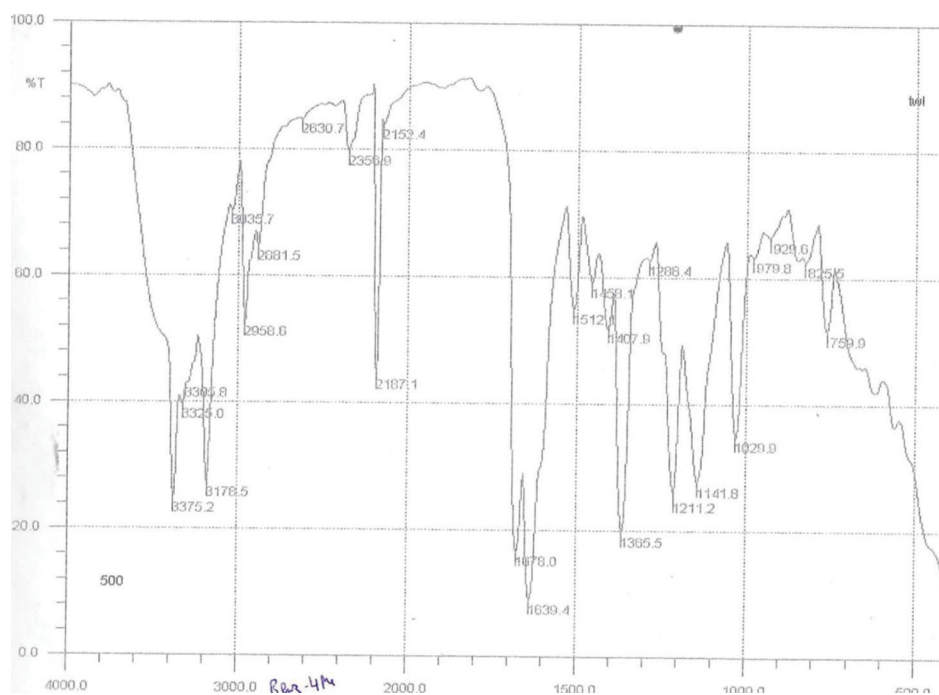
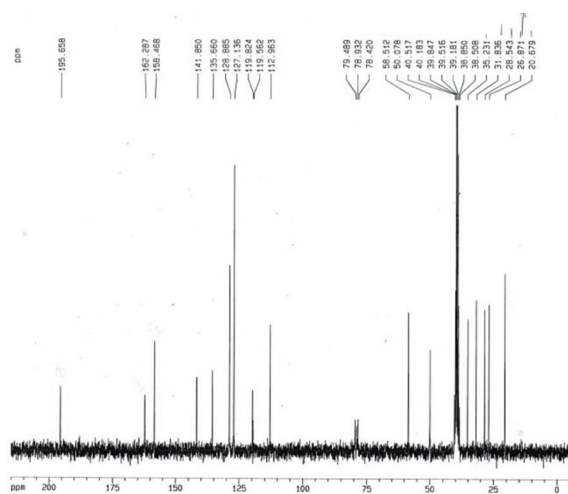
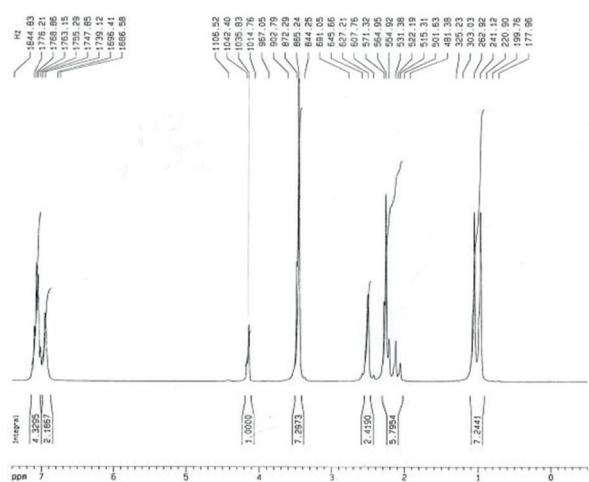
¹H NMR spectrum of compound 10 in CDCl₃. The spectrum shows several peaks in the aromatic region (6.5-7.5 ppm), a singlet at 4.30 ppm, a doublet at 3.17 ppm, a multiplet between 2.65-2.78 ppm, a multiplet between 2.15-2.24 ppm, and a multiplet between 1.61-1.74 ppm. Integration values are shown below the baseline.

Chemical Shift (ppm)	Integration
7.475, 7.474, 7.473, 7.472, 7.471, 7.470, 7.469, 7.468, 7.467, 7.466, 7.465, 7.464, 7.463, 7.462, 7.461, 7.460, 7.459, 7.458, 7.457, 7.456, 7.455, 7.454, 7.453, 7.452, 7.451, 7.450, 7.449, 7.448, 7.447, 7.446, 7.445, 7.444, 7.443, 7.442, 7.441, 7.440, 7.439, 7.438, 7.437, 7.436, 7.435, 7.434, 7.433, 7.432, 7.431, 7.430, 7.429, 7.428, 7.427, 7.426, 7.425, 7.424, 7.423, 7.422, 7.421, 7.420, 7.419, 7.418, 7.417, 7.416, 7.415, 7.414, 7.413, 7.412, 7.411, 7.410, 7.409, 7.408, 7.407, 7.406, 7.405, 7.404, 7.403, 7.402, 7.401, 7.400, 7.399, 7.398, 7.397, 7.396, 7.395, 7.394, 7.393, 7.392, 7.391, 7.390, 7.389, 7.388, 7.387, 7.386, 7.385, 7.384, 7.383, 7.382, 7.381, 7.380, 7.379, 7.378, 7.377, 7.376, 7.375, 7.374, 7.373, 7.372, 7.371, 7.370, 7.369, 7.368, 7.367, 7.366, 7.365, 7.364, 7.363, 7.362, 7.361, 7.360, 7.359, 7.358, 7.357, 7.356, 7.355, 7.354, 7.353, 7.352, 7.351, 7.350, 7.349, 7.348, 7.347, 7.346, 7.345, 7.344, 7.343, 7.342, 7.341, 7.340, 7.339, 7.338, 7.337, 7.336, 7.335, 7.334, 7.333, 7.332, 7.331, 7.330, 7.329, 7.328, 7.327, 7.326, 7.325, 7.324, 7.323, 7.322, 7.321, 7.320, 7.319, 7.318, 7.317, 7.316, 7.315, 7.314, 7.313, 7.312, 7.311, 7.310, 7.309, 7.308, 7.307, 7.306, 7.305, 7.304, 7.303, 7.302, 7.301, 7.300, 7.299, 7.298, 7.297, 7.296, 7.295, 7.294, 7.293, 7.292, 7.291, 7.290, 7.289, 7.288, 7.287, 7.286, 7.285, 7.284, 7.283, 7.282, 7.281, 7.280, 7.279, 7.278, 7.277, 7.276, 7.275, 7.274, 7.273, 7.272, 7.271, 7.270, 7.269, 7.268, 7.267, 7.266, 7.265, 7.264, 7.263, 7.262, 7.261, 7.260, 7.259, 7.258, 7.257, 7.256, 7.255, 7.254, 7.253, 7.252, 7.251, 7.250, 7.249, 7.248, 7.247, 7.246, 7.245, 7.244, 7.243, 7.242, 7.241, 7.240, 7.239, 7.238, 7.237, 7.236, 7.235, 7.234, 7.233, 7.232, 7.231, 7.230, 7.229, 7.228, 7.227, 7.226, 7.225, 7.224, 7.223, 7.222, 7.221, 7.220, 7.219, 7.218, 7.217, 7.216, 7.215, 7.214, 7.213, 7.212, 7.211, 7.210, 7.209, 7.208, 7.207, 7.206, 7.205, 7.204, 7.203, 7.202, 7.201, 7.200, 7.199, 7.198, 7.197, 7.196, 7.195, 7.194, 7.193, 7.192, 7.191, 7.190, 7.189, 7.188, 7.187, 7.186, 7.185, 7.184, 7.183, 7.182, 7.181, 7.180, 7.179, 7.178, 7.177, 7.176, 7.175, 7.174, 7.173, 7.172, 7.171, 7.170, 7.169, 7.168, 7.167, 7.166, 7.165, 7.164, 7.163, 7.162, 7.161, 7.160, 7.159, 7.158, 7.157, 7.156, 7.155, 7.154, 7.153, 7.152, 7.151, 7.150, 7.149, 7.148, 7.147, 7.146, 7.145, 7.144, 7.143, 7.142, 7.141, 7.140, 7.139, 7.138, 7.137, 7.136, 7.135, 7.134, 7.133, 7.132, 7.131, 7.130, 7.129, 7.128, 7.127, 7.126, 7.125, 7.124, 7.123, 7.122, 7.121, 7.120, 7.119, 7.118, 7.117, 7.116, 7.115, 7.114, 7.113, 7.112, 7.111, 7.110, 7.109, 7.108, 7.107, 7.106, 7.105, 7.104, 7.103, 7.102, 7.101, 7.100, 7.099, 7.098, 7.097, 7.096, 7.095, 7.094, 7.093, 7.092, 7.091, 7.090, 7.089, 7.088, 7.087, 7.086, 7.085, 7.084, 7.083, 7.082, 7.081, 7.080, 7.079, 7.078, 7.077, 7.076, 7.075, 7.074, 7.073, 7.072, 7.071, 7.070, 7.069, 7.068, 7.067, 7.066, 7.065, 7.064, 7.063, 7.062, 7.061, 7.060, 7.059, 7.058, 7.057, 7.056, 7.055, 7.054, 7.053, 7.052, 7.051, 7.050, 7.049, 7.048, 7.047, 7.046, 7.045, 7.044, 7.043, 7.042, 7.041, 7.040, 7.039, 7.038, 7.037, 7.036, 7.035, 7.034, 7.033, 7.032, 7.031, 7.030, 7.029, 7.028, 7.027, 7.026, 7.025, 7.024, 7.023, 7.022, 7.021, 7.020, 7.019, 7.018, 7.017, 7.016, 7.015, 7.014, 7.013, 7.012, 7.011, 7.010, 7.009, 7.008, 7.007, 7.006, 7.005, 7.004, 7.003, 7.002, 7.001, 7.000, 6.999, 6.998, 6.997, 6.996, 6.995, 6.994, 6.993, 6.992, 6.991, 6.990, 6.989, 6.988, 6.987, 6.986, 6.985, 6.984, 6.983, 6.982, 6.981, 6.980, 6.979, 6.978, 6.977, 6.976, 6.975, 6.974, 6.973, 6.972, 6.971, 6.970, 6.969, 6.968, 6.967, 6.966, 6.965, 6.964, 6.963, 6.962, 6.961, 6.960, 6.959, 6.958, 6.957, 6.956, 6.955, 6.954, 6.953, 6.952, 6.951, 6.950, 6.949, 6.948, 6.947, 6.946, 6.945, 6.944, 6.943, 6.942, 6.941, 6.940, 6.939, 6.938, 6.937, 6.936, 6.935, 6.934, 6.933, 6.9	

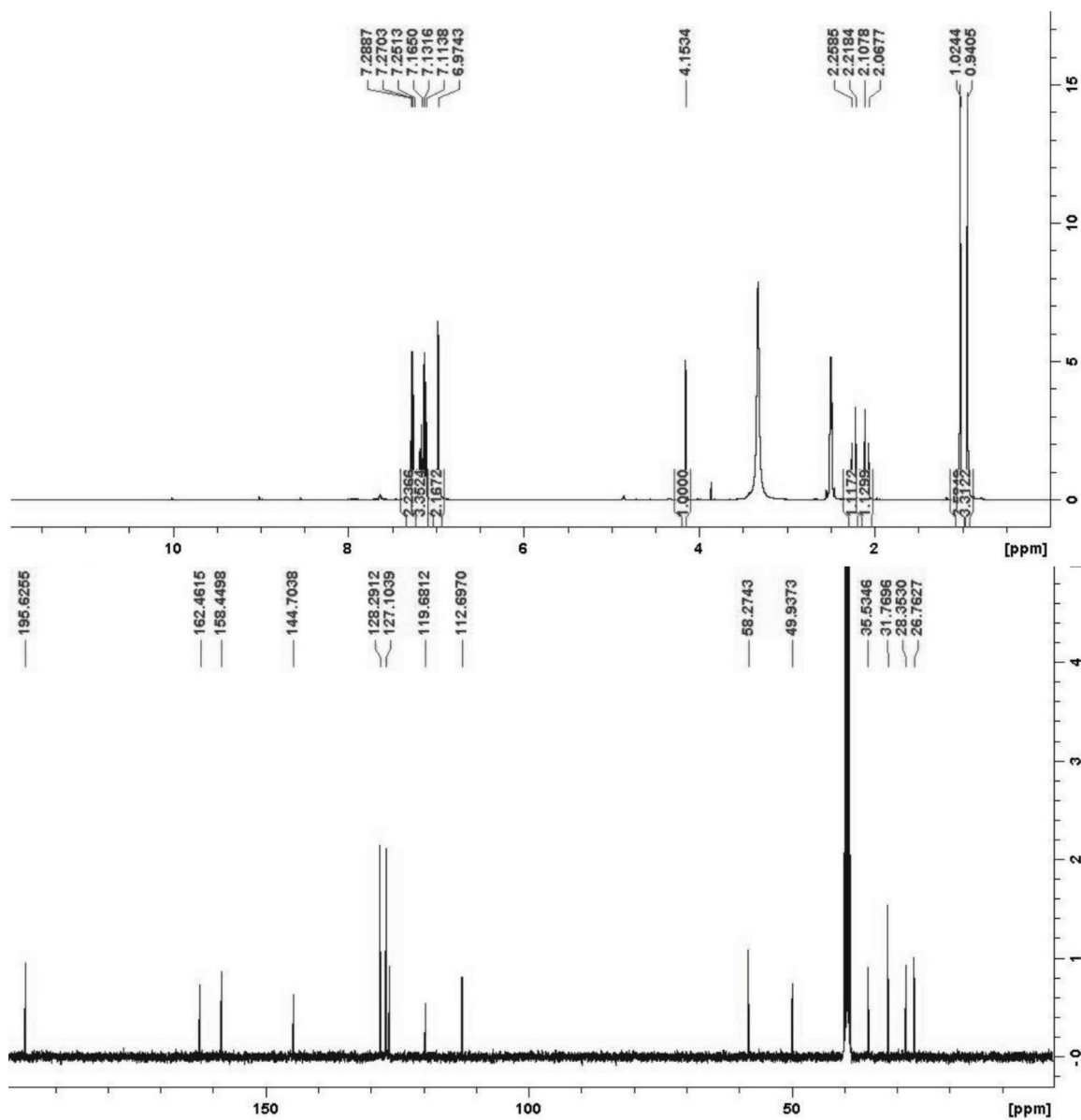


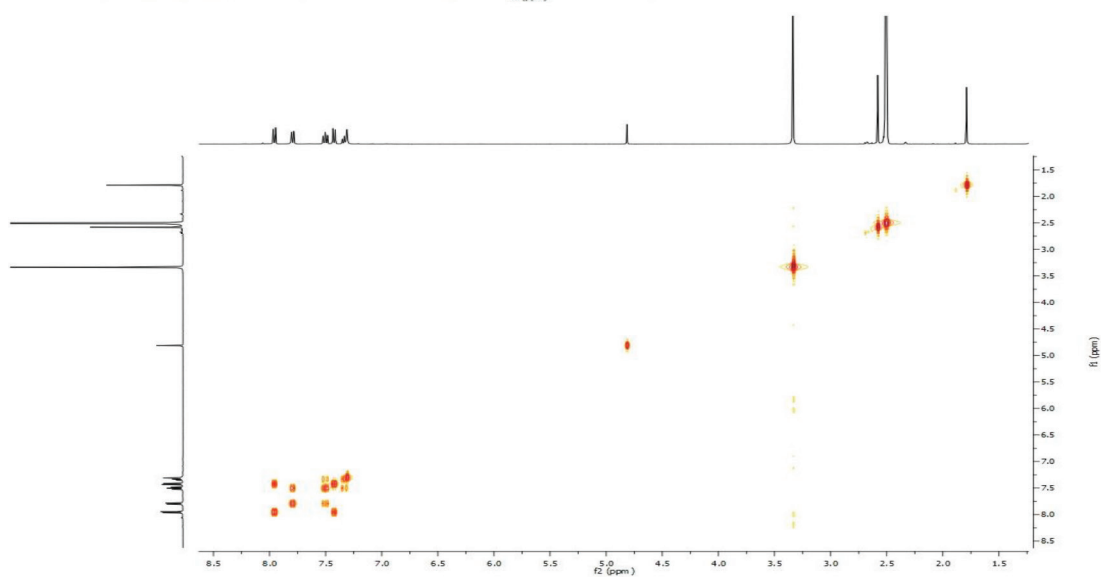
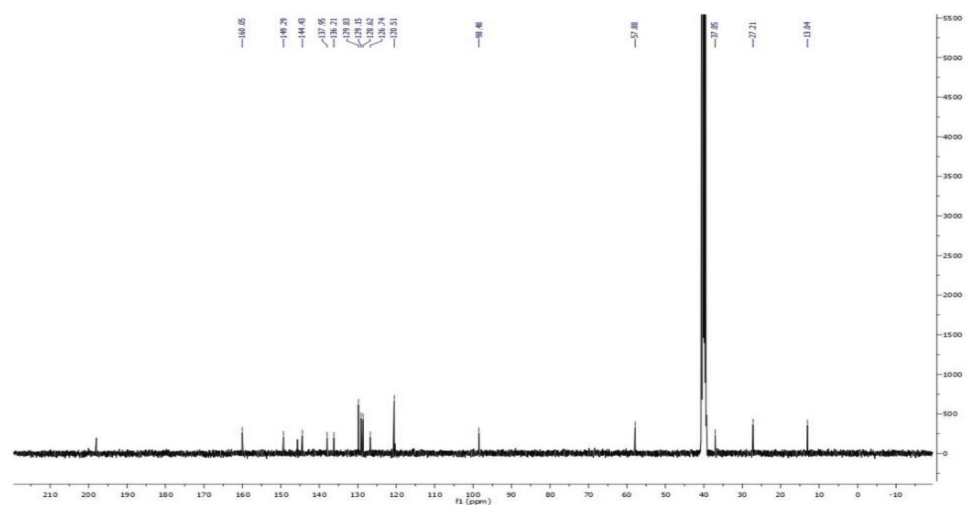
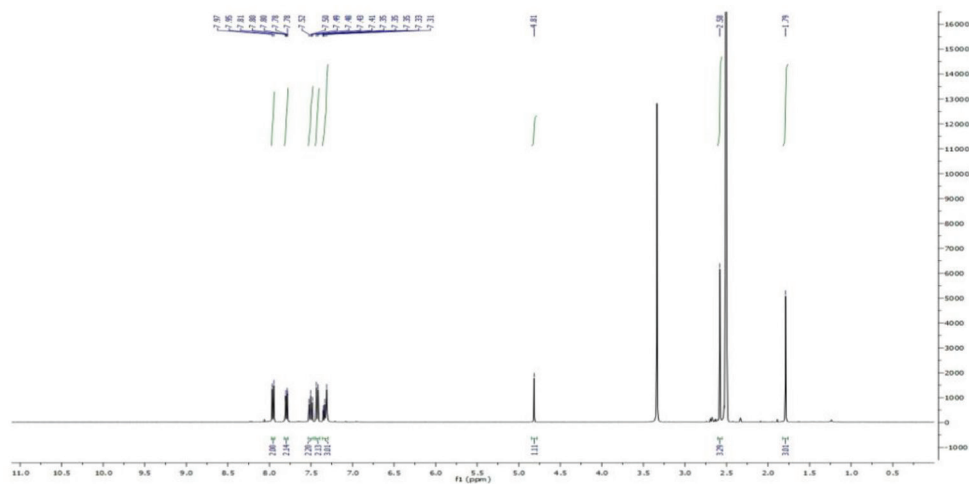
2-amino-7,7-dimethyl-5-oxo-4-(2-nitrophenyl)-5,6,7,8-tetrahydro-4H-chromene-3-carbonitrile:

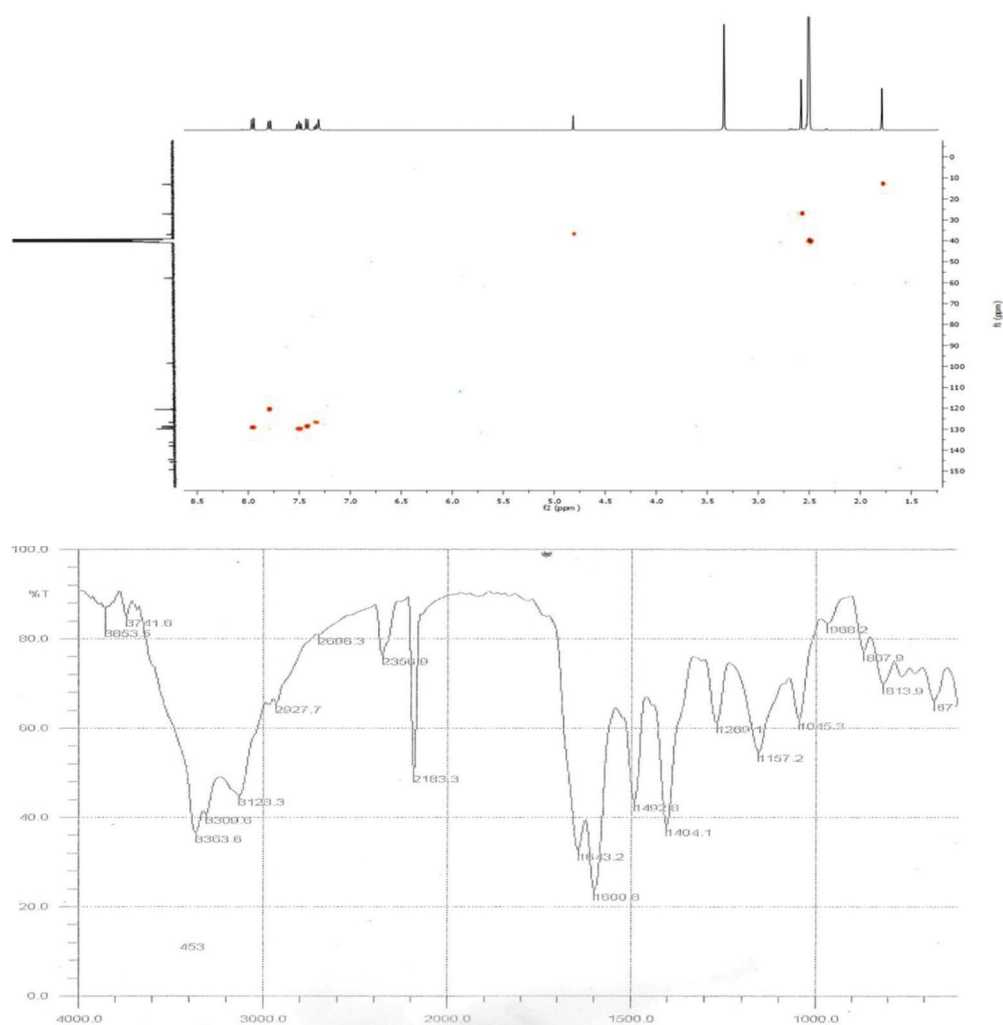


2-amino-7,7-dimethyl-5-oxo-4-(*p*-tolyl)-5,6,7,8-tetrahydro-4H-chromene-3-carbonitrile:

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

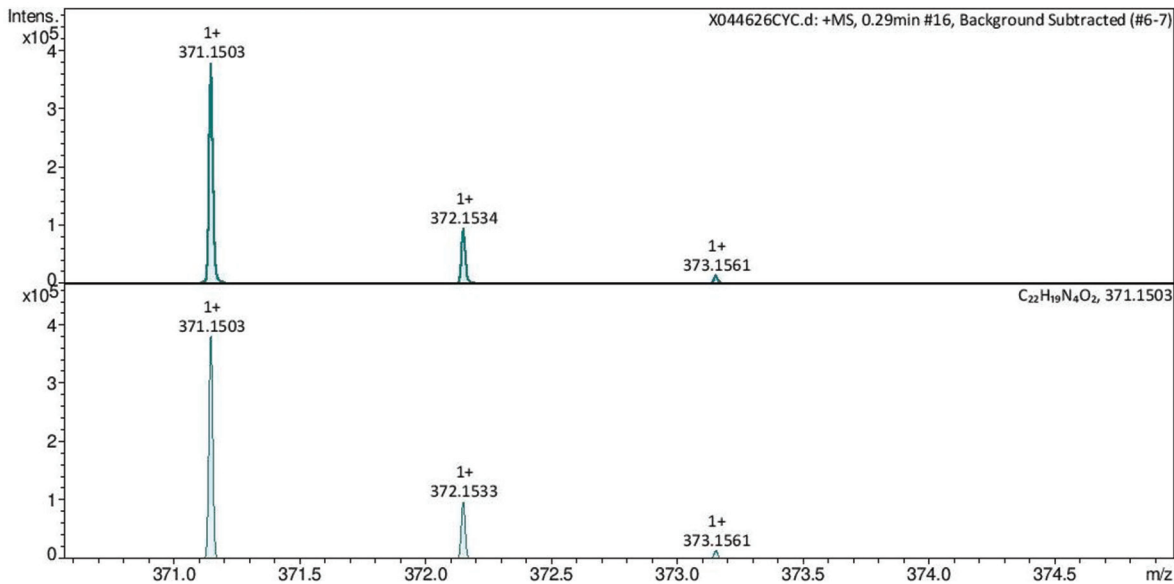
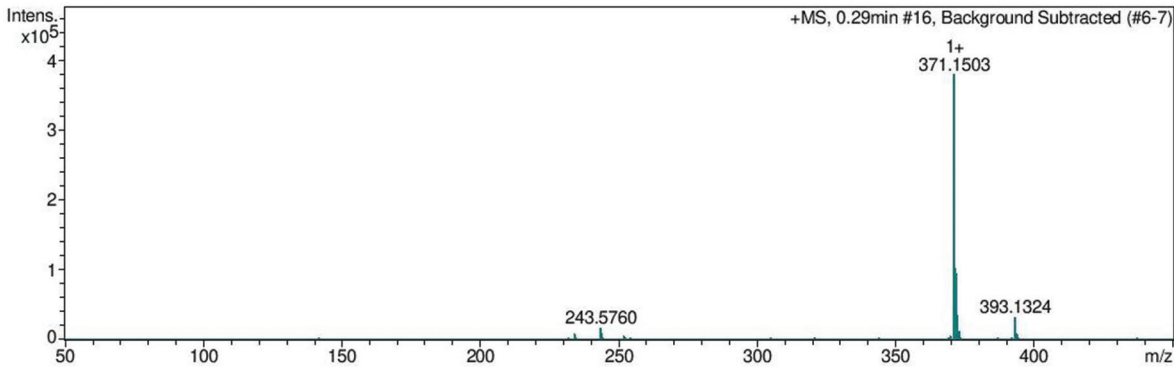


1-phenyl dihydropyrano[2,3-c]pyrazole spectra :**6-amino-3-methyl-1-phenyl-4-(4-acetylphenyl)-1,4-dihydropyrano[2,3-c]pyrazole-5-carbonitrile**

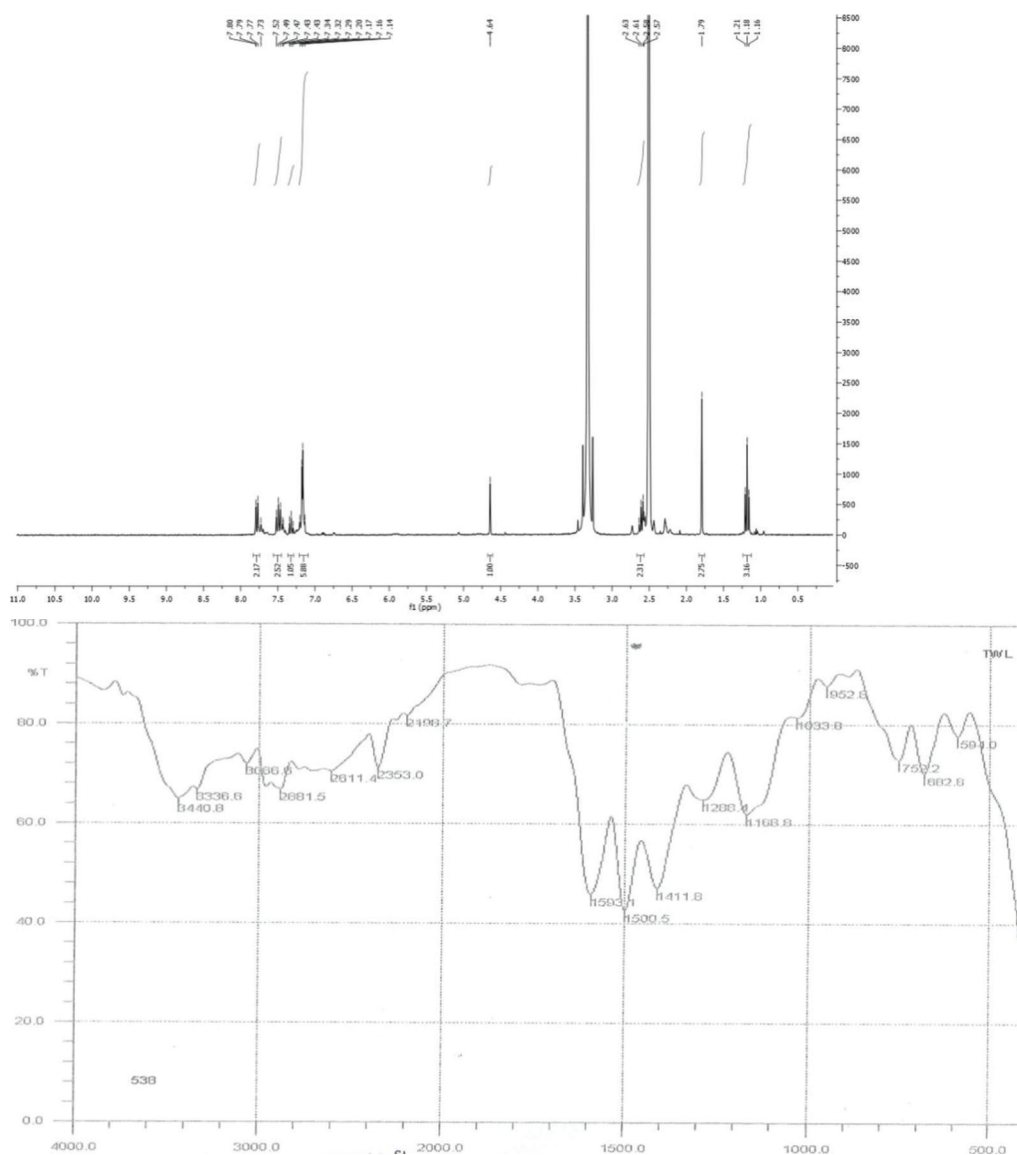


Acquisition Parameter

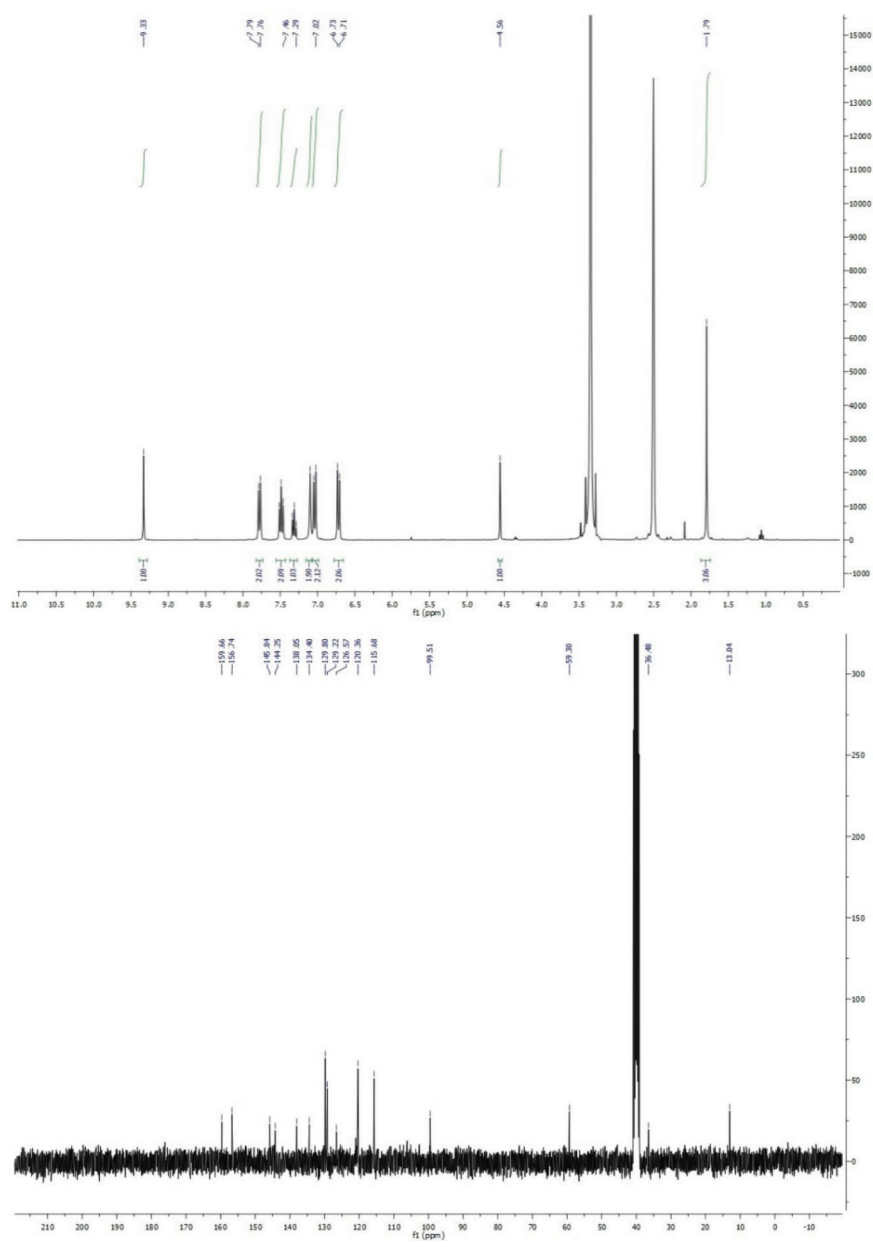
Source Type	ESI	Ion Polarity	Positive	Set Nebulizer	0.6 Bar
Scan Begin	50 m/z	Set Capillary	4500 V	Set Dry Heater	200 °C
Scan End	2500 m/z	Set Collision Cell RF	1800.0 Vpp	Set Dry Gas	7.0 l/min

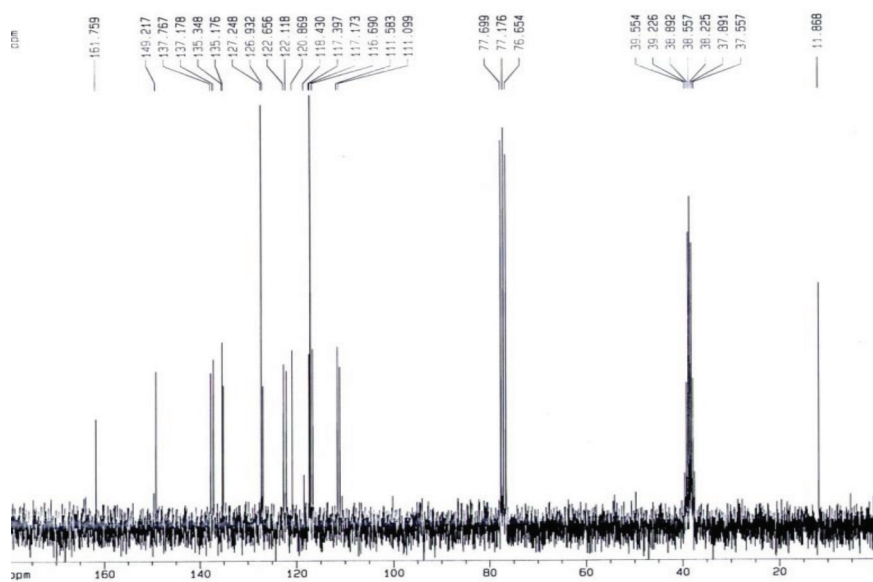


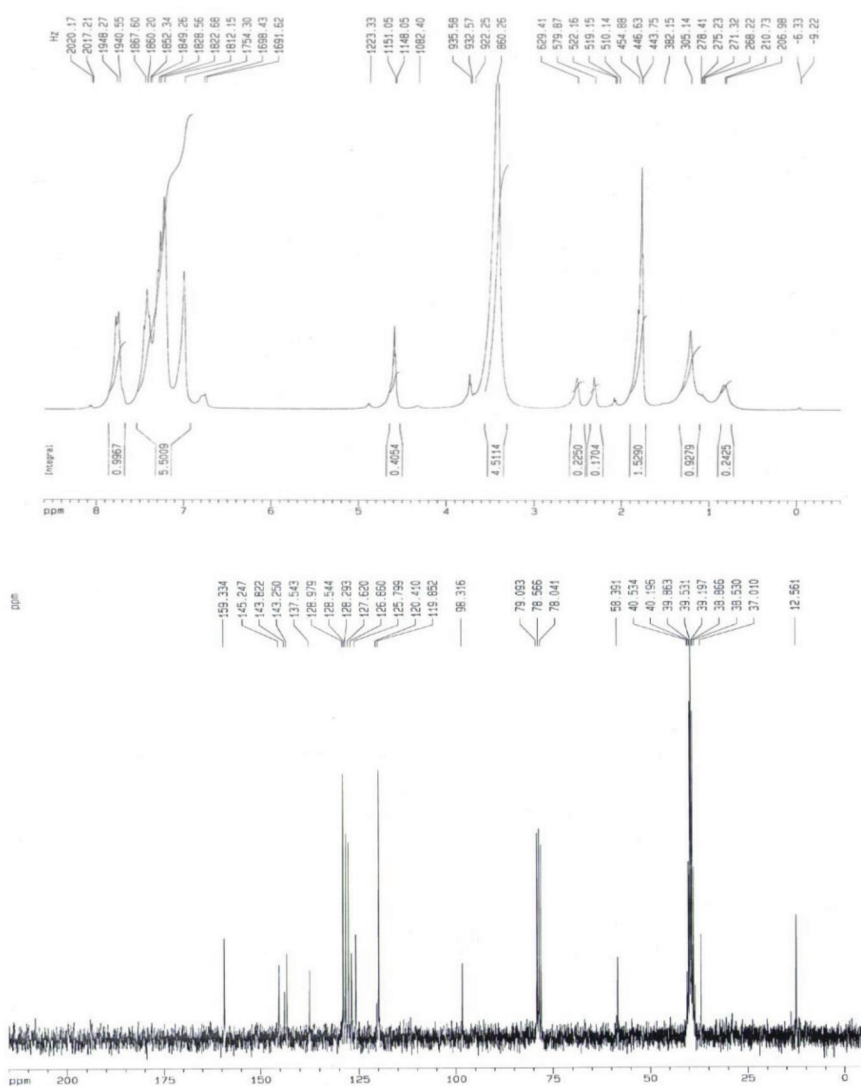
Meas. m/z	z	#	Ion Formula	m/z	err [ppm]	mSigma	rdb	e ⁻	Conf
371.150344	1+	1	C ₂₂ H ₁₉ N ₄ O ₂	371.150252	-0.2	3.0	16.0	even	
393.132428	1+	1	C ₂₂ H ₁₈ N ₄ NaO ₂	393.132197	-0.6	11.0	16.0	even	

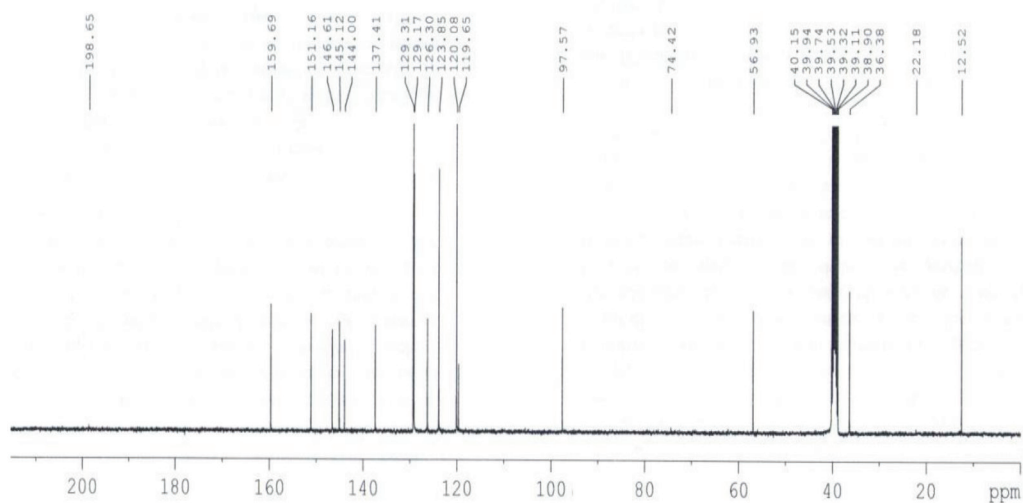
6-amino-3-methyl-1-phenyl-4-(4-ethylphenyl)-1,4-dihydropyrano[2,3-c]pyrazole-5-carbonitrile

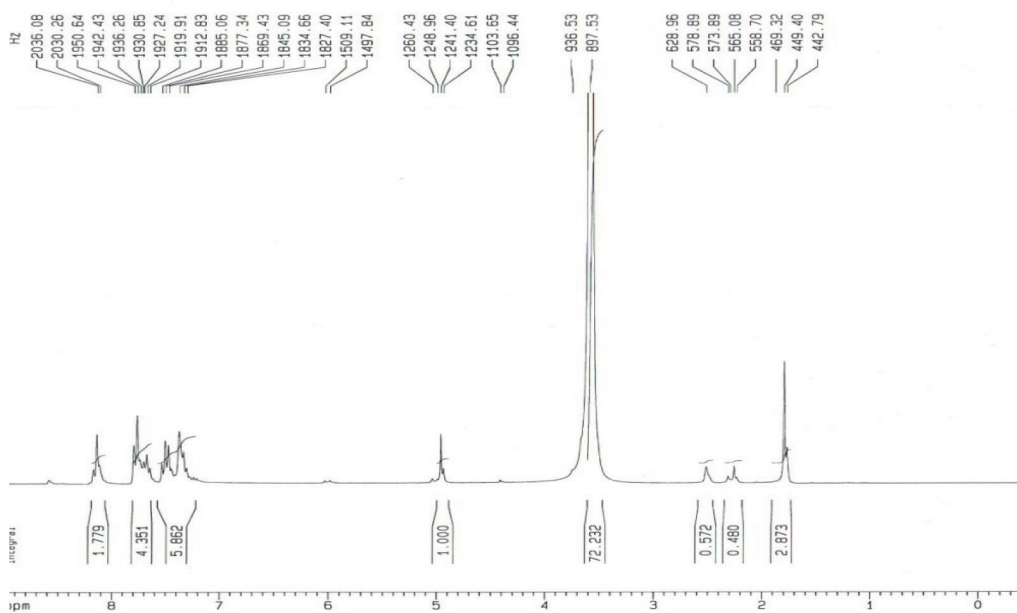
The figure displays two NMR spectra for compound 1. The top spectrum is the ^1H NMR spectrum, recorded in CDCl_3 , with the x-axis representing the chemical shift in ppm from 12.5 to 0.0. The y-axis indicates the intensity from 0 to 9000. The spectrum shows several multiplets in the aromatic region (6.5-8.0 ppm), a singlet at approximately 5.0 ppm, a doublet at 3.5 ppm, and a complex multiplet between 2.0 and 3.0 ppm. Integration values are provided above the peaks. The bottom spectrum is the ^{13}C NMR spectrum, also in CDCl_3 , with the x-axis from 210 to -10 ppm. It features a large solvent peak at 77 ppm and several other peaks in the aromatic and aliphatic regions, with their chemical shifts labeled at the top.

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



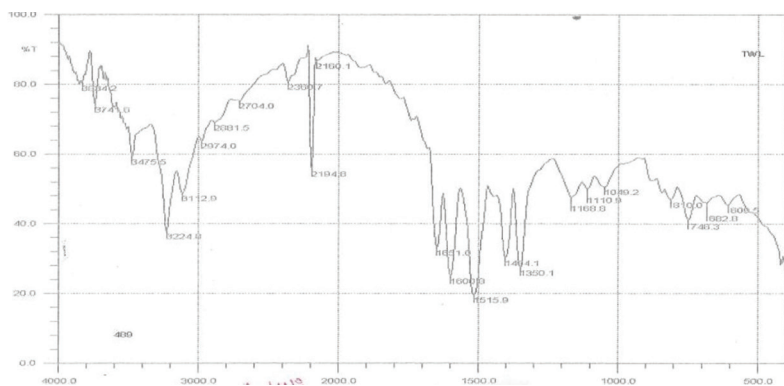
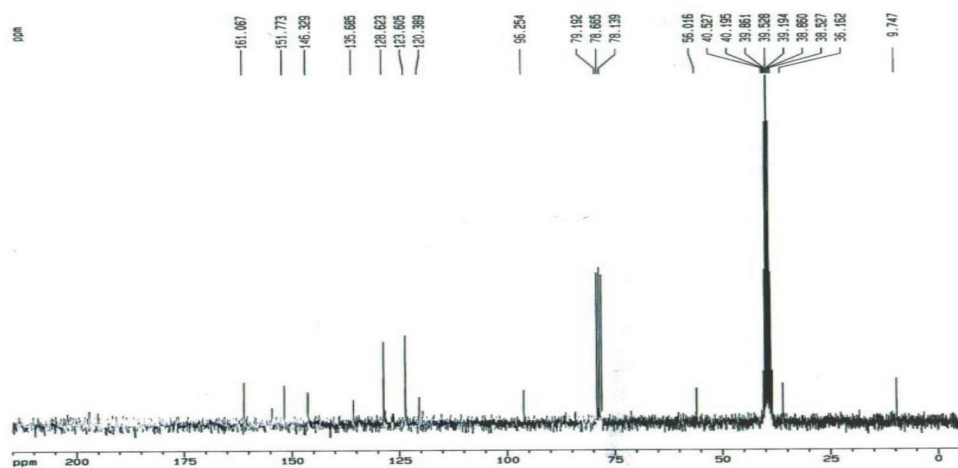
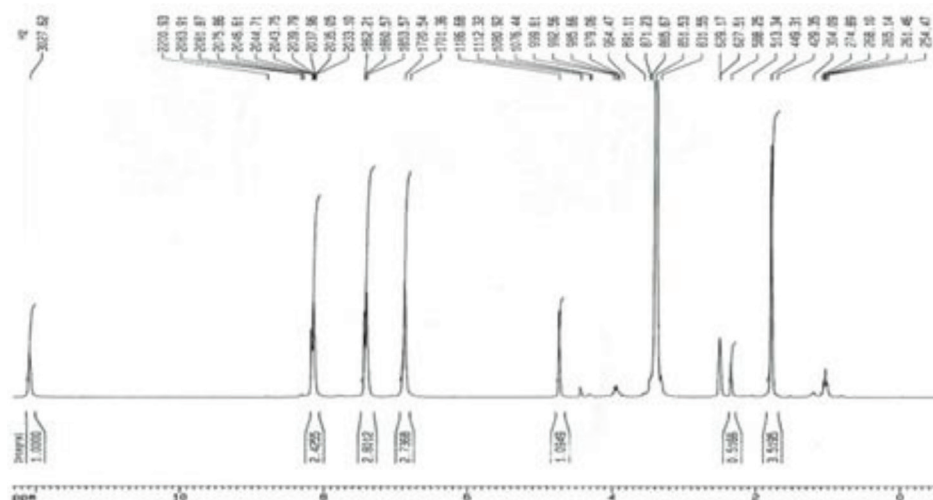
6-amino-3-methyl-1-phenyl-4-phenyl-1,4-dihydropyrano[2,3-c]pyrazole-5-carbonitrile



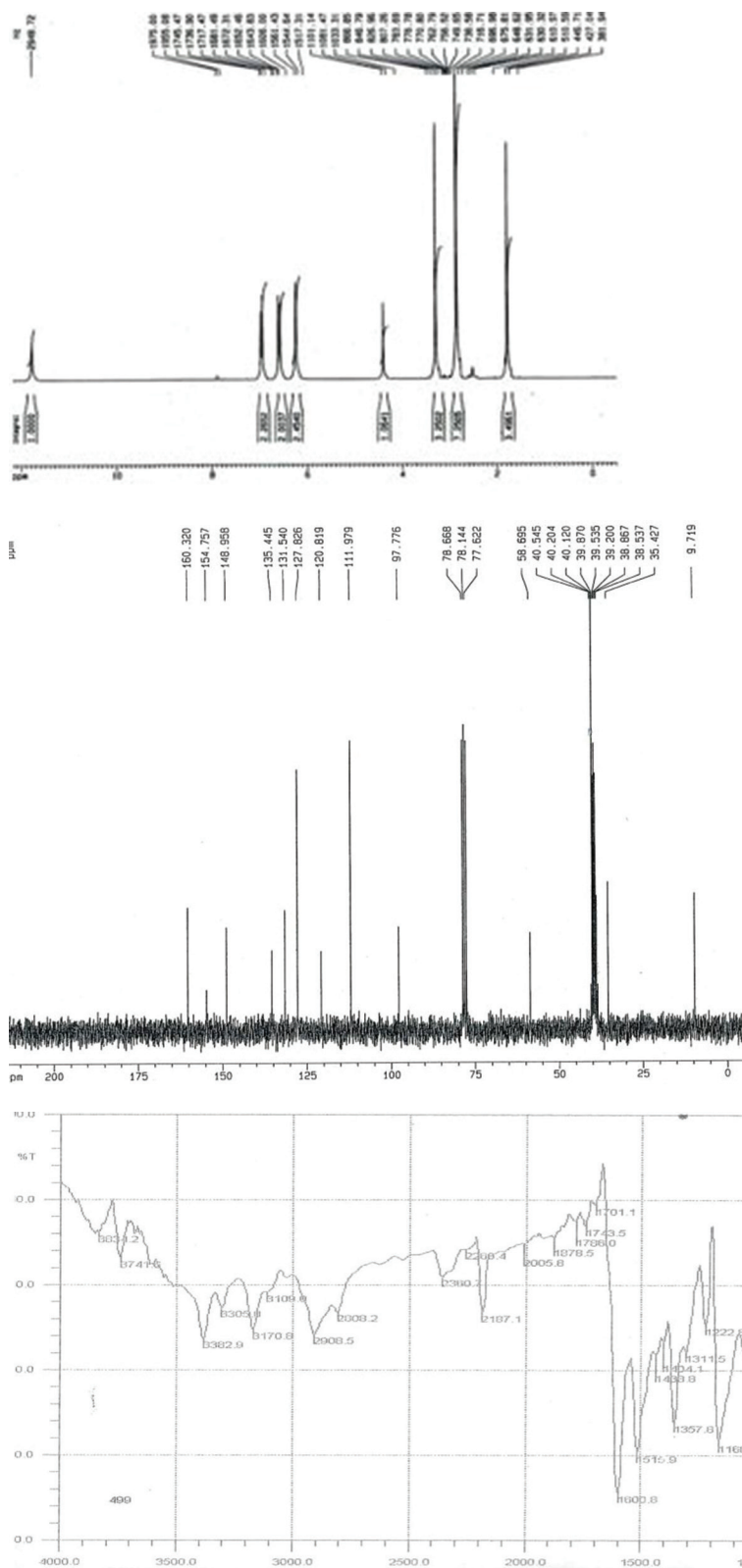
6-amino-3-methyl-1-phenyl-4-(3-nitrophenyl)-1,4-dihydropyrano[2,3-c]pyrazole-5-carbonitrile

dihydropyrano[2,3-c]pyrazole spectra :

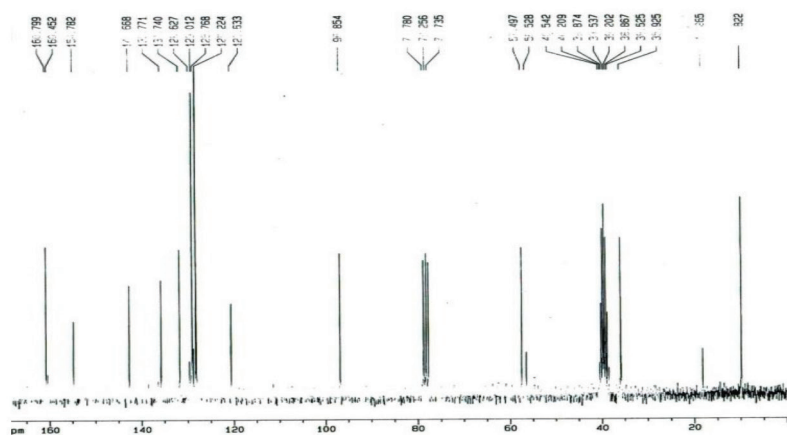
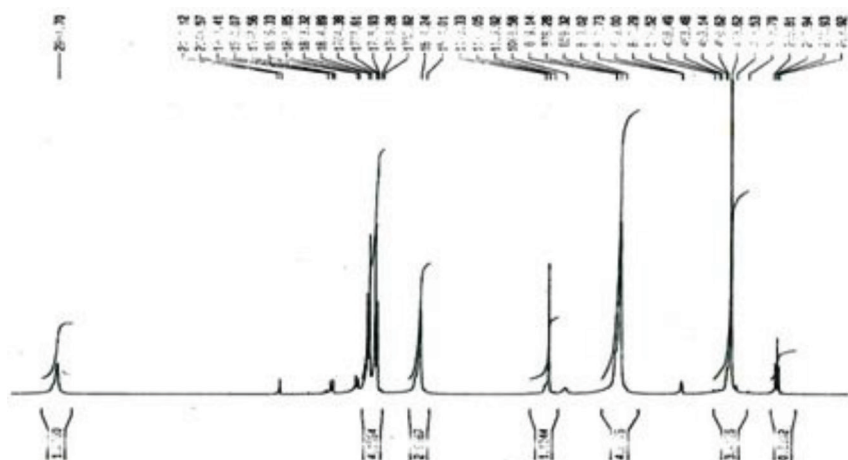
6-amino-3-methyl-4-(4-nitrophenyl)-2,4-dihydropyrano[2,3-c]pyrazole-5-carbonitrile

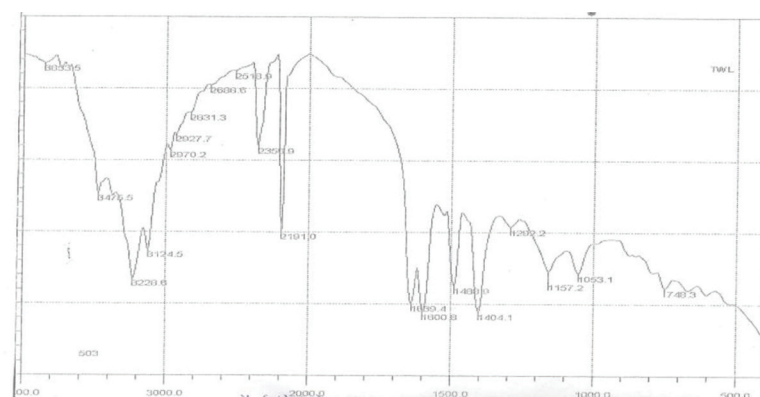
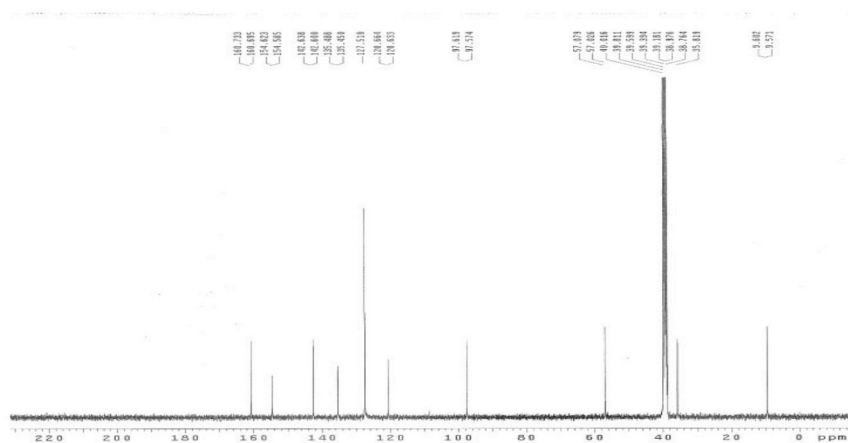


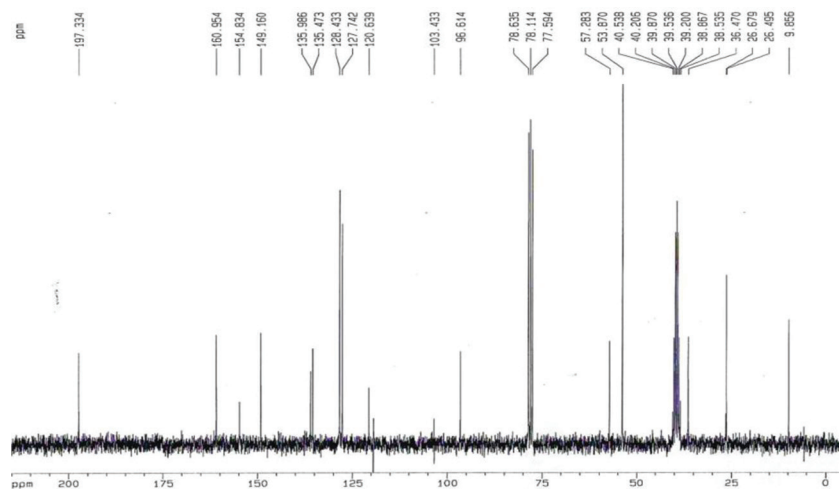
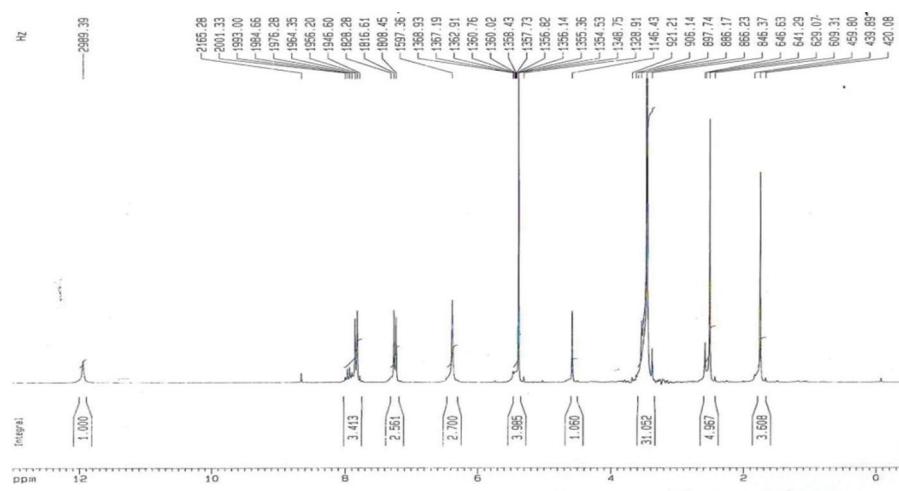
6-amino-3-methyl-4-(4-dimethylaminophenyl)-2,4-dihydropyrano[2,3-c]pyrazole-5-carbonitrile



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





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

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