SUPPORTING INFORMATION

Synthesis of *N*-Acyl Triazolyl-Pyrazolines *via* Acylation Initiated by the Hydrazone Moiety with Carboxylic acids

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General. All chemicals, reagents, and solvents were of commercially high purity grade purchased from Avra Synthesis Pvt. Ltd. and Merck Ltd. India. Silica gel (60–120 mesh) was used for column chromatographic isolation and purification of the compounds synthesized. Melting points were obtained on electro-thermal apparatus and are uncorrected. ^{1}H NMR (300 MHz) and ^{13}C NMR (75 MHz) spectra were recorded in $CDCl_3$ on Bruker Avance (300 MHz) spectrometer and the chemical shifts are reported as δ values in parts per million (ppm) relative to tetramethylsilane, with coupling constant (J) values in Hertz

General procedure for the synthesis of pyrazolines [44]

Equimolar quantities of 3-(4-methoxyphenyl)-1-phenylprop-2-en-1-one (1 mmol)and hydrazine hydrate (1 mmol) in ethanol (10 mL) was refluxed for 3 hours. The resulting mixture was poured onto crushed ice. The solid obtained was filtered as the pure product.

General procedure for acylation of 5-(4-Methoxyphenyl)-3-phenyl-4,5-dihydro-1*H*-pyrazole

5-(4-Methoxyphenyl)-3-phenyl-4,5-dihydro-1*H*-pyrazole **1** (1 mmol), was dissolved in carboxylic acids (2 mL) **2** and heated at 110 °C for an hour. After the completion of the reaction (monitored by TLC), the mixture was treated with aqueous sodium bicarbonate to neutralize the excess acid. Then the reaction mixture was extracted with dichloromethane to separate the organic layer and dried over anhydrous sodium sulfate and concentrated under reduced pressure. The residue was purified by column chromatography using pet ether: ethyl acetate (93:7) as the eluent to afford the pure products (**3a-3i**) in excellent yields (91-95 %). While compounds **3a**[10], **3b**[11], **3f**[12]are known, others are hitherto unknown compounds.

1-(5-(4-Methoxyphenyl)-3-phenyl-4,5-dihydro-1*H*-pyrazol-1-yl)ethanone (**3a**). Yield: 95%. Pale brown solid. M.p. 106-108 °C. (lit[1]), ^{1}H NMR (300 MHz, $CDCl_3$): δ 7.81 – 7.69 (m, 2H); 7.43 (s, 3H); 7.16 (d, *J* = 8.5 Hz, 2H); 6.84 (d, *J* = 8.5 Hz, 2H); 5.54 (dd, *J* = 11.7, 4.4 Hz, 1H); 3.76 (s, 3H); 3.74 – 3.62 (m, 1H); 3.15 (dd, *J* = 17.7, 4.4 Hz, 1H); 2.41 (s, 3H). ^{13}C NMR (75 MHz, $CDCl_3$): δ 168.8; 158.9; 153.8; 134.1; 131.4; 130.2; 128.7; 126.8; 126.5; 114.1; 59.4; 55.2; 42.2; 21.9. Anal. Calcld. for (%) $C_{18}H_{18}N_2O_2$: C 73.45, H 6.16, N 9.52; Found: C 73.49, H 6.19, N 9.58.

1-(5-(4-Methoxyphenyl)-3-phenyl-4,5-dihydro-1*H*-pyrazol-1-yl)propan-1-one (**3b**). Yield: 92%. White solid. M.p. 85-87 °C. (lit[2]), ^{1}H NMR (300 MHz, $CDCl_3$): δ 7.76 (d, *J* = 8.2 Hz, 2H); 7.52 – 7.39 (m, 3H); 7.17 (d, *J* = 8.5 Hz, 2H); 6.84 (d, *J* = 8.5 Hz, 2H); 5.53 (dd, *J* = 11.8, 4.7 Hz, 1H); 3.77 (s, 3H); 3.75 – 3.64 (m, 1H); 3.15 (dd, *J* = 17.7, 4.6 Hz, 1H); 2.81 (q, *J* = 7.5 Hz, 2H); 1.18 (t, *J* = 7.5 Hz, 3H). ^{13}C NMR (75 MHz, $CDCl_3$): δ 172.2; 158.9; 153.5; 134.3; 131.5; 130.1; 128.7; 126.8; 126.4; 114.2; 59.5; 55.2; 41.9; 27.5; 8.9. Anal. Calcld. for (%) $C_{19}H_{20}N_2O_2$: C 74.00, H 6.54, N 9.08; Found: C 74.04, H 6.55, N 9.12.

1-(5-(4-Methoxyphenyl)-3-phenyl-4,5-dihydro-1*H*-pyrazol-1-yl)butan-1-one (**3c**). Yield: 94%. White solid. M.p. 105-107 °C. FTIR (KBr) υ/cm^{-1} 1658, 1599. ^{1}H NMR (300 MHz, $CDCl_3$): δ 7.74 (d, *J* = 6.7 Hz, 2H); 7.47 – 7.37 (m, 3H); 7.15 (d, *J* = 8.7 Hz, 2H); 6.82 (d, *J* = 8.7 Hz, 2H); 5.52 (dd, *J* = 11.8, 4.6 Hz, 1H); 3.74 (s, 3H); 3.71 – 3.61 (m, 1H); 3.11 (dd, *J* = 17.7, 4.6 Hz, 1H); 2.77 (ddd, *J* = 15.0, 9.0 Hz, 2H); 1.79 – 1.66 (m, 2H); 0.98 (t, *J* = 7.4 Hz, 3H). ^{13}C NMR (75 MHz, $CDCl_3$): δ 171.0; 158.6; 153.1; 134.0; 131.3; 129.9; 128.4; 126.6; 126.2; 125.1; 113.9; 59.2; 54.8; 41.7; 35.8; 18.1; 13.7. Anal. Calcld. for (%) $C_{20}H_{22}N_2O_2$: C 74.51, H 6.88, N 8.69; Found : C 74.57, H 6.93, N, 8.74.

1-(5-(4-Methoxyphenyl)-3-phenyl-4,5-dihydro-1*H*-pyrazol-1-yl)-2-phenylethanone (**3d**). Yield: 91%. Pale brown solid. M.p. 130-132 °C. FTIR (KBr) υ/cm^{-1} 1689, 1597. ^{1}H NMR (300 MHz, $CDCl_3$): δ 7.80 – 7.76 (m, 2H); 7.75 – 7.59 (m, 3H); 7.48 – 7.29 (m, 5H); 7.05 (d, *J* = 8.6 Hz, 2H); 6.76 (d, *J* =

8.6 Hz, 2H); 5.50 (dd, *J* = 11.6, 4.5 Hz, 1H); 4.11 (q, *J* = 13.8 Hz, 2H); 3.72 (s, 3H); 3.71 – 3.65 (m,1H); 3.10 (dd, *J* = 17.7, 4.6 Hz, 1H). ^{13}C NMR (75 MHz, $CDCl_3$): δ 169.0; 158.7; 154.1; 135.2; 133.7; 131.2; 130.2; 129.4; 129.2; 128.6; 128.4; 128.2; 126.9; 126.7; 126.5; 125.5; 113.9; 59.5; 55.0; 42.0; 41.1.Anal. Calcld. for (%) $C_{24}H_{22}N_2O_2$: C 77.81, H 5.99, N 7.56; Found : C 77.86, H 5.93, N 7.59.

1-(5-(4-Methoxyphenyl)-3-phenyl-4,5-dihydro-1*H*-pyrazol-1-yl)-2-phenoxyethanone (**3e**). Yield: 93%. Pale brown solid. M.p. 93-95 °C. FTIR (KBr) υ/cm^{-1} 1685, 1598. ^{1}H NMR (300 MHz, $CDCl_3$): δ 7.71 (d, *J* = 6.9 Hz, 2H); 7.48 – 7.30 (m, 3H); 7.28 – 7.06 (m, 5H); 6.88 (d, *J* = 8.6 Hz, 2H); 6.76 (d, *J* = 8.6 Hz, 2H); 5.52 (dd, *J* = 11.8, 4.6 Hz, 1H); 5.21 (d, *J* = 5.5 Hz, 1H); 5.07 (d, *J* = 2.7 Hz, 1H); 3.77 (s, 3H); 3.71-3.69 (m, 1H); 3.15 (dd, *J* = 17.8, 4.6 Hz, 1H). ^{13}C NMR (75 MHz, $CDCl_3$): δ 165.5; 158.9; 158.2; 155.3; 133.1; 130.8; 130.5; 129.2; 128.6; 126.9; 126.6; 121.1; 114.7; 114.1; 66.0; 59.7; 55; 41.5. Anal. Calcld. for (%) $C_{24}H_{22}N_2O_3$: C 74.59, H 5.74, N 7.25; Found : C 74.64, H 5.77, N 7.29.

2-Chloro-1-(5-(4-methoxyphenyl)-3-phenyl-4,5-dihydro-1*H*-pyrazol-1-yl)ethanone (**3f**). Yield: 94%. White solid. M.p. 128-130 °C . (lit[3]), ^{1}H NMR (300 MHz, $CDCl_3$): δ 7.75 (dd, *J* = 7.2, 2.4 Hz, 2H); 7.74 – 7.45 (m, 3H); 7.17 (d, *J* = 8.7 Hz, 2H); 6.84 (d, *J* = 8.7 Hz, 2H); 5.54 (dd, *J* = 11.7, 4.6 Hz, 1H); 4.57 (s, 2H); 3.86 – 3.82 (m, 1H); 3.76 (s, 3H); 3.21 (dd, *J* = 17.9, 4.6 Hz, 1H). ^{13}C NMR (75 MHz, $CDCl_3$): δ 163.5; 158.9; 155.3; 132.8; 130.5; 128.5; 126.8; 126.5; 113.7; 59.7; 54.9; 42.1; 41.8.

2-Hydroxy-1-(5-(4-methoxyphenyl)-3-phenyl-4,5-dihydro-1*H*-pyrazol-1-yl)ethanone (**3g**). Yield: 91%. Gummy matter. FTIR (KBr) υ/cm^{-1} 1676, 1608. ^{1}H NMR (300 MHz, $CDCl_3$): δ 7.73 (s, 2H); 7.45 (s, 3H); 7.18 (d, *J* = 8.1 Hz, 2H); 6.86 (d, *J* = 7.9 Hz, 2H); 5.54 (dd, *J* = 11.1, 4.6 Hz, 1H); 4.58 (s, 1H); 4.29 (s, 1H); 3.77 (d, *J* = 1.9 Hz, 4H One CH and CH_3 merged); 3.21 (dd, *J* = 17.8, 4.4 Hz, 1H). ^{13}C NMR (75 MHz, $CDCl_3$): δ 169.7; 158.9; 155.7; 132.9; 130.5; 128.5; 126.8; 126.6; 114.0; 60.9;

59.8; 54.9; 41.7. Anal. Calcld. for (%) $C_{18}H_{18}N_2O_3$: C 69.66, H 5.85, N 9.03; Found: C 69.69, H 5.83, N 9.05.

2-Mercapto-1-(5-(4-methoxyphenyl)-3-phenyl-4,5-dihydro-1*H*-pyrazol-1-yl)ethanone (**3h**). Yield: 90%. Gummy matter. FTIR (KBr) υ/cm^{-1} 1720, 1591. ^{1}H NMR (300 MHz, $CDCl_3$): δ 7.75 (dd, *J* = 6.1, 2.7 Hz, 2H); 7.53 – 7.39 (m, 3H); 7.18 (d, *J* = 8.4 Hz, 2H); 6.85 (d, *J* = 8.4 Hz, 2H); 5.53 (dd, *J* = 11.6, 4.5 Hz, 1H); 3.75 (s, 3H); 3.76 – 3.66 (m, 1H); 3.47 (d, *J* = 8.4 Hz, 2H); 3.18 (dd, *J* = 17.8, 4.4 Hz, 1H); 1.48 – 1.18 (m, 1H). ^{13}C NMR (75 MHz, $CDCl_3$): δ 167.5; 159.1; 154.6; 133.2; 130.8; 130.4; 128.5; 126.8; 126.6; 126.5; 126.5; 113.9; 59.5; 54.9; 42.1; 26.6. Anal. Calcld. for (%) $C_{18}H_{18}N_2O_2S$: C 66.23, H 5.56, N 8.58, S 9.82; Found: C 66.27, H 5.53, N 8.54, S 9.84.

3-Mercapto-1-(5-(4-methoxyphenyl)-3-phenyl-4,5-dihydro-1*H*-pyrazol-1-yl)propan-1-one (**3i**). Yield: 92%. White solid. M.p. 122-124 °C. FTIR (KBr) υ/cm^{-1} 1649, 1525. ^{1}H NMR (300 MHz, $CDCl_3$): δ 7.84 – 7.69 (m, 2H); 7.56 – 7.35 (m, 3H); 7.17 (d, *J* = 8.7 Hz, 2H); 6.84 (d, *J* = 8.7 Hz, 2H); 5.54 (dd, *J* = 11.7, 4.6 Hz, 1H); 3.84 (s, 1H); 3.76 (s, 3H); 3.67 – 3.52 (m, 1H); 3.25 – 2.92 (m, 2H); 2.75 (dt, *J* = 13.5, 6.7 Hz, 2H); 1.57 (t, *J* = 8.3 Hz, 1H). ^{13}C NMR (75 MHz, $CDCl_3$): δ 168.8; 158.8; 154.2; 133.7; 131.0; 130.2; 128.5; 126.7; 126.4; 113.9; 59.4; 54.9; 41.9; 38.1; 19.6. Anal. Calcld. for (%) $C_{19}H_{20}N_2O_2S$: C 67.03, H 5.92, N 8.23, S 9.42; Found: C 67.07, H 5.95, N 8.21, S 9.45.

General procedure for the synthesis of triazole-pyrazoline hybrids

Equimolar quantities of 1-(1-Benzyl-5-methyl-1*H*-1,2,3-triazol-4-yl)-4-(4-methoxyphenyl) but-3-en-1-one (1 mmol) and hydrazine hydrate (1 mmol) in Ethanol (10 mL) was refluxed for 3 hours. The resulting mixture was poured onto crushed ice. The solid obtained was filtered as a pure product.

General procedure for the acylation of 1-Benzyl-4-(5-(4-methoxybenzyl)-4,5-dihydro-1*H*-pyrazol-3-yl)-5-methyl-1*H*-1,2,3-triazole

1-Benzyl-4-(5-(4-methoxybenzyl)-4,5-dihydro-1*H*-pyrazol-3-yl)-5-methyl-1*H*-1,2,3-triazole **1** (1 mmol) in carboxylic acids (2 mL) **2** was heated at 110 °C for 1 hour. After the completion of the reaction (as monitored by TLC), the mixture was treated with aqueous sodium bicarbonate to wash the excess of acid. Then the reaction mixture was extracted with dichloromethane to separate the organic layer and dried over anhydrous sodium sulfate and concentrated under reduced pressure. The residue was purified by column chromatography using pet ether: ethyl acetate (90:10) as the eluent to afford the pure products (**3j-r**) in excellent yields (89-94 %). While compounds (**3j**& **3k**)[17] are known, other compounds are hitherto unknown.

1-(3-(1-Benzyl-5-methyl-1*H*-1,2,3-triazol-4-yl)-5-(4-methoxyphenyl)-4,5-dihydro-1*H*-pyrazol-1-yl)ethanone (**3j**). Yield: 92%. White solid. M.p. 142-144 °C. (lit[4]), ^{1}H NMR (300 MHz, $CDCl_3$): δ 7.43 – 7.08 (m, 5H); 6.96 (d, *J* = 8.7 Hz, 2H); 6.83 (d, *J* = 8.6 Hz, 2H); 5.55 (s, 2H); 5.50 (dd, *J* = 11.8, 4.6 Hz, 1H); 3.85 (dd, *J* = 11.6, 18.2 Hz, 1H); 3.77 (s, 3H); 3.45 (dd, *J* = 18.5, 4.5 Hz, 1H); 2.51 (s, 3H); 2.32 (s, 3H). ^{13}C NMR (75 MHz, $CDCl_3$): δ 168.5; 158.9; 149.5; 138.1; 134.1; 133.7; 132.9; 129.0; 128.5; 127.2; 126.9; 114.0; 58.3; 55.2; 51.9; 43.1; 21.8; 9.4. Anal. Calcld. for (%) $C_{22}H_{23}N_5O_2$: C 67.85, H 5.95, N, 17.98; Found: C 67.87, H 5.96, N 17.97.

1-(3-(1-Benzyl-5-methyl-1*H*-1,2,3-triazol-4-yl)-5-(4-methoxyphenyl)-4,5-dihydro-1*H*-pyrazol-1-yl)propan-1-one (**3k**). Yield: 90%. Colorless solid. M.p. 156-158 °C. (lit[4]), ^{1}H NMR (300 MHz, $CDCl_3$): δ 7.44 – 7.05 (m, 5H); 6.96 (d, *J* = 7.4 Hz, 2H); 6.83 (d, *J* = 8.4 Hz, 2H); 5.56 (s, 2H); 5.48 (dd, *J* = 11.8, 4.7 Hz, 1H); 3.86 (dd, *J* = 18.2, 12.0 Hz, 1H); 3.77 (s, 3H); 3.44 (dd, *J* = 18.5, 4.6 Hz, 1H); 2.69 (q, *J* = 7.5 Hz, 2H); 2.51 (s, 3H); 1.14 (t, *J* = 7.5 Hz, 3H). ^{13}C NMR (75 MHz, $CDCl_3$): δ 171.9; 158.8; 149.2; 138.4; 134.1; 133.9; 132.5; 128.9; 128.4; 127.2; 127.0; 126.9; 114.1; 58.4; 55.1; 51.8; 42.8; 27.4; 9.4; 8.8. Anal. Calcld. for (%) $C_{23}H_{25}N_5O_2$: C 68.47, H 6.25, N 17.36; Found: C 68.51, H 6.21, N 17.33

1-(3-(1-Benzyl-5-methyl-1*H*-1,2,3-triazol-4-yl)-5-(4-methoxyphenyl)-4,5-dihydro-1*H*-pyrazol-1-yl)butan-1-one (**3l**). Yield: 94%. Gummy matter. FTIR (KBr) υ/cm^{-1} 1626, 1568. ^{1}H NMR (300 MHz, $CDCl_3$): δ 7.35 (s, 3H); 7.23 – 7.11 (m, 2H); 6.94 (d, *J* = 7.4 Hz, 2H); 6.83 (d, *J* = 8.0 Hz, 2H); 5.55 (s, 2H); 5.49 (dd, *J* = 12.0, 4.4 Hz, 1H); 3.83 – 3.72 (m,1H); 3.77 (s, 3H); 3.43 (dd, *J* = 18.3, 4.4 Hz, 1H); 2.65 (dd, *J* = 14.0, 7.0 Hz, 2H); 2.52 (s, 3H); 1.83 – 1.54 (m, 2H); 0.93 (t, *J* = 7.3 Hz, 3H). ^{13}C NMR (75 MHz, $CDCl_3$): δ 170.8; 158.5; 149.0; 137.8; 133.9; 133.6; 132.7; 128.7; 128.1; 126.9; 126.6; 113.8; 58.0; 54.8; 51.5; 42.7; 35.8; 18.0; 13.7; 9.1. Anal. Calcld. for (%) $C_{24}H_{27}N_5O_2$: C 69.04, H 6.52, N 16.77; Found: C 69.08, H 6.50, N 16.81.

1-(3-(1-Benzyl-5-methyl-1*H*-1,2,3-triazol-4-yl)-5-(4-methoxyphenyl)-1*H*-pyrazol-1-yl)-2-phenylethanone (**3m**). Yield: 91%. Gummy matter. FTIR (KBr) υ/cm^{-1} 1654, 1508. ^{1}H NMR (300 MHz, $CDCl_3$): δ 7.41 – 7.33 (m, 4H); 7.26 (s, 4H); 7.21 (d, *J* = 6.9 Hz, 2H); 7.08 (d, *J* = 8.6 Hz, 2H); 6.78 (d, *J* = 8.6 Hz, 2H); 5.54 (s, 2H); 5.48 (dd, *J* = 11.7, 4.5 Hz, 1H); 4.01 (d, *J* = 3.5 Hz, 2H); 3.87 – 3.81 (m,1H); 3.75 (s, 3H); 3.43 (dd, *J* = 18.5, 4.7 Hz, 1H); 2.51 (s, 3H). ^{13}C NMR (75 MHz, $CDCl_3$): δ 168.5; 158.7; 149.7; 137.9; 135.1; 133.9; 133.4; 132.8; 129.0; 128.9; 128.3; 128.1; 127.1; 126.8; 126.4; 113.8; 58.3; 54.9; 51.7; 42.9; 41.0; 9.3. Anal. Calcld. for (%) $C_{28}H_{27}N_5O_2$: C 72.24, H 5.85, N 15.04; Found: C 72.28, H 5.83, N, 15.09.

1-(3-(1-Benzyl-5-methyl-1*H*-1,2,3-triazol-4-yl)-5-(4-methoxyphenyl)-1*H*-pyrazol-1-yl)-2-phenoxyethanone (**3n**). Yield: 89%. Brown solid. M.p. 95-97 °C. FTIR (KBr) υ/cm^{-1} 1685, 1598. ^{1}H NMR (300 MHz, $CDCl_3$): δ 7.36 (d, *J* = 6.5 Hz, 4H); 7.23 – 7.16 (m, 6H); 6.98 – 6.89 (m, 2H); 6.88 (d, *J* = 8.5 Hz, 2H); 6.82 (d, *J* = 8.6 Hz, 2H); 5.55 (s, 2H); 5.51 (d, *J* = 4.7 Hz, merged with NCH_2 1H); 5.01 (d, *J* = 2.1 Hz, 2H); 3.90 (dd, *J* = 17.7, 10.8 Hz, 1H); 3.75 (s, 3H); 3.51 (dd, *J* = 18.7, 4.7 Hz, 1H); 2.49 (s, 3H). ^{13}C NMR (75 MHz, $CDCl_3$): δ 165.0; 158.8; 157.9; 150.6; 137.4; 133.9; 133.1; 132.7; 129.0;

128.7; 128.2; 126.9; 120.9; 114.3; 113.8; 65.8; 58.4; 54.9; 51.5; 42.4; 9.2. Anal. Calcld. for (%) $C_{28}H_{27}N_5O_3$: C 69.84, H 5.65, N14.54; Found: C 69.80, H 5.67, N 14.57.

1-(3-(1-Benzyl-5-methyl-1*H*-1,2,3-triazol-4-yl)-5-(4-methoxyphenyl)-4,5-dihydro-1*H*-pyrazol-1-yl)-2-chloroethanone (**3o**). Yield: 91%. Gummy matter. FTIR (KBr) υ/cm^{-1} 1664, 1610. ^{1}H NMR (300 MHz, $CDCl_3$): δ 7.43 – 7.12 (m, 5H); 6.91 (d, *J* = 8.3 Hz, 2H); 6.84 (d, *J* = 8.3 Hz, 2H); 5.55 (s, 2H); 5.49 (dd, *J* = 11.6, 4.6 Hz, 1H); 4.42 (s, 2H); 3.91 (dd, *J* = 18.7, 11.6 Hz, 1H); 3.76 (s, 3H); 3.51 (dd, *J* = 18.7, 4.4 Hz, 1H); 2.51 (s, 3H). ^{13}C NMR (75 MHz, $CDCl_3$): δ 163.5; 158.9; 150.9; 134.4; 133.9; 133.3; 132.5; 128.9; 128.4; 127.1; 127.0; 114.0; 58.7; 55.1; 51.8; 42.9; 41.9; 9.4. Anal. Calcld. for (%) $C_{22}H_{22}ClN_5O_2$: C 62.34, H 5.23, N 16.52; Found: C 62.36, H 5.27, N 16.48.

1-(3-(1-Benzyl-5-methyl-1*H*-1,2,3-triazol-4-yl)-5-(4-methoxyphenyl)-4,5-dihydro-1*H*-pyrazol-1-yl)-2-hydroxyethanone (**3p**). Yield: 93%. Gummy matter. FTIR (KBr) υ/cm^{-1} 1662, 1508. ^{1}H NMR (300 MHz, $CDCl_3$) δ 7.42 – 7.07 (m, 5H), 6.93 (d, *J* = 7.7 Hz, 2H), 6.85 (d, *J* = 7.4 Hz, 2H), 5.55 (s, 2H), 5.49 (dd, *J* = 11.6, 4.4 Hz, 1H), 4.47 (s, 1H), 4.28 (s, 1H), 3.87 (dd, *J* = 19.1, 7.7 Hz, 1H), 3.77 (s, 3H), 3.50 (dd, *J* = 18.7, 3.5 Hz, 1H), 2.48 (s, 3H). ^{13}C NMR (75 MHz, $CDCl_3$) : δ 169.4, 158.9, 151.2, 137.4, 133.9, 133.3, 132.6, 128.9, 128.3, 127.1, 126.9, 113.9, 60.7, 58.7, 54.9, 51.7, 42.7, 9.2. Anal. Calcld. for (%) $C_{22}H_{23}N_5O_3$: C, 65.17; H, 5.72; N, 17.27; Found: C, 65.21; H, 5.75; N, 17.22.

1-(3-(1-Benzyl-5-methyl-1*H*-1,2,3-triazol-4-yl)-5-(4-methoxyphenyl)-4,5-dihydro-1*H*-pyrazol-1-yl)-2-mercaptoethanone (**3q**). Yield: 92%. Gummy matter. FTIR (KBr) υ/cm^{-1} 1647, 1550. ^{1}H NMR (300 MHz, $CDCl_3$): δ 7.40 – 7.16 (m, 5H); 6.92 (d, *J* = 8.4 Hz, 2H); 6.83 (d, *J* = 8.4 Hz, 2H); 5.55 (s, 2H); 5.48 (dd, *J* = 11.9, 4.4 Hz, 1H); 3.94-3.85 (m,1H); 3.75 (s, 3H); 3.60 (d, *J* = 5.0 Hz, 2H); 3.48 (dd, *J* = 14.4, 3.9 Hz, 1H); 2.51 (s, 3H). ^{13}C NMR (75 MHz, $CDCl_3$): δ 167.3; 150.4; 144.1; 137.4; 133.8; 132.8; 128.7; 128.2; 126.9; 126.7; 126.6; 113.8; 58.5; 54.9; 51.5; 42.9; 32.6; 9.2. Anal. Calcld. for (%) $C_{22}H_{23}N_5O_2S$: C 62.69, H 5.50, N 16.61, S 7.61; Found: C 62.72, H 5.54, N 16.58, S 7.59.

1-(3-(1-Benzyl-5-methyl-1*H*-1,2,3-triazol-4-yl)-5-(4-hydroxyphenyl)-4,5-dihydro-1*H*-pyrazol-1-yl)-3-mercaptopropan-1-one (**3r**). Yield: 94%. Gummy matter. FTIR (KBr) υ/cm^{-1} 1656, 1577. ^{1}H NMR (300 MHz, $CDCl_3$): δ 7.41 – 7.11 (m, 5H); 6.91 (d, *J* = 8.4 Hz, 2H); 6.83 (d, *J* = 8.4 Hz, 2H); 5.54 (s, 2H); 5.53 – 5.42 (m, 1H); 3.88 (dd, *J* = 18.7, 11.7 Hz, 1H); 3.75 (s, 3H); 3.44 (dd, *J* = 18.5, 4.4 Hz, 1H); 3.15 – 2.92 (m, 2H); 2.81 (s, 2H); 2.52 (s, 3H). ^{13}C NMR (75 MHz, $CDCl_3$): δ 168.5; 158.7; 149.8; 137.7; 133.9; 133.3; 132.9; 128.8; 128.3; 127.0; 126.7; 113.9; 58.3; 54.9; 51.6; 42.9; 37.9; 19.5; 9.3. Anal. Calcld. for (%) $C_{23}H_{25}N_5O_2S$: C 63.43, H 5.79, N 16.08, S 7.36; Found: C 63.46, H 5.84, N 16.05, S 7.33.

General procedure for the synthesis of *N*-acyl hyrazones (**8a-i)**

Acetophenone/benzaldehyde or 1-(1-Benzyl-5-methyl-1*H*-1,2,3-triazol-4-yl)ethanone **5** (1 mmol), was dissolved in carboxylic acids (2 mL) **2** to which hydrazine hydrate **6** (1 mmol) was added slowly while the mixture was maintained in ice cold condition with stirring for 30 min. Then the mixture was allowed to reach the room temperature and then heated to reflux for 6 hours. Then it was treated with aqueous $NaHCO_3$ solution followed by the extraction with dichloromethane. Then, the organic layer was separated and dried over anhydrous Na_2SO_4. It was then separated by column chromatography using petroleum ether: ethyl acetate (93:7) as the eluent to afford the product (**8a-i**) in excellent yields (90-94 %). While compound **8a**[43]is known, others are hitherto unknown.

(*E*)-*N*'-(1-Phenylethylidene) acetohydrazide (**8a**). Yield: 91%. White solid. M.p. 130-132 °C. (lit[5]), ^{1}H NMR (300 MHz, $CDCl_3$): δ 9.38 (s, 1H); 7.76 (d, *J* = 7.7 Hz, 2H); 7.39 (m, 3H); 2.40 (s, 3H); 2.27 (s, 3H). ^{13}C NMR (75 MHz, $CDCl_3$): δ 174.5; 147.6; 138.0; 128.9; 128.1; 126.4; 125.8; 20.5; 13.0. . Anal. Calcld. for (%) $C_{10}H_{12}N_2O$: C 68.16, H 6.86, N 15.90; Found: C 68.21, H 6.89, N 15.95.

(*E*)-*N*'-(1-Phenylethylidene)propionohydrazide (**8b**). Yield: 93%. White solid. M.p. 137-139 °C. FTIR (KBr) υ/cm^{-1} 1676, 1560. ^{1}H NMR (300 MHz, $CDCl_3$): δ 8.62 (s, 1H); 8.00 – 7.61 (m, 2H); 7.71 – 7.41 (m, 3H); 2.82 (q, *J* = 7.5 Hz, 2H); 2.22 (s, 3H); 1.24 (t, *J* = 7.5 Hz, 3H). ^{13}C NMR (75 MHz, $CDCl_3$): δ 177.6; 147.1; 138.1; 128.7; 128.1; 125.8; 26.0; 12.8; 8.6. Anal. Calcld. for (%) $C_{11}H_{14}N_2O$: C 69.45; H 7.42, N 14.73; Found: C 69.48, H 7.47, N 14.70.

(*E*)-*N*'-(1-Phenylethylidene)butyrohydrazide (**8c**). Yield: 92%. White solid. M.p. 102-104 °C. FTIR (KBr) υ/cm^{-1} 1676, 1654. ^{1}H NMR (300 MHz, $CDCl_3$): δ 9.24 (s, 1H); 7.75 (dd, *J* = 7.0, 2.6 Hz, 2H); 7.68 –7.40 (m, 3H); 2.78 (t, *J* = 7.5 Hz, 2H); 2.25 (s, 3H); 1.76 (dt, *J* = 14.7, 7.4 Hz, 2H); 1.03 (t, *J* = 7.4 Hz, 3H). ^{13}C NMR (75 MHz, $CDCl_3$): δ 176.8; 147.1; 138.2; 128.9; 128.3; 125.9; 34.7; 18.1; 13.9; 12.9. Anal. Calcld. for (%) $C_{12}H_{16}N_2O$: C 70.56, H 7.90, N 13.71; Found: C 70.59, H 7.93, N 13.68.

(*E*)-*N*'-Benzylideneacetohydrazide (**8d**). Yield: 93%; White solid, M.p. 135-137 °C. FTIR (KBr) υ/cm^{-1} 1676, 1608. ^{1}H NMR (300 MHz, $CDCl_3$): δ 10.05 (s, 1H); 7.84 (s, 1H); 7.68 (dd, *J* = 6.6, 2.9 Hz, 2H); 7.53 – 7.30 (m, 3H); 2.40 (s, 3H). ^{13}C NMR (75 MHz, $CDCl_3$): δ 174.7; 144.3; 133.9; 129.8; 128.5; 126.9; 20.2. Anal. Calcld. for (%) $C_9H_{10}N_2O$: C, 66.65; H, 6.21; N, 17.27; Found: C, 66.71; H, 6.26; N, 17.21.

(*E*)- *N*'-Benzylidenepropionohydrazide (**8e**). Yield: 90%. White solid. M.p. 116-118 °C. FTIR (KBr) υ/cm^{-1} 1672, 1597. ^{1}H NMR (300 MHz, $CDCl_3$): δ 10.19 (s, 1H); 7.85 (s, 1H); 7.81 – 7.60 (m, 2H); 7.41 – 7.38 (m, 3H); 2.80 (q, *J* = 7.5 Hz, 2H); 1.25 (t, *J* = 7.5 Hz, 3H). ^{13}C NMR (75 MHz, $CDCl_3$): δ 177.8; 143.9; 134.0; 129.7; 128.5; 126.9; 25.9; 8.8. Anal. Calcld. for (%) $C_{10}H_{12}N_2O$: C 68.16, H 6.86, N 15.90; Found: C 68.21, H 6.89, N 15.88.

(*E*)-*N*'-Benzylidenebutyrohydrazide (**8f**). Yield: 94%. White solid. M.p. 89-91 °C. FTIR (KBr) υ/cm^{-1} 1675, 1600. ^{1}H NMR (300 MHz, $CDCl_3$): δ 10.91 (s, 1H); 7.92 (s, 1H); 7.76 – 7.61 (m, 2H); 7.45 – 7.32 (m, 3H); 2.77 (t, *J* = 7.6 Hz, 2H); 1.79 (dq, *J* = 14.9, 7.4 Hz, 2H); 1.05 (t, *J* = 7.4 Hz, 3H). ^{13}C

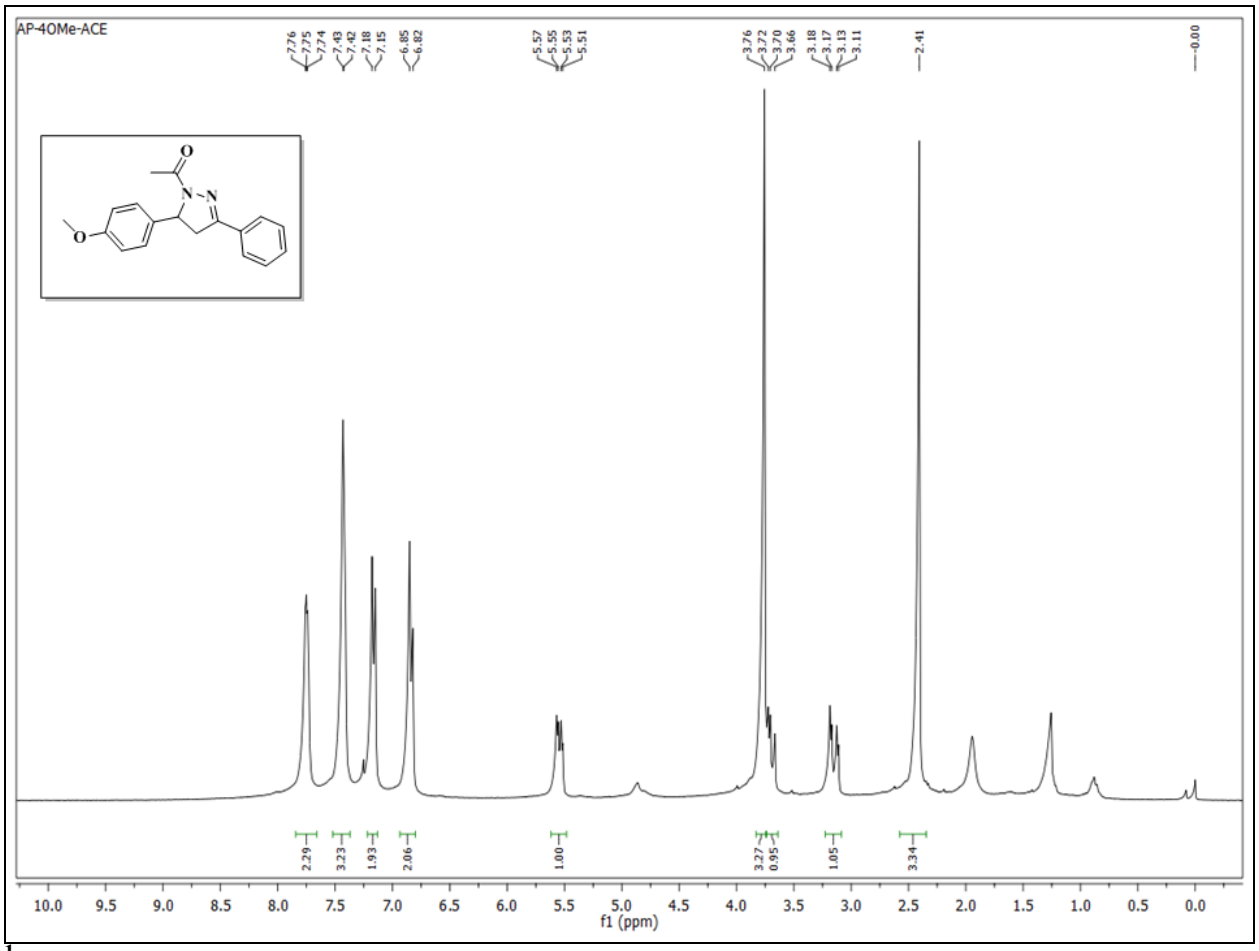
NMR (75 MHz, $CDCl_3$): δ 176.4; 143.4; 133.9; 129.9; 128.7; 127.1; 34.6; 18.2; 13.9. Anal. Calcld. for (%) $C_{11}H_{14}N_2O$ (190.24): C 69.45, H 7.42, N 14.73; Found: C 69.48, H 7.46, N 14.70.

(*E*)-*N*'-(1-(1-Benzyl-5-methyl-1H-1,2,3-triazol-4-yl)ethylidene)acetohydrazide (**8g**). Yield: 93%. Gummy matter. FTIR (KBr) υ/cm^{-1} 1670, 1560. ^{1}H NMR (300 MHz, $CDCl_3$): δ 8.67 (s, 1H); 7.35 (dd, *J* = 8.4, 3.3 Hz, 2H); 7.19 (dd, *J* = 6.6, 4.7 Hz, 2H); 5.54 (s, 2H); 2.43 (s, 3H); 2.42 (s, 3H); 2.28 (s, 3H). ^{13}C NMR (75 MHz, $CDCl_3$): δ 173.4; 144.3; 131.5; 134.2; 128.6; 127.9; 126.7; 51.3; 20.4; 12.7; 9.7. Anal. Calcld. for (%) $C_{14}H_{17}N_5O$: C 61.98, H 6.32, N 25.81; Found: C 61.95, H 6.35, N 25.77.

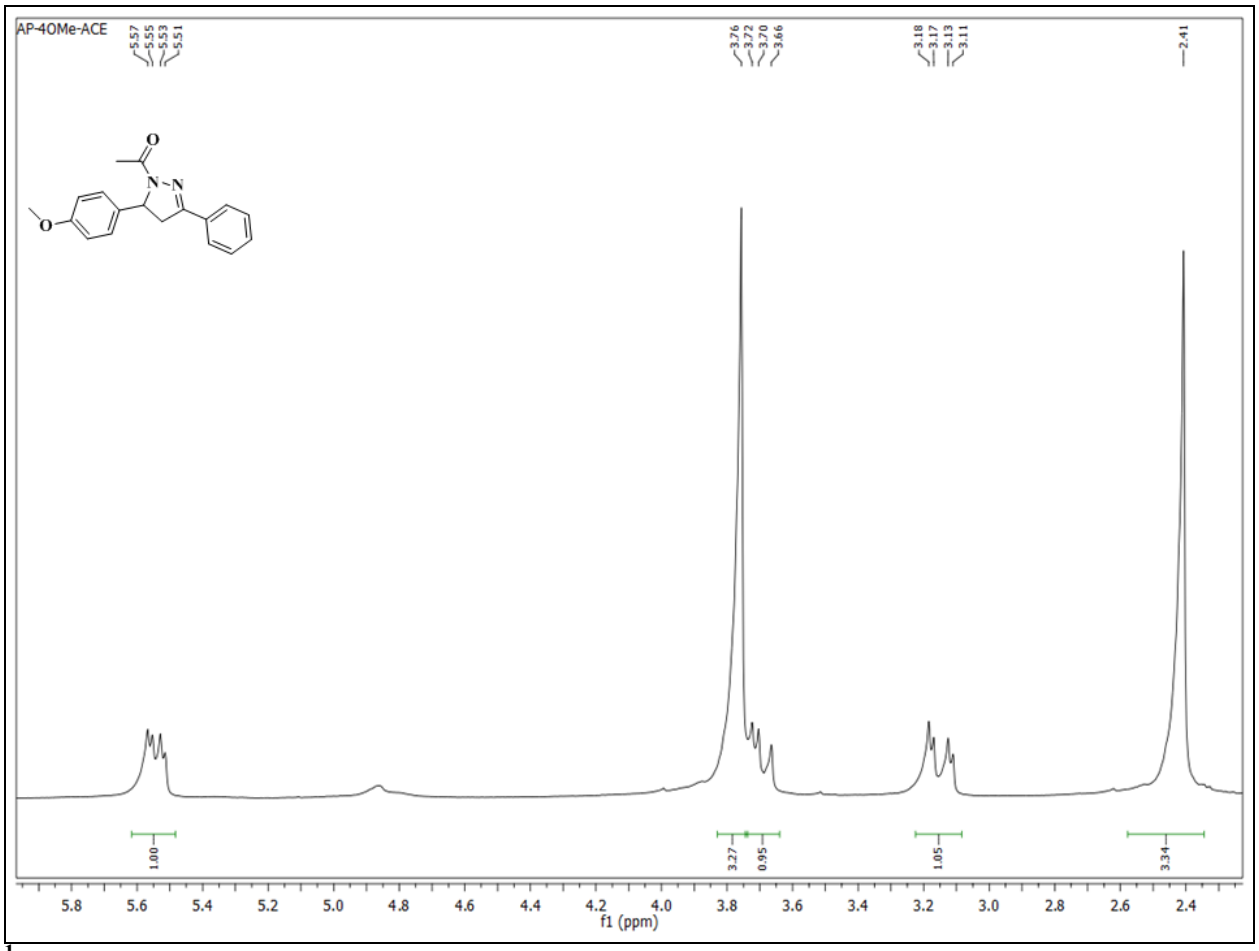
(*E*)-*N*'-(1-(1-Benzyl-5-methyl-1H-1,2,3-triazol-4-yl)ethylidene)propionohydrazide (**8h**). Yield: 91%. Gummy matter. FTIR (KBr) υ/cm^{-1} 1676, 1560. ^{1}H NMR (300 MHz, $CDCl_3$): δ 7.36 – 7.29 (m, 4H); 7.22 – 7.20 (m, 1H); 5.53 (s, 2H); 2.53 (s, 3H); 2.50 (s, 3H); 2.45 – 2.38 (m, 2H); 1.17 (t, *J* = 7.6 Hz, 3H). ^{13}C NMR (75 MHz, $CDCl_3$): δ 176.4; 143.7; 134.2; 132.8; 128.6; 128.1; 126.8; 51.3; 29.1; 14.8; 9.9; 9.6. Anal. Calcld. for (%) $C_{15}H_{19}N_5O$: C 63.14, H 6.71, N 24.54; Found: C 63.17, H 6.73, N 24.51.

(*E*)-*N*'-(1-(1-Benzyl-5-methyl-1H-1,2,3-triazol-4-yl)ethylidene)butyrohydrazide (**8i**). Yield: 90%. Gummy matter. FTIR (KBr) υ/cm^{-1} 1651, 1608. ^{1}H NMR (300 MHz, $CDCl_3$): δ 7.35 – 7.27 (m, 3H); 7.23 – 7.18 (m, 2H); 5.55 (s, 2H); 2.73 – 2.69 (s, 2H); 2.49 (s, 3H); 2.47 (s, 3H); 1.82 – 1.67 (m, 2H); 1.01 (t, *J* = 6.0 Hz, 3H). ^{13}C NMR (75 MHz, $CDCl_3$): δ 173.2; 142.9; 136.3; 133.4; 128.2; 127.6; 126.5; 50.6; 42.4; 19.2; 18.1; 12.9; 8.2. Anal. Calcld. for (%) $C_{16}H_{21}N_5O$: C 64.19, H 7.07, N 23.39; Found: C 64.22, H 7.09, N 23.35.

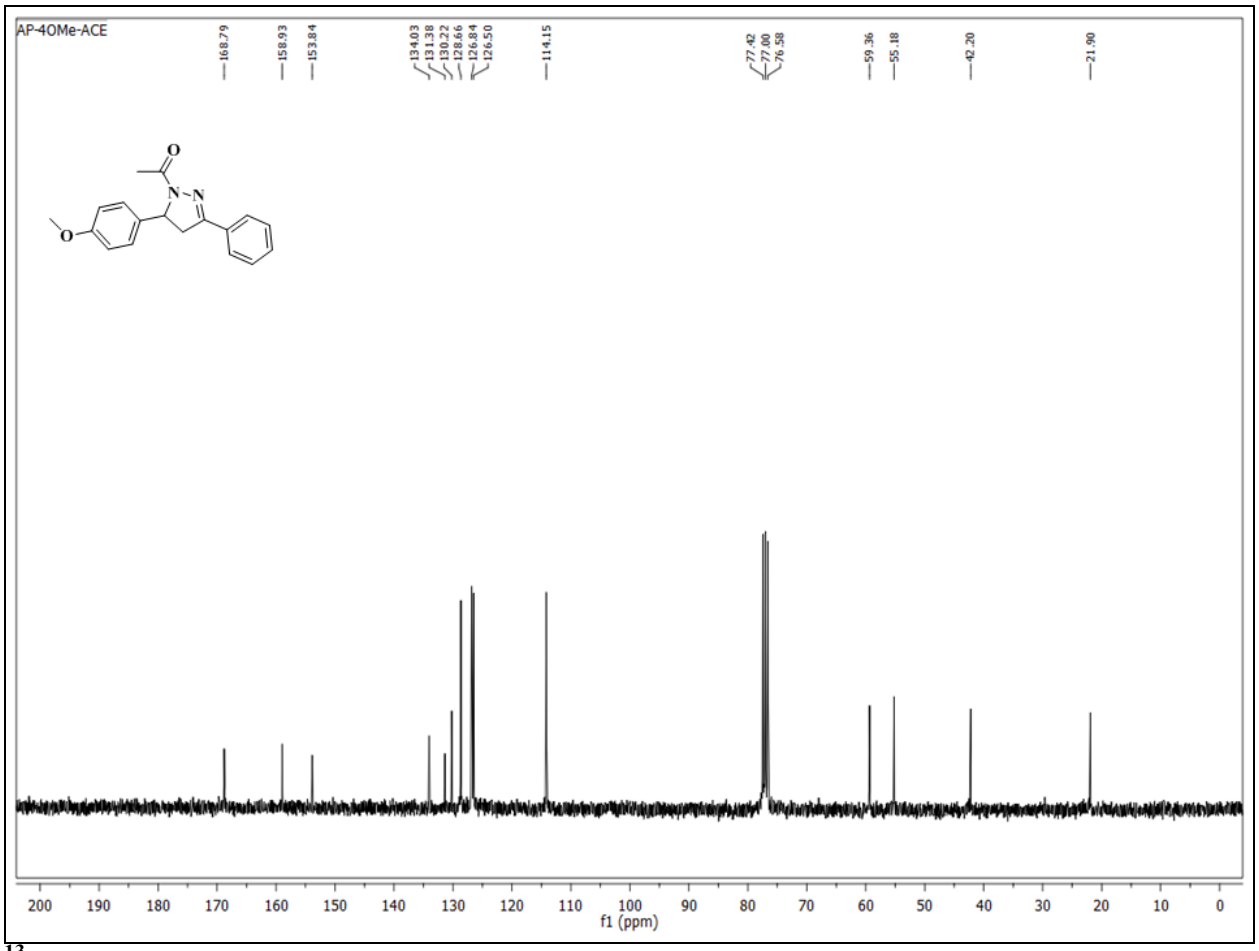
I Copies of ^{1}H&^{13}C NMR of **3a-i**



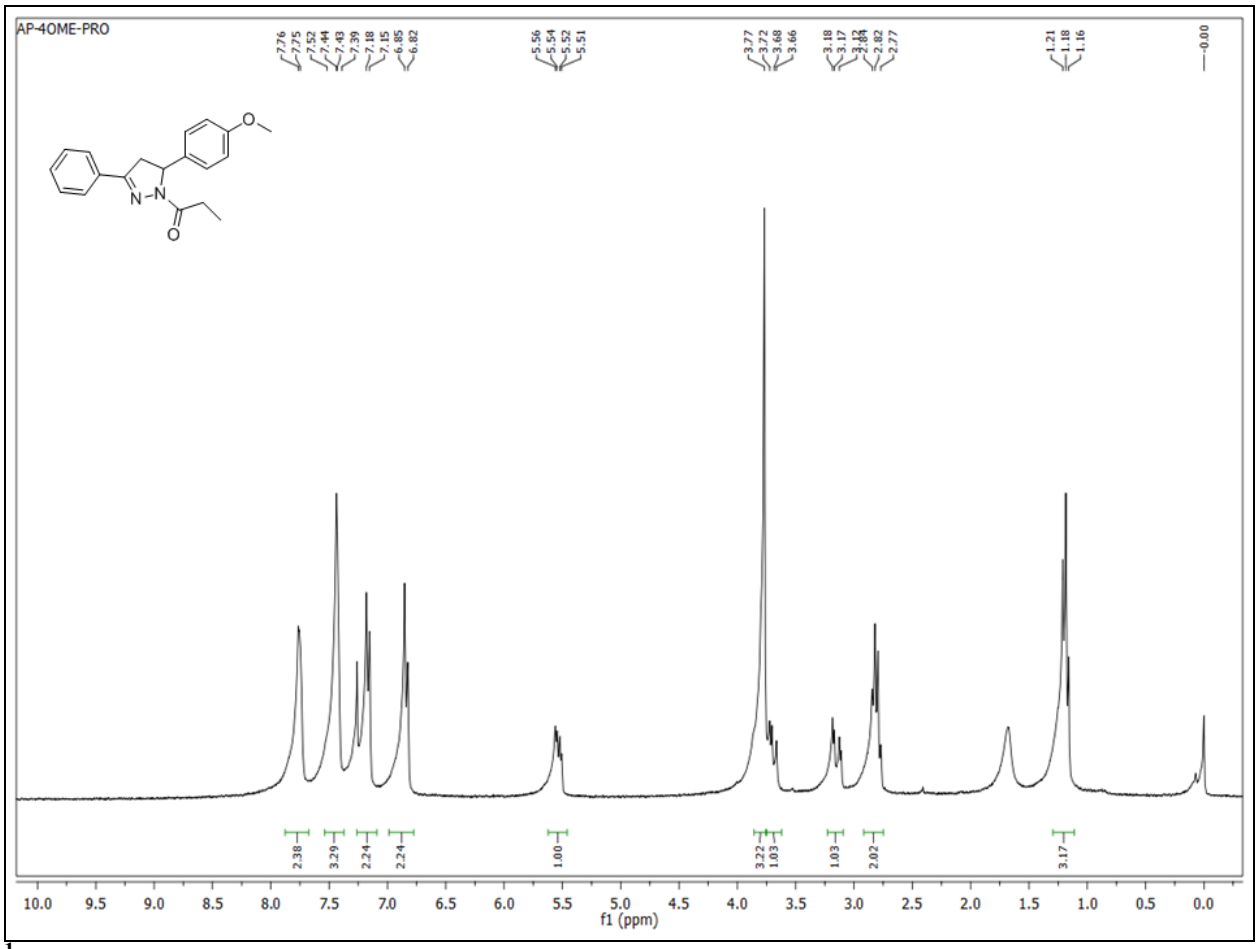
^{1}H NMR (300 MHz, $CDCl_3$) : 1-(5-(4-Methoxyphenyl)-3-phenyl-4,5-dihydro-1*H*-pyrazol-1-yl) ethanone (3a)



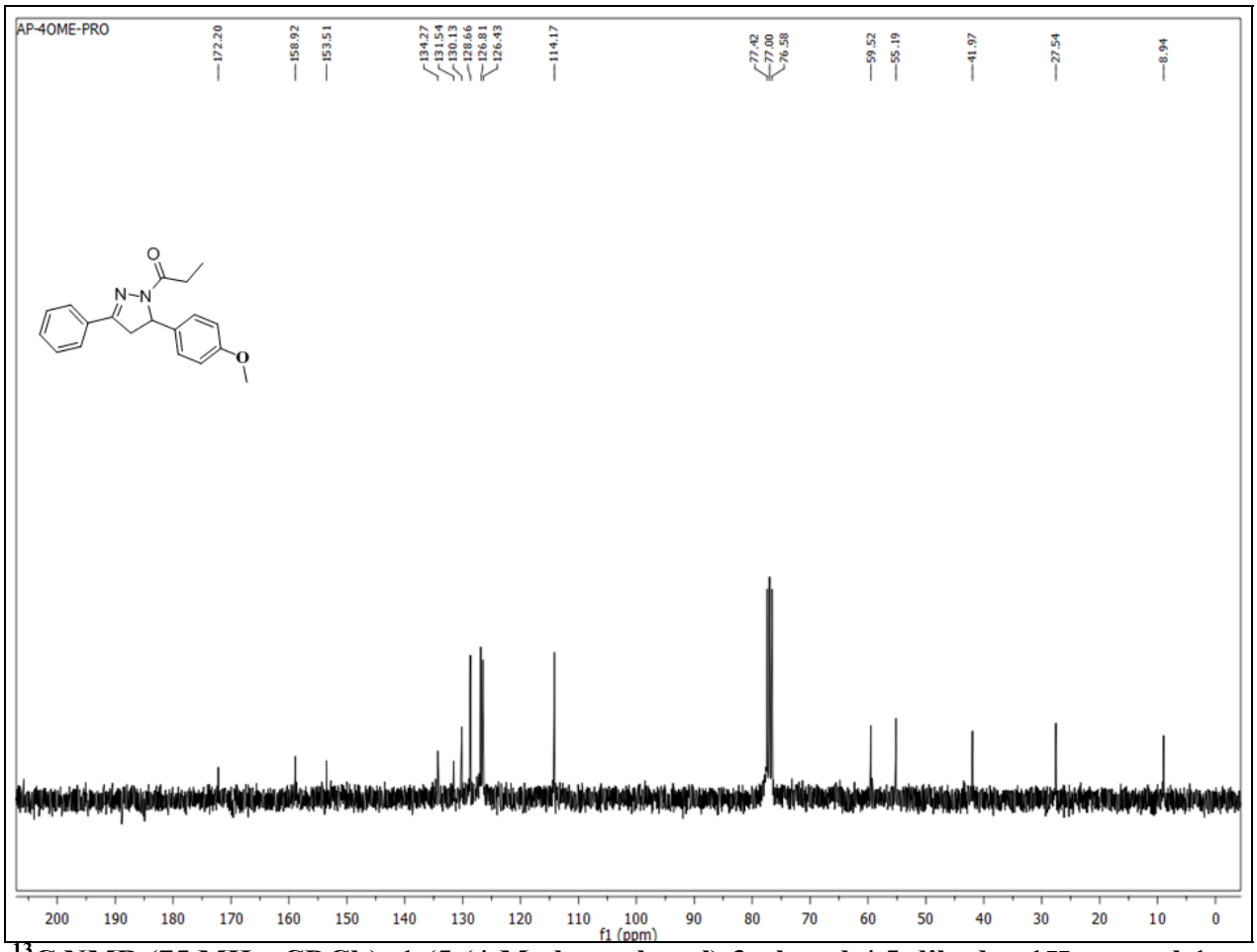
^{1}H NMR (300 MHz, $CDCl_3$): [Expansion] of 1-(5-(4-Methoxyphenyl)-3-phenyl-4,5-dihydro-1*H*-pyrazol-1-yl) ethanone (3a)



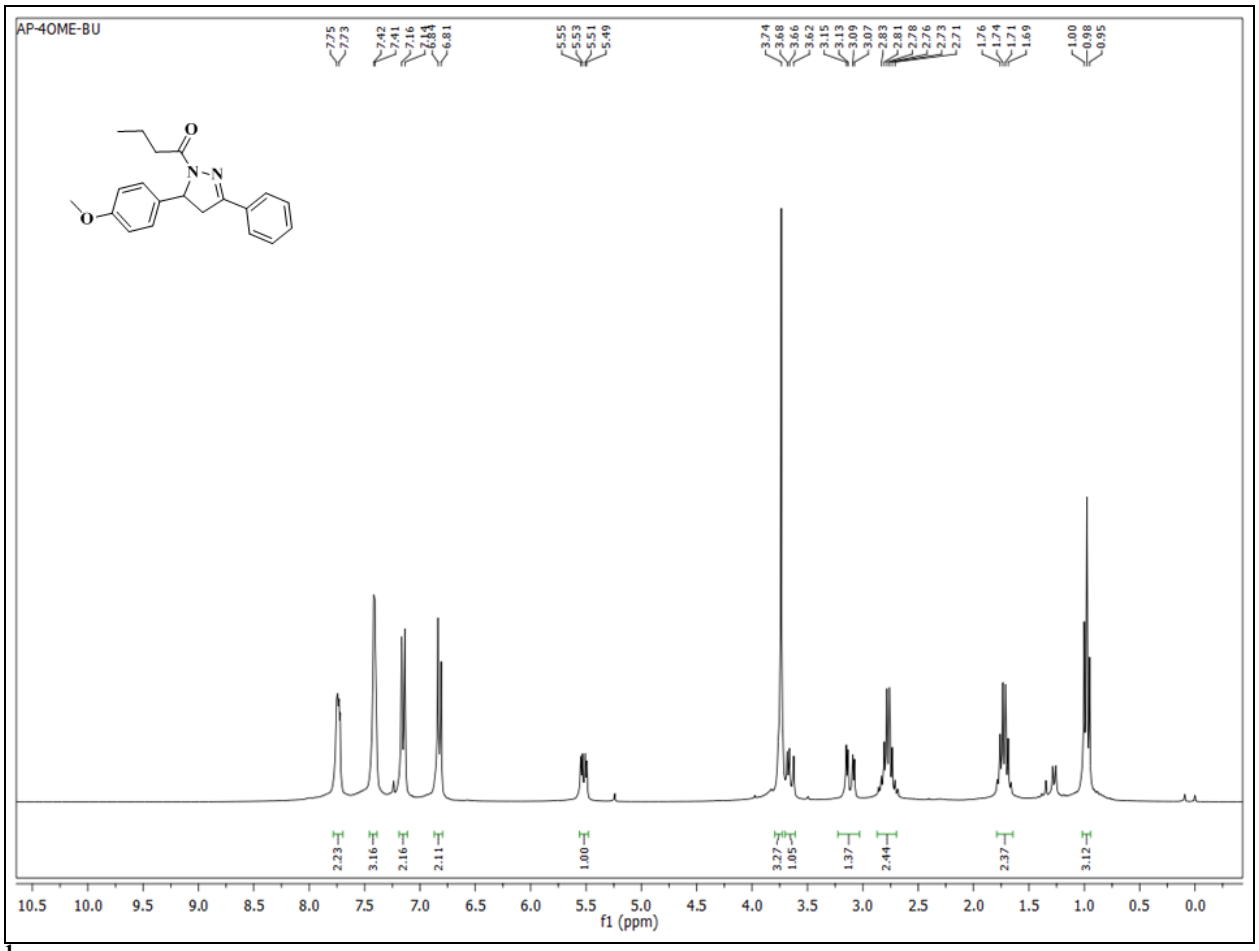
^{13}C NMR (75 MHz, $CDCl_3$): 1-(5-(4-Methoxyphenyl)-3-phenyl-4,5-dihydro-1*H*-pyrazol-1-yl)ethanone (3a)



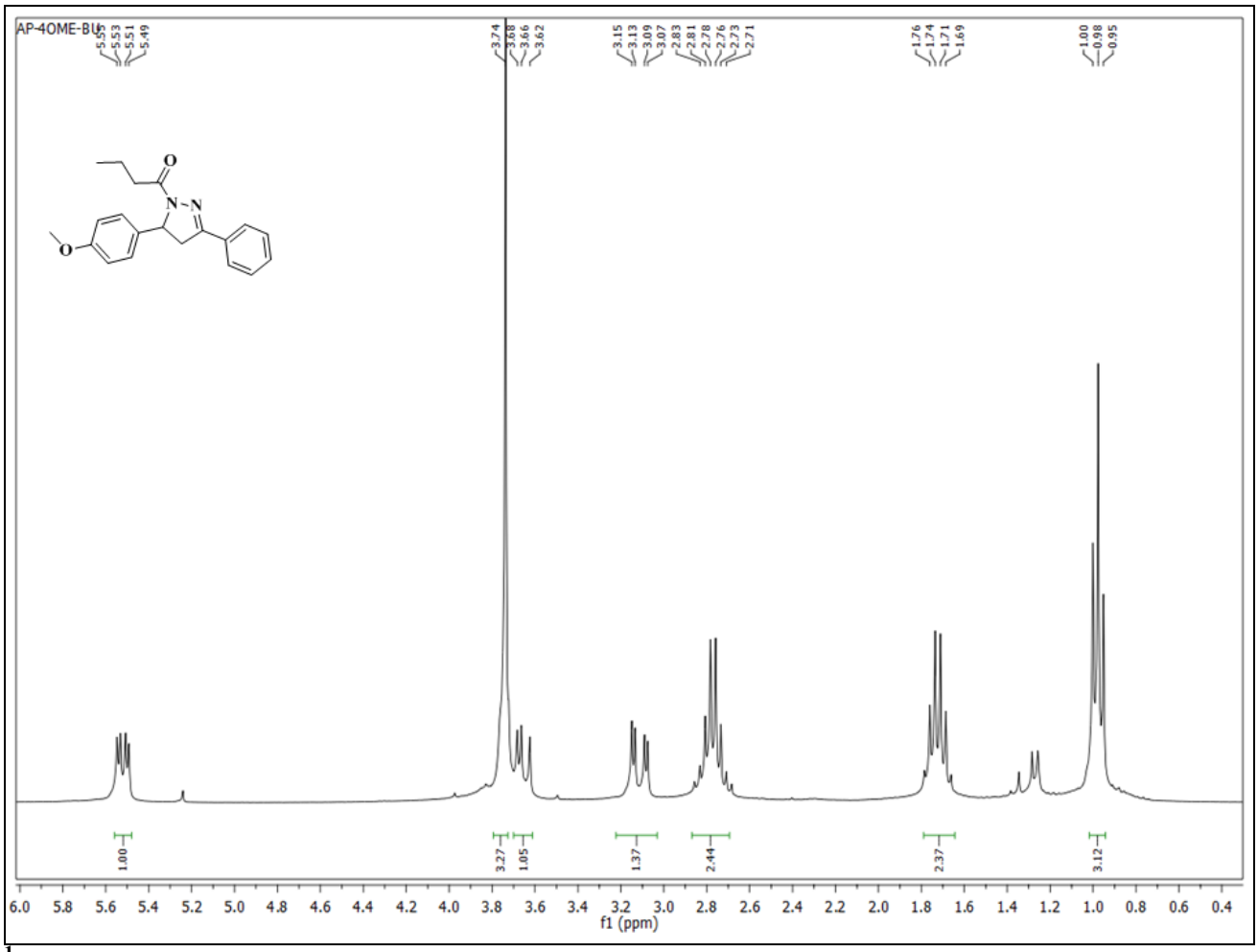
^{1}H NMR (300 MHz, $CDCl_3$): 1-(5-(4-Methoxyphenyl)-3-phenyl-4,5-dihydro-1*H*-pyrazol-1-yl)propan-1-one (3b)



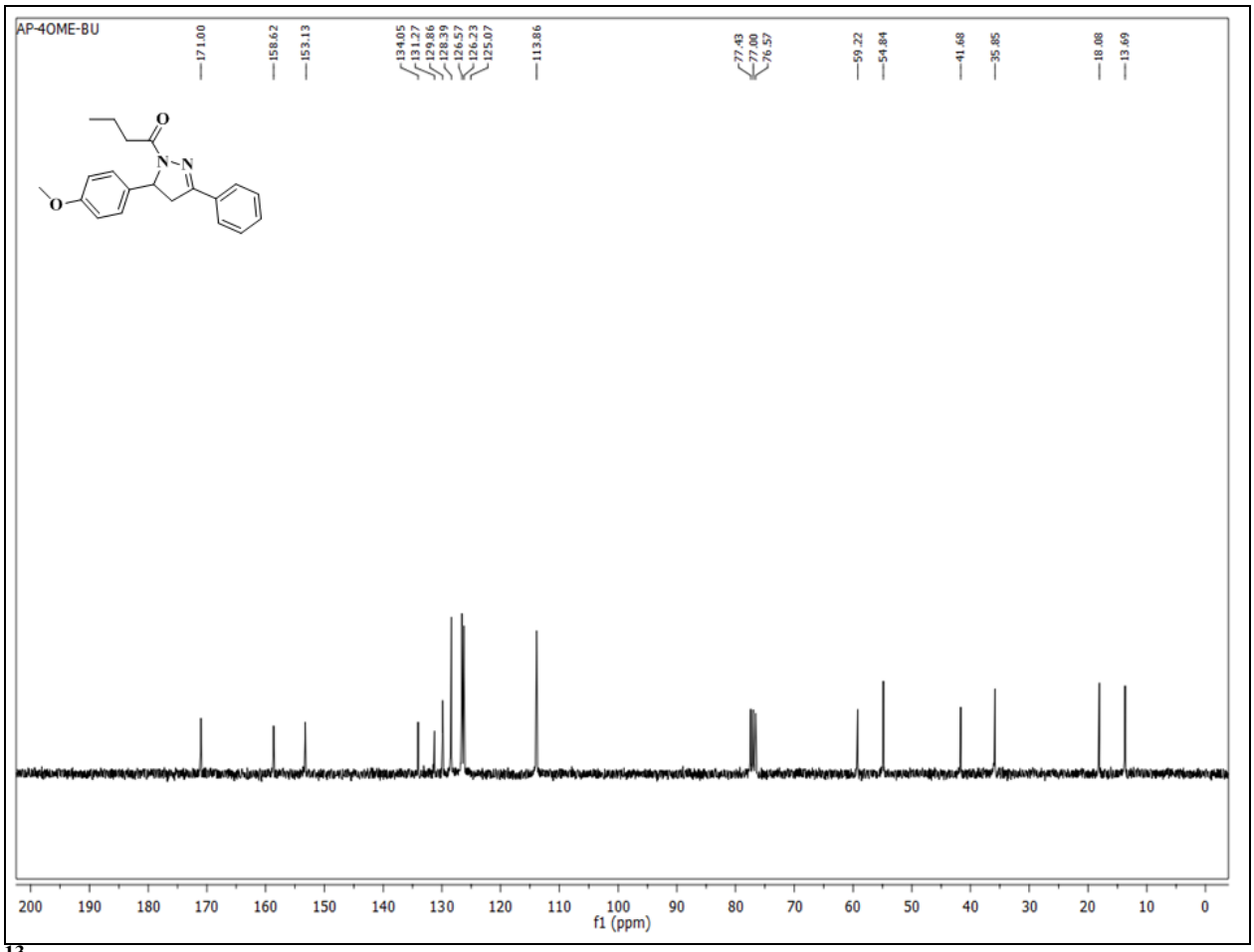
^{13}C NMR (75 MHz, $CDCl_3$): 1-(5-(4-Methoxyphenyl)-3-phenyl-4,5-dihydro-1*H*-pyrazol-1-yl)propan-1-one (3b)



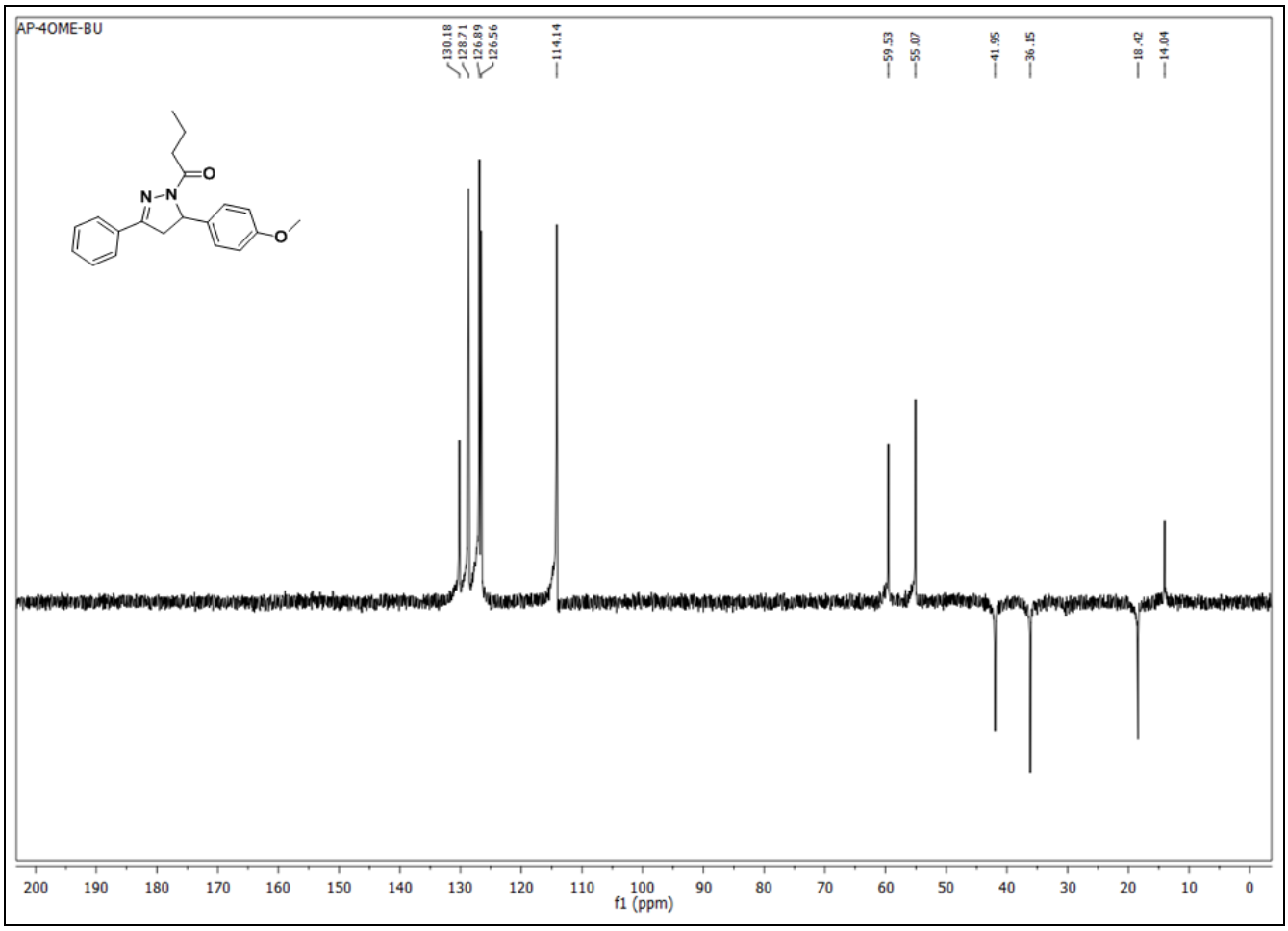
^{1}H NMR (300 MHz, $CDCl_3$): 1-(5-(4-Methoxyphenyl)-3-phenyl-4,5-dihydro-1*H*-pyrazol-1-yl)butan-1-one (3c)



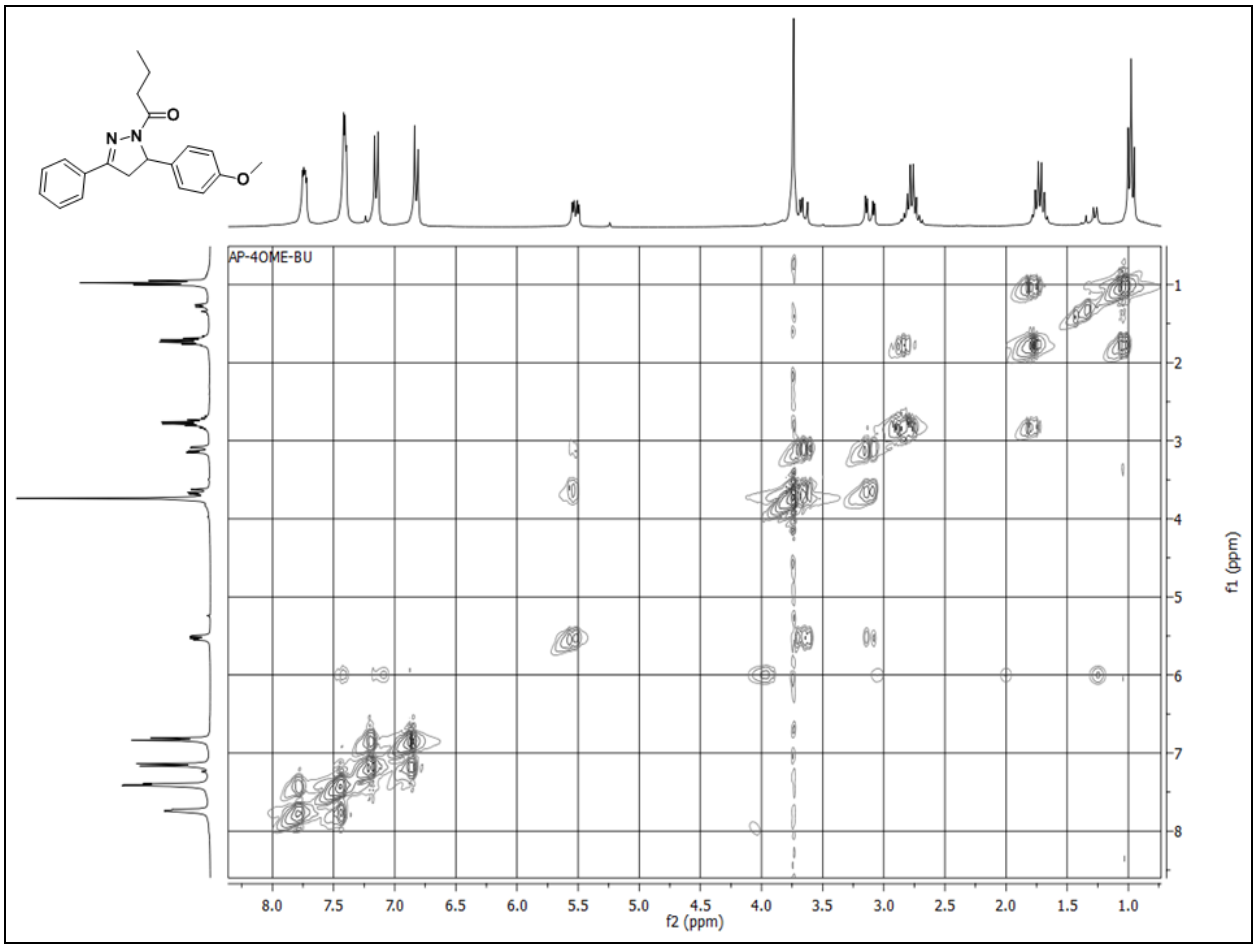
^{1}H NMR (300 MHz, $CDCl_3$): [Expansion] of 1-(5-(4-Methoxyphenyl)-3-phenyl-4,5-dihydro-1*H*-pyrazol-1-yl)butan-1-one (3c)



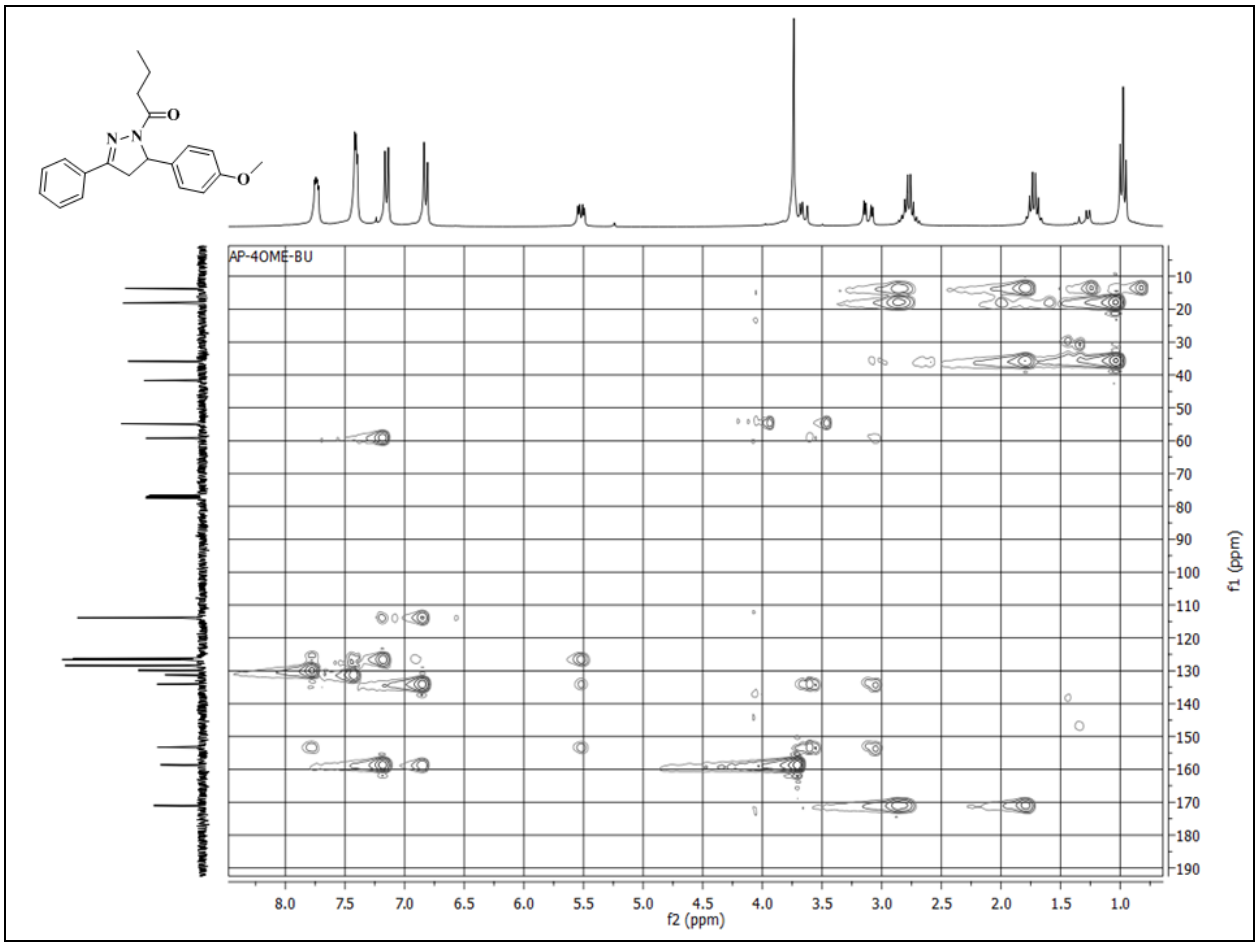
^{13}C NMR (75 MHz, $CDCl_3$): 1-(5-(4-Methoxyphenyl)-3-phenyl-4,5-dihydro-1*H*-pyrazol-1-yl)butan-1-one (3c)



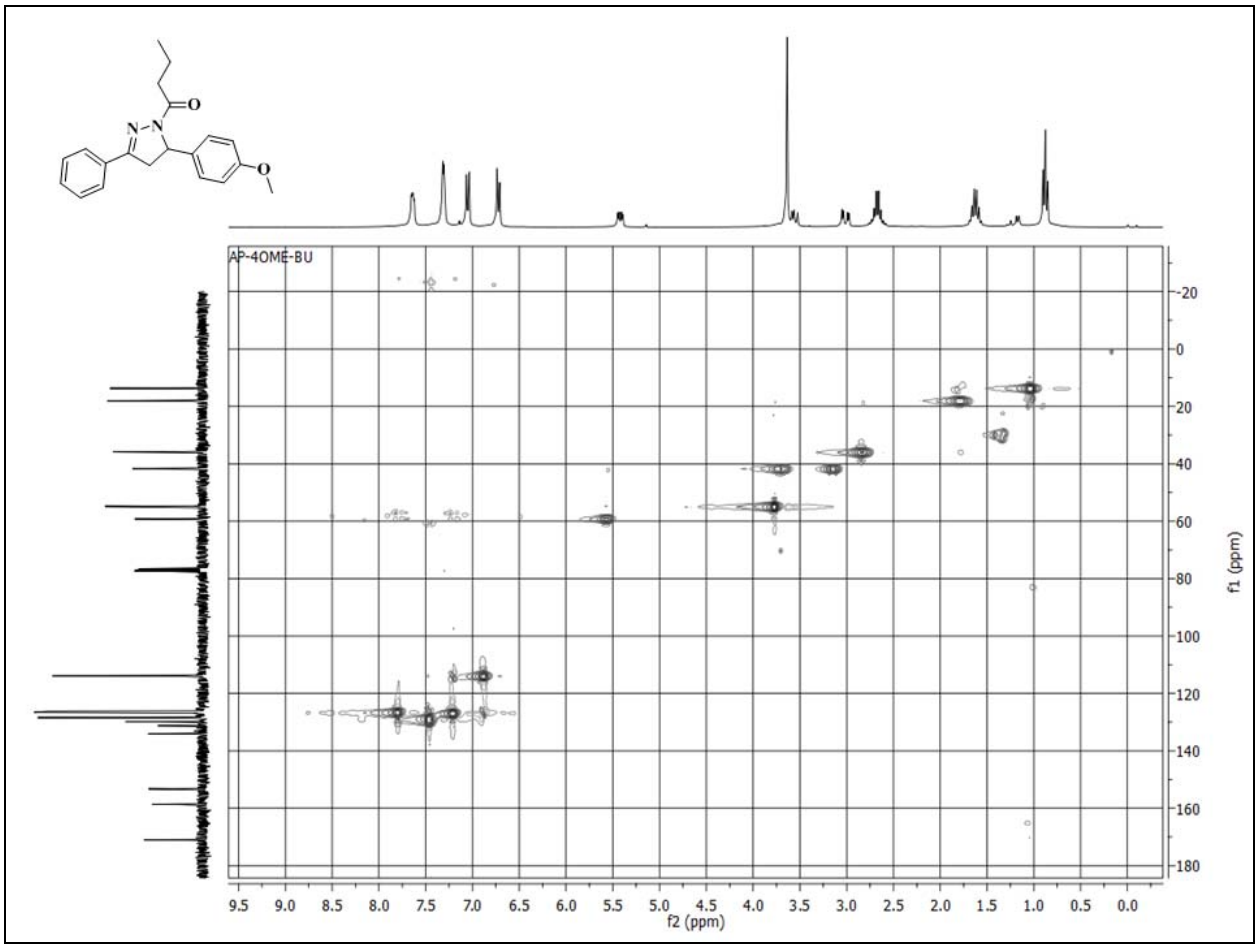
DEPT-135:1-(5-(4-Methoxyphenyl)-3-phenyl-4,5-dihydro-1*H*-pyrazol-1-yl)butan-1-one (3c)



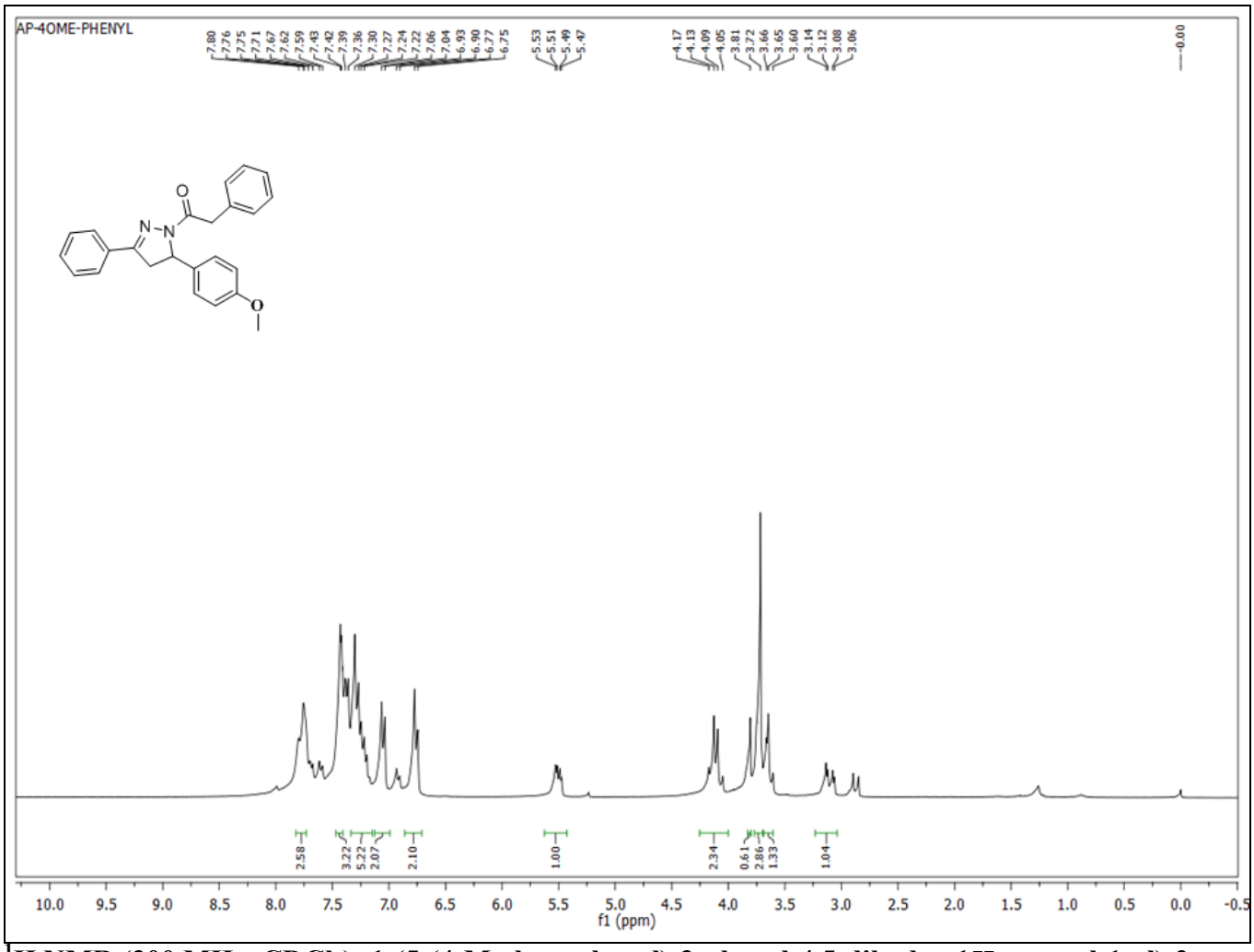
H,H COSY Spectrum of 1-(5-(4-Methoxyphenyl)-3-phenyl-4,5-dihydro-1*H*-pyrazol-1- yl)butan-1-one (3c)



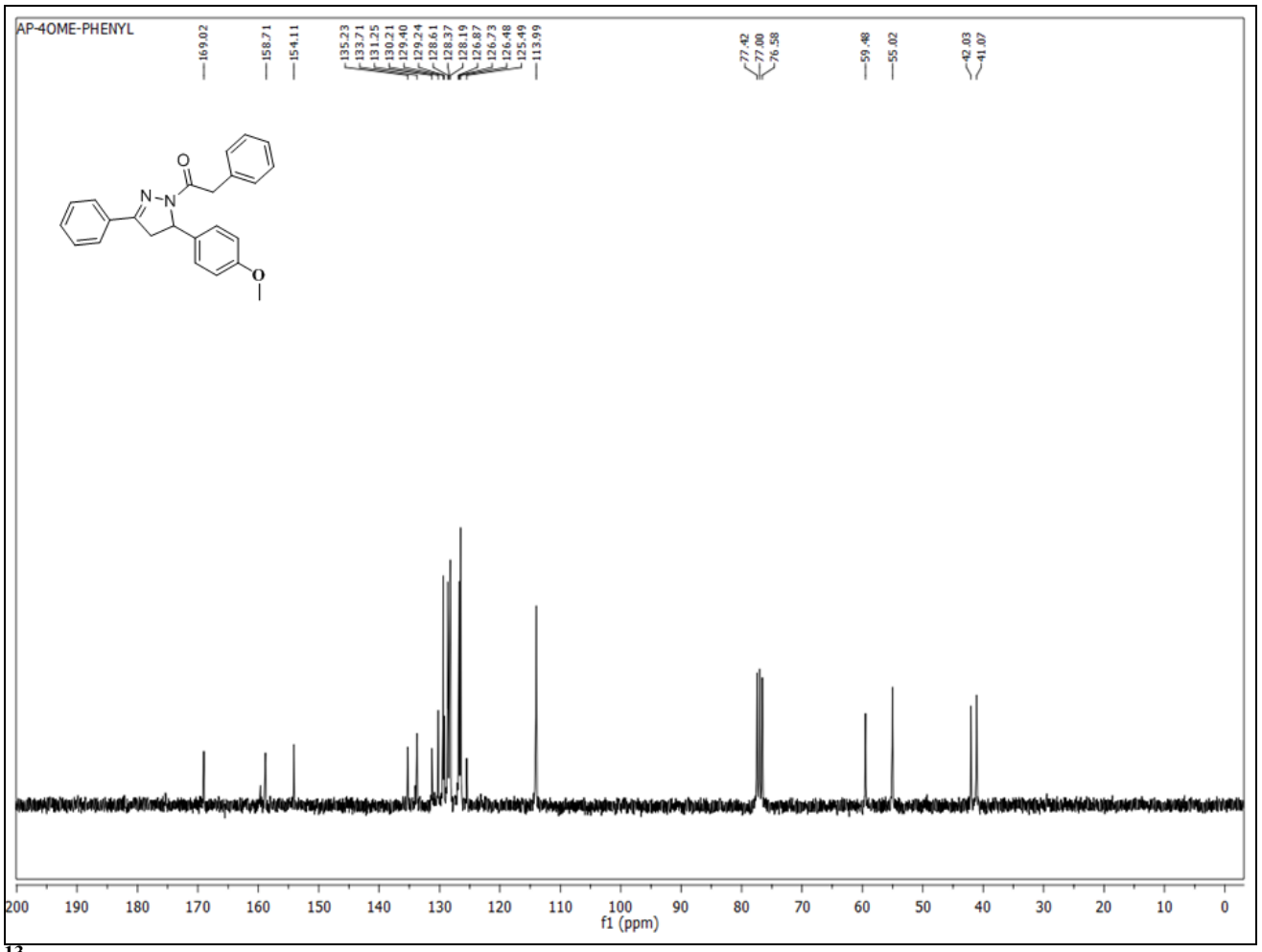
HMBC Spectrum of 1-(5-(4-Methoxyphenyl)-3-phenyl-4,5-dihydro-1*H*-pyrazol-1- yl)butan-1-one (3c)



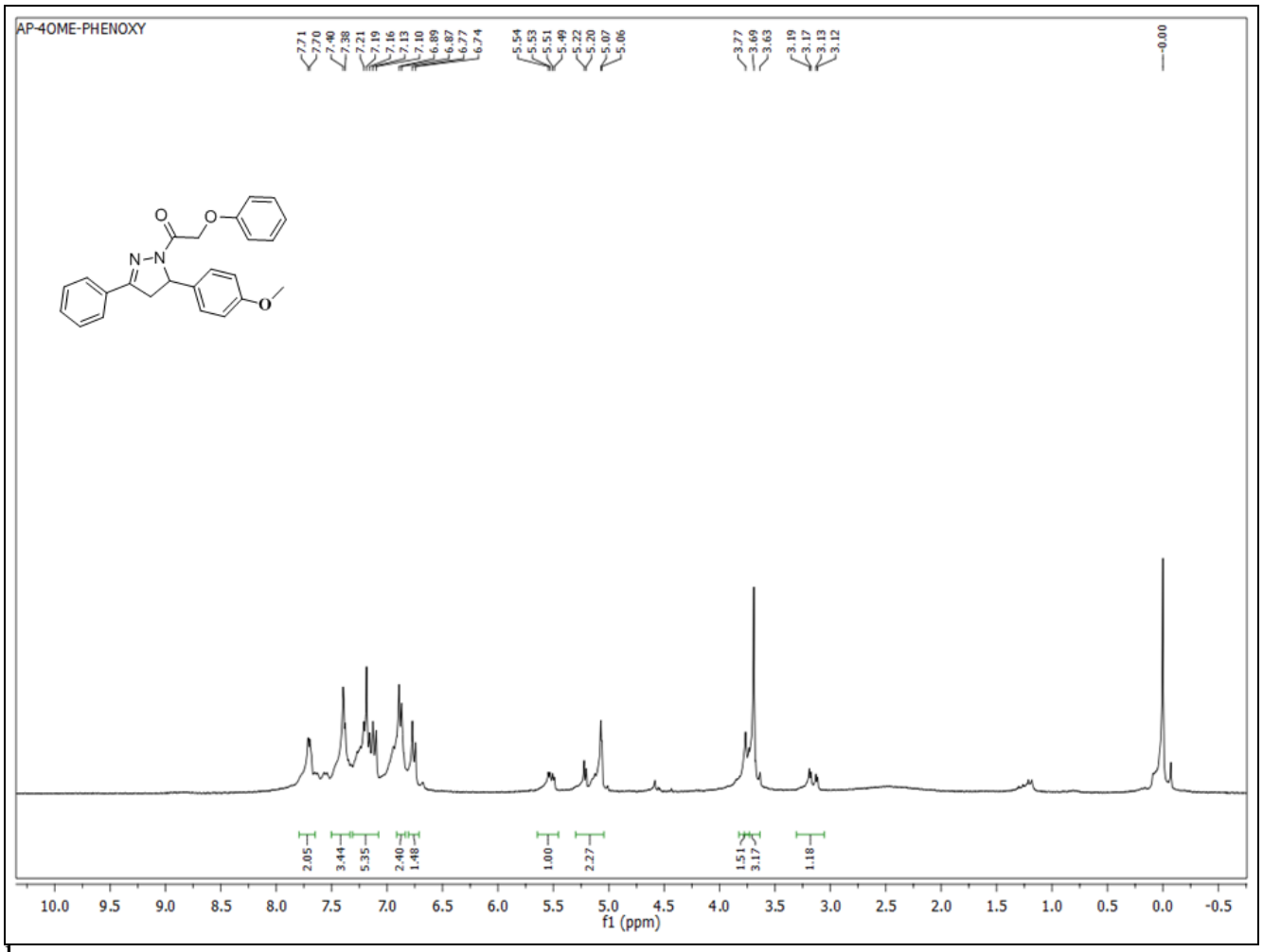
C,H COSY Spectrum of 1-(5-(4-Methoxyphenyl)-3-phenyl-4,5-dihydro-1*H*-pyrazol-1- yl)butan-1-one (3c)



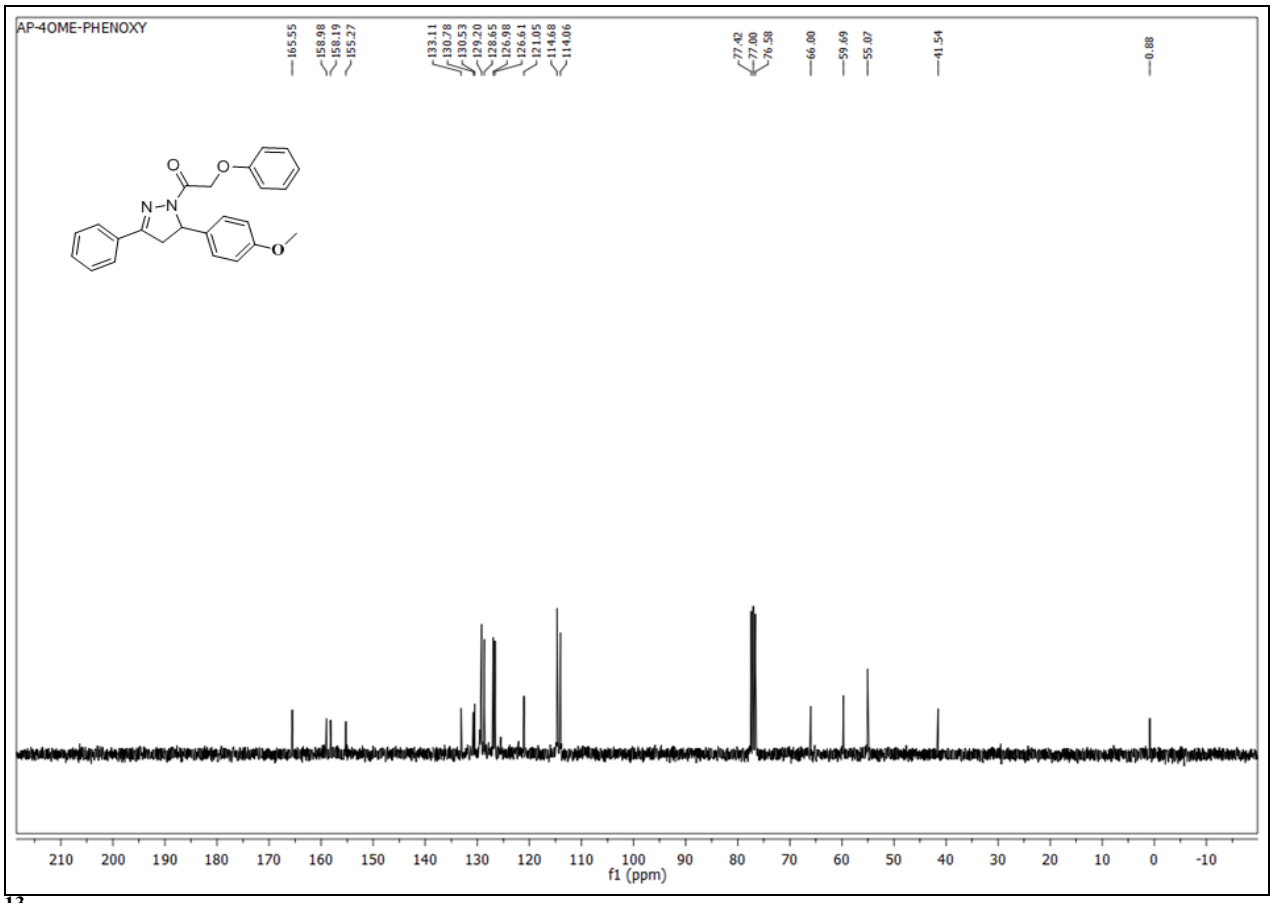
^{1}H NMR (300 MHz, $CDCl_3$): 1-(5-(4-Methoxyphenyl)-3-phenyl-4,5-dihydro-1*H*-pyrazol-1-yl)-2-phenylethanone (3d)



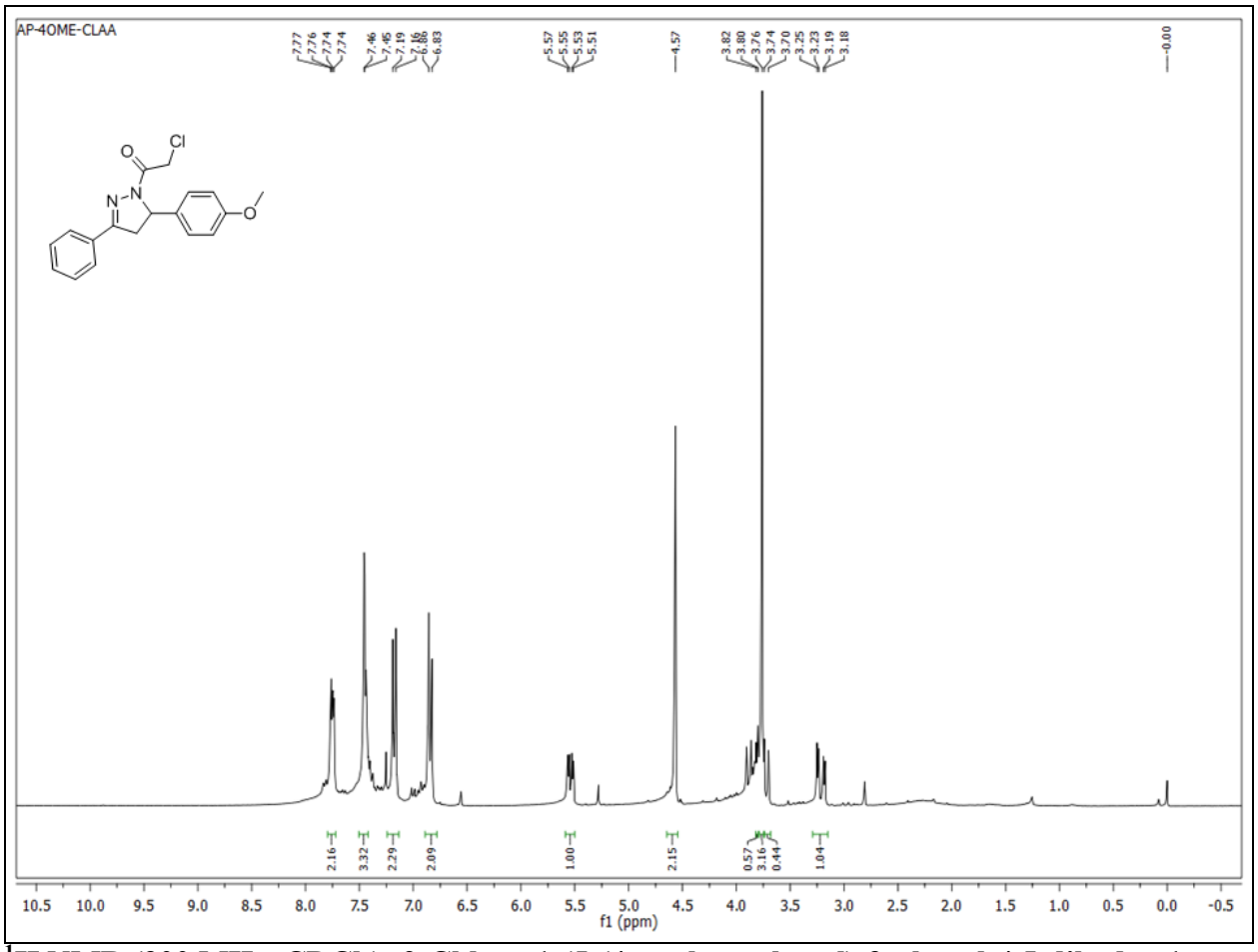
^{13}C NMR (75 MHz, $CDCl_3$): 1-(5-(4-Methoxyphenyl)-3-phenyl-4,5-dihydro-1*H*-pyrazol-1-yl)-2-phenylethanone (3d)



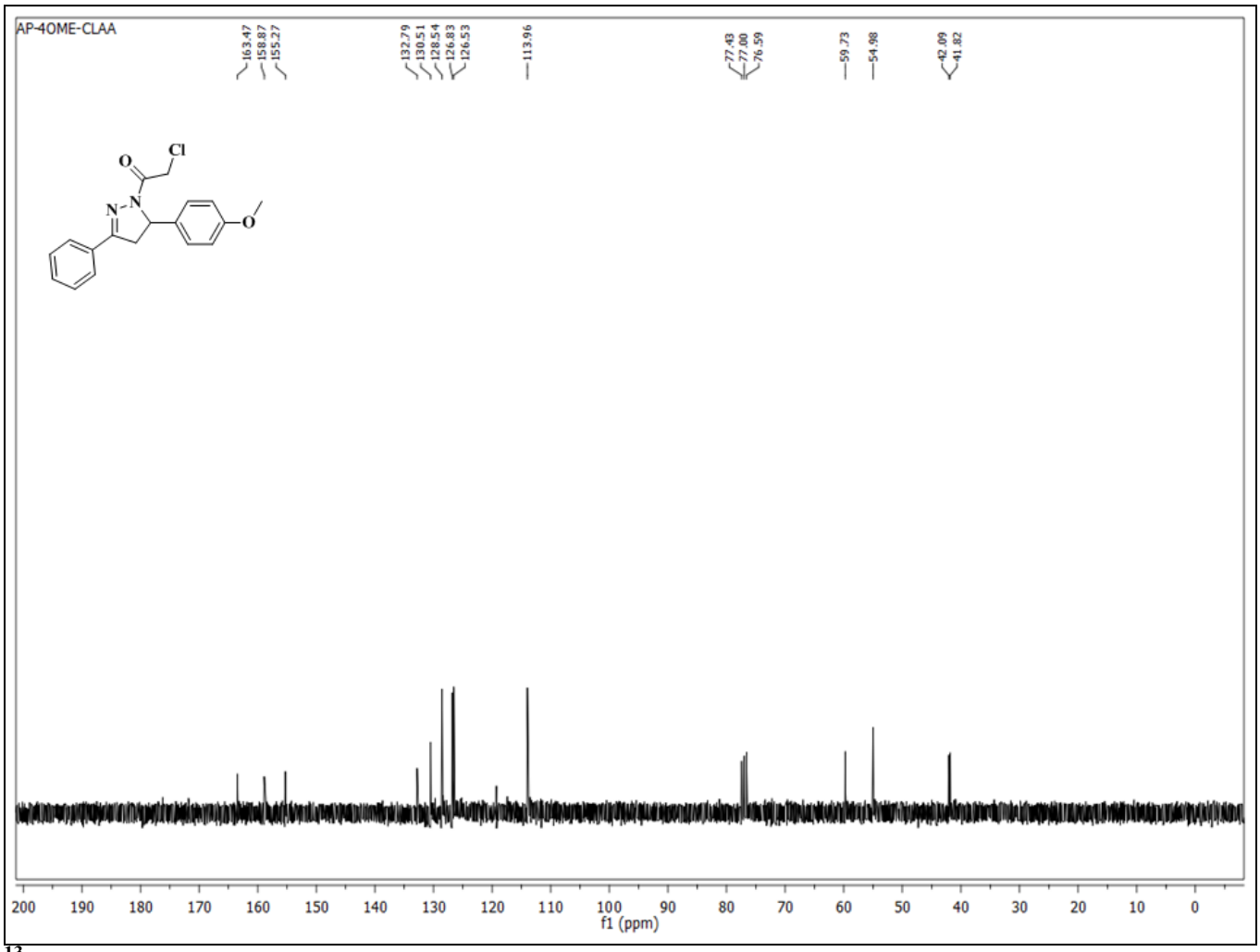
^{1}H NMR (300 MHz, $CDCl_3$): 1-(5-(4-Methoxyphenyl)-3-phenyl-4,5-dihydro-1*H*-pyrazol-1-yl)-2-phenoxyethanone (3e)



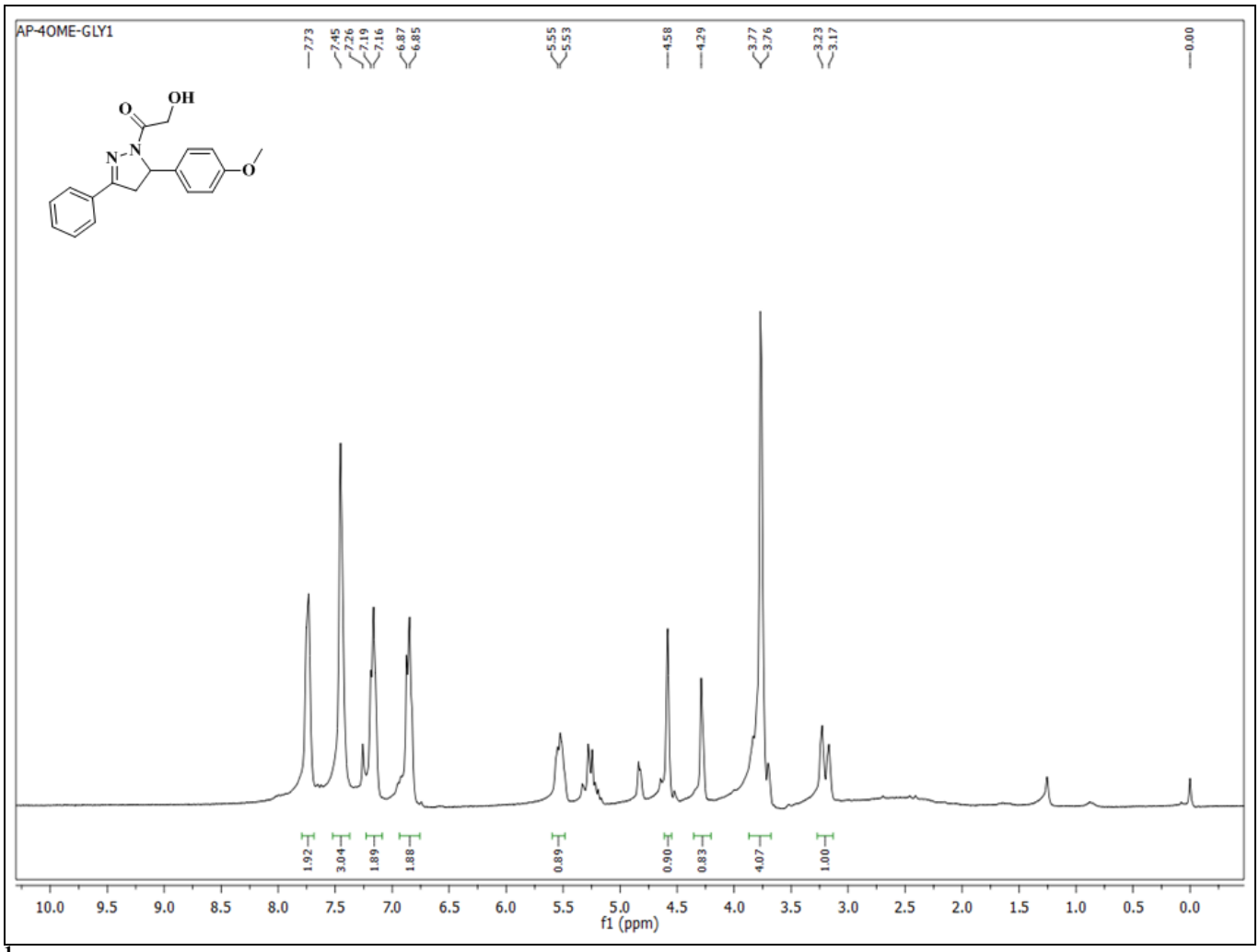
^{13}C NMR (75 MHz, $CDCl_3$): 1-(5-(4-Methoxyphenyl)-3-phenyl-4,5-dihydro-1*H*- pyrazol-1-yl)-2-phenoxyethanone (3e)



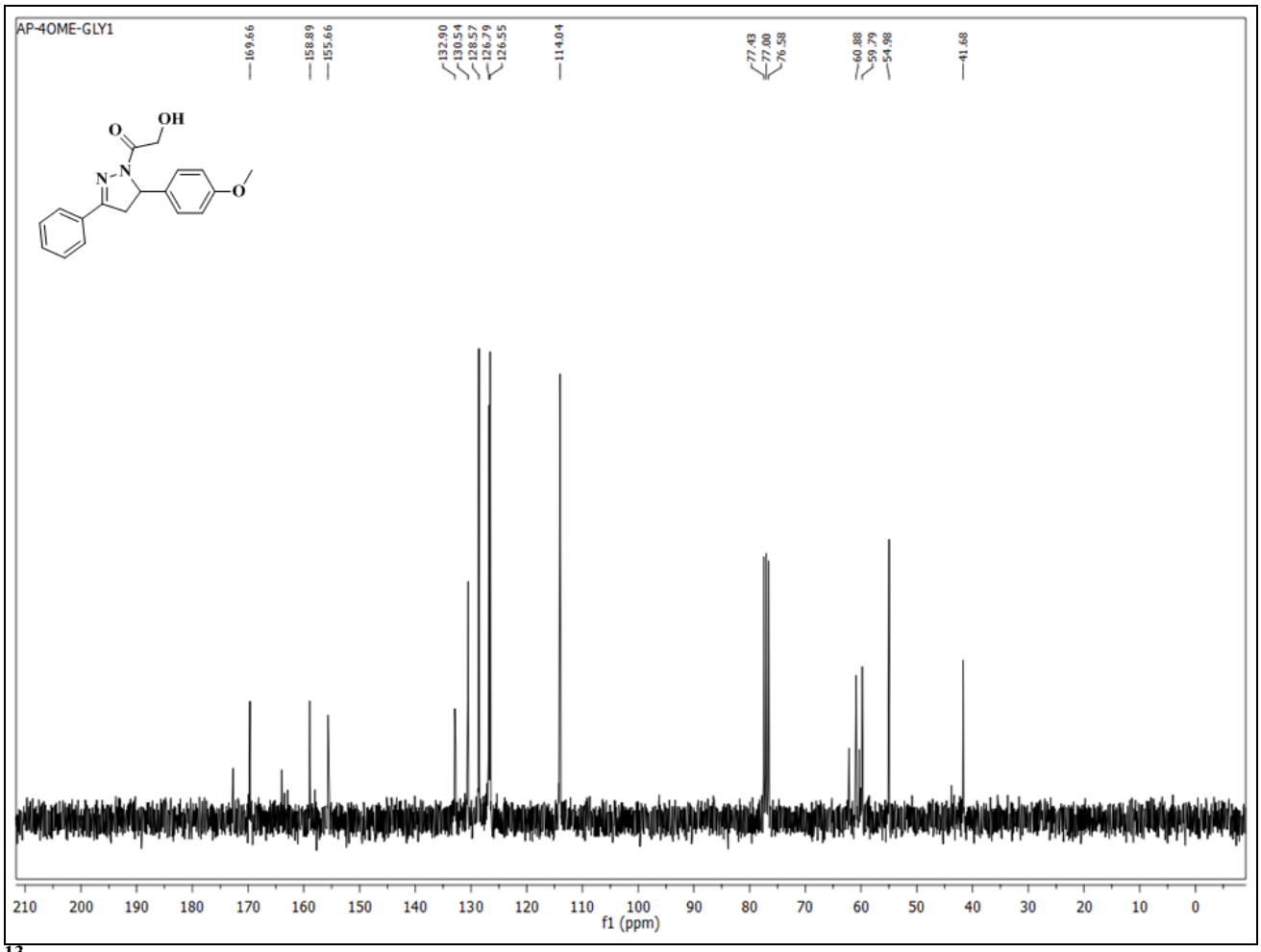
^{1}H NMR (300 MHz, $CDCl_3$): 2-Chloro-1-(5-(4-methoxyphenyl)-3-phenyl-4,5-dihydro-1*H*-pyrazol-1-yl)ethanone (3f)



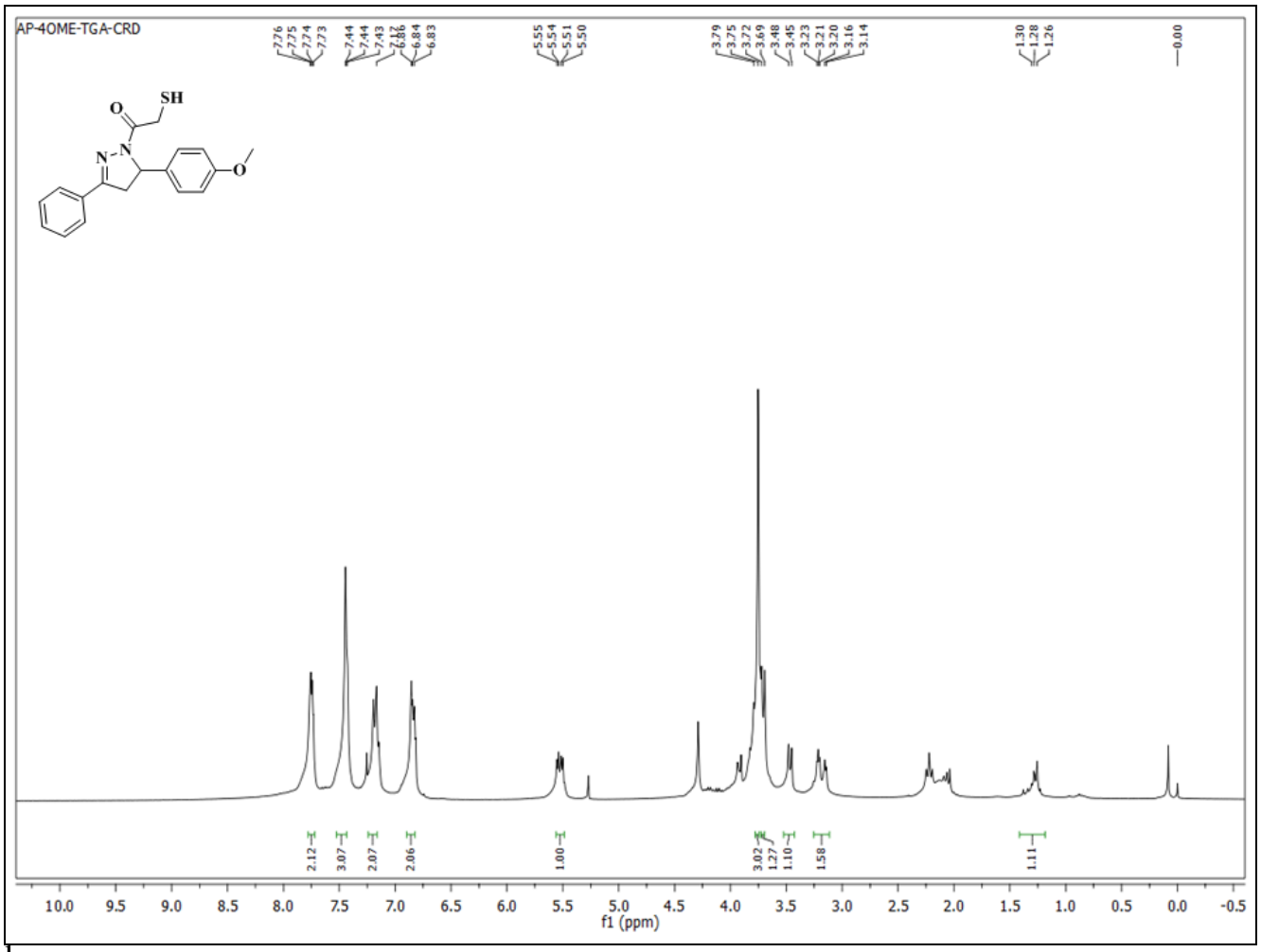
^{13}C NMR (75 MHz, $CDCl_3$): 2-Chloro-1-(5-(4-methoxyphenyl)-3-phenyl-4,5-dihydro-1*H*-pyrazol-1-yl)ethanone (3f)



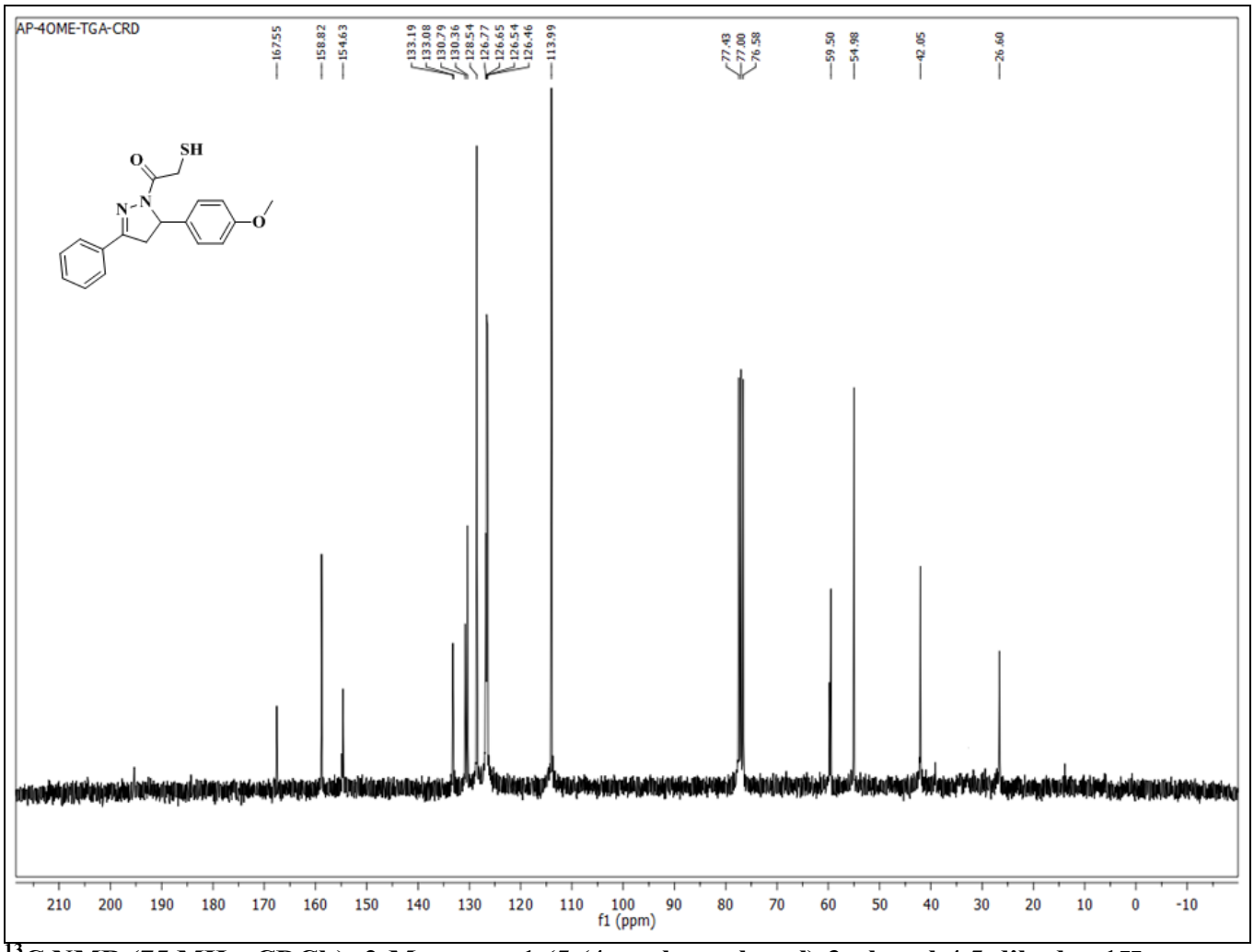
^{1}H NMR (300 MHz, $CDCl_3$): 2-Hydroxy-1-(5-(4-methoxyphenyl)-3-phenyl-4,5-dihydro-1*H*-pyrazol-1-yl)ethanone (3g)



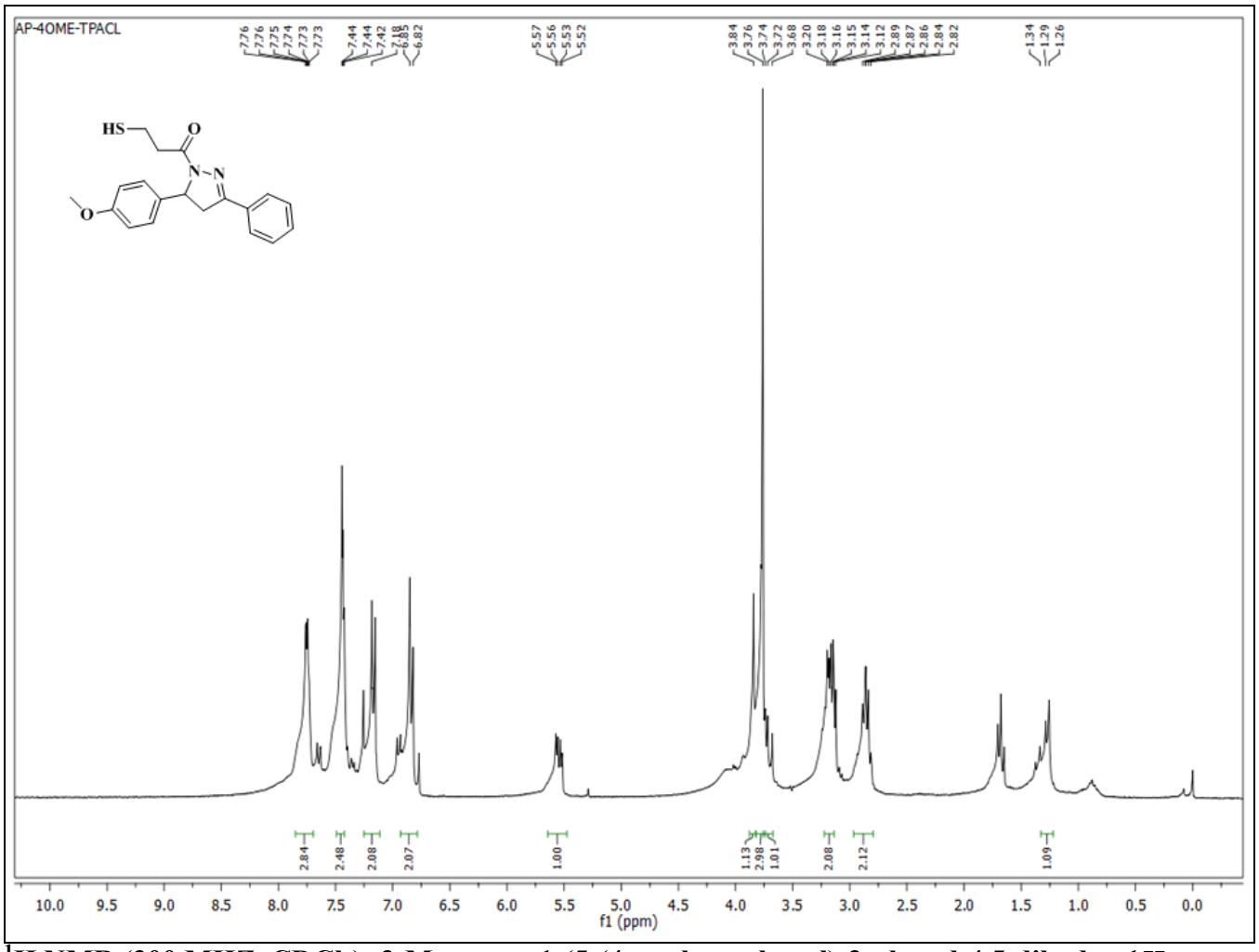
^{13}C NMR (75 MHz, $CDCl_3$): 2-Hydroxy-1-(5-(4-methoxyphenyl)-3-phenyl-4,5-dihydro-1*H*-pyrazol-1-yl)ethanone (3g)



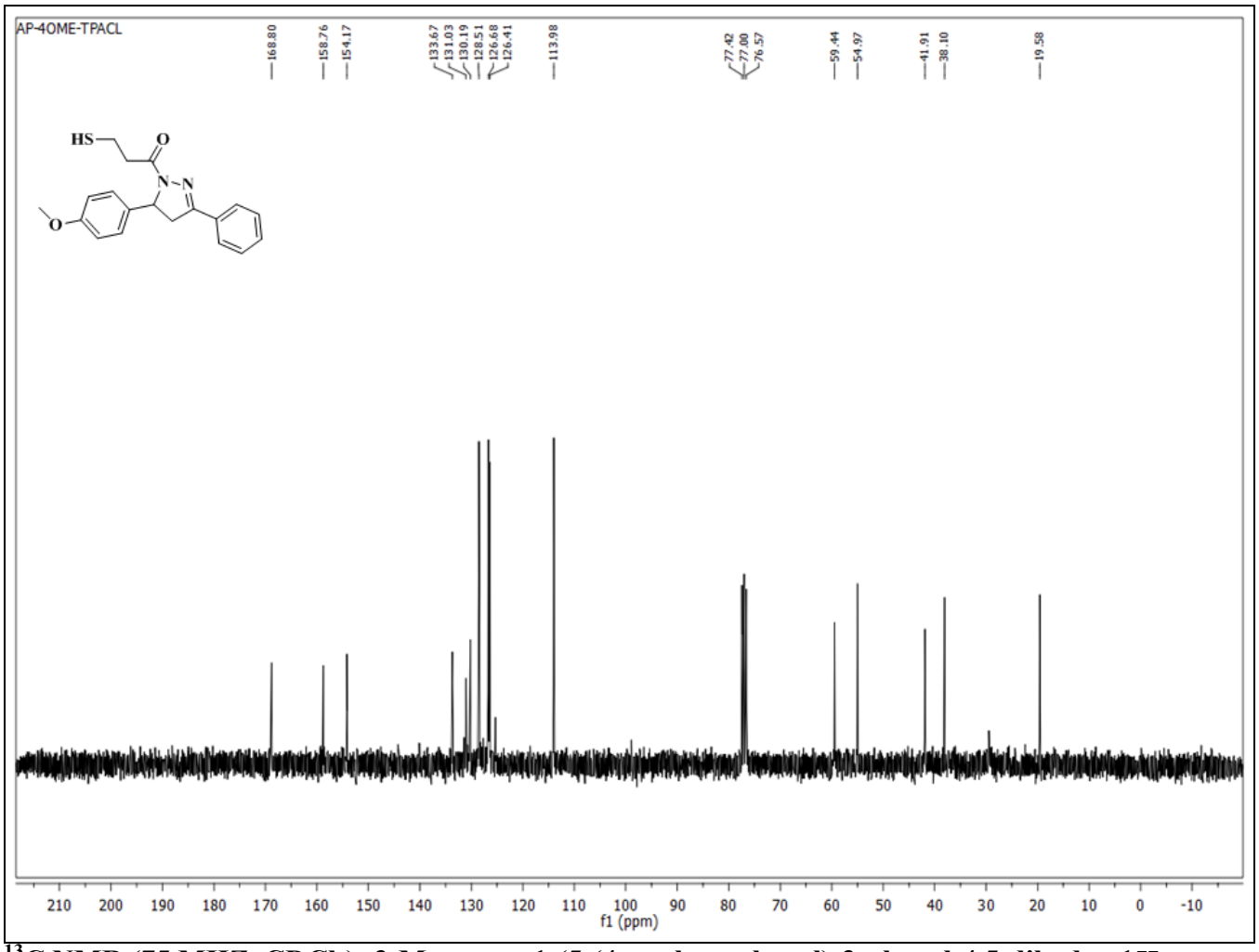
^{1}H NMR (300 MHz, $CDCl_3$): 2-Mercapto-1-(5-(4-methoxyphenyl)-3-phenyl-4,5-dihydro-1*H*-pyrazol-1-yl)ethanone (3h)



^{13}C NMR (75 MHz, $CDCl_3$): 2-Mercapto-1-(5-(4-methoxyphenyl)-3-phenyl-4,5-dihydro-1*H*-pyrazol-1-yl)ethanone (3h)

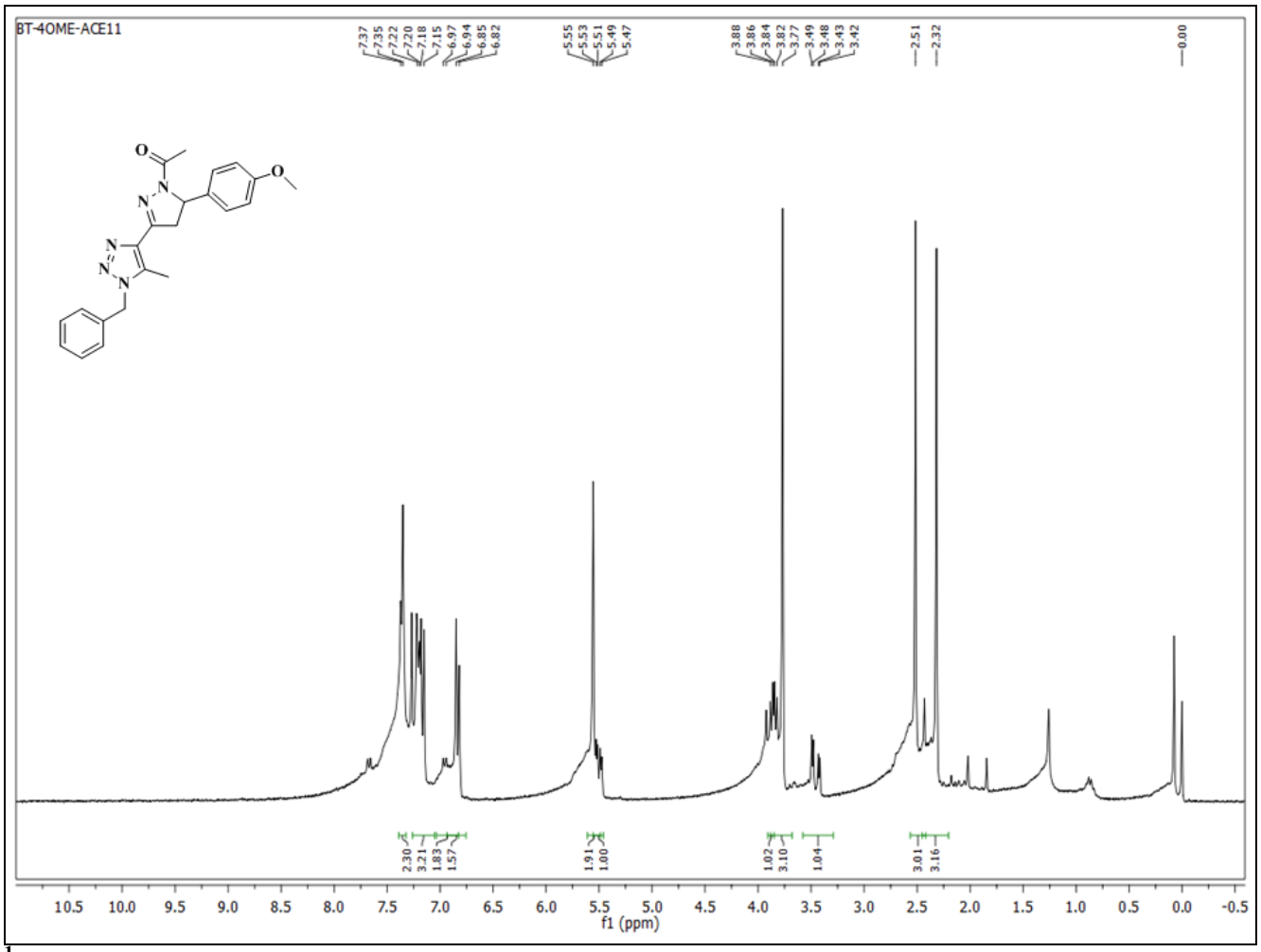


^{1}H NMR (300 MHZ, $CDCl_3$): 3-Mercapto-1-(5-(4-methoxyphenyl)-3-phenyl-4,5-dihydro-1*H*-pyrazol-1-yl)propan-1-one (3i)

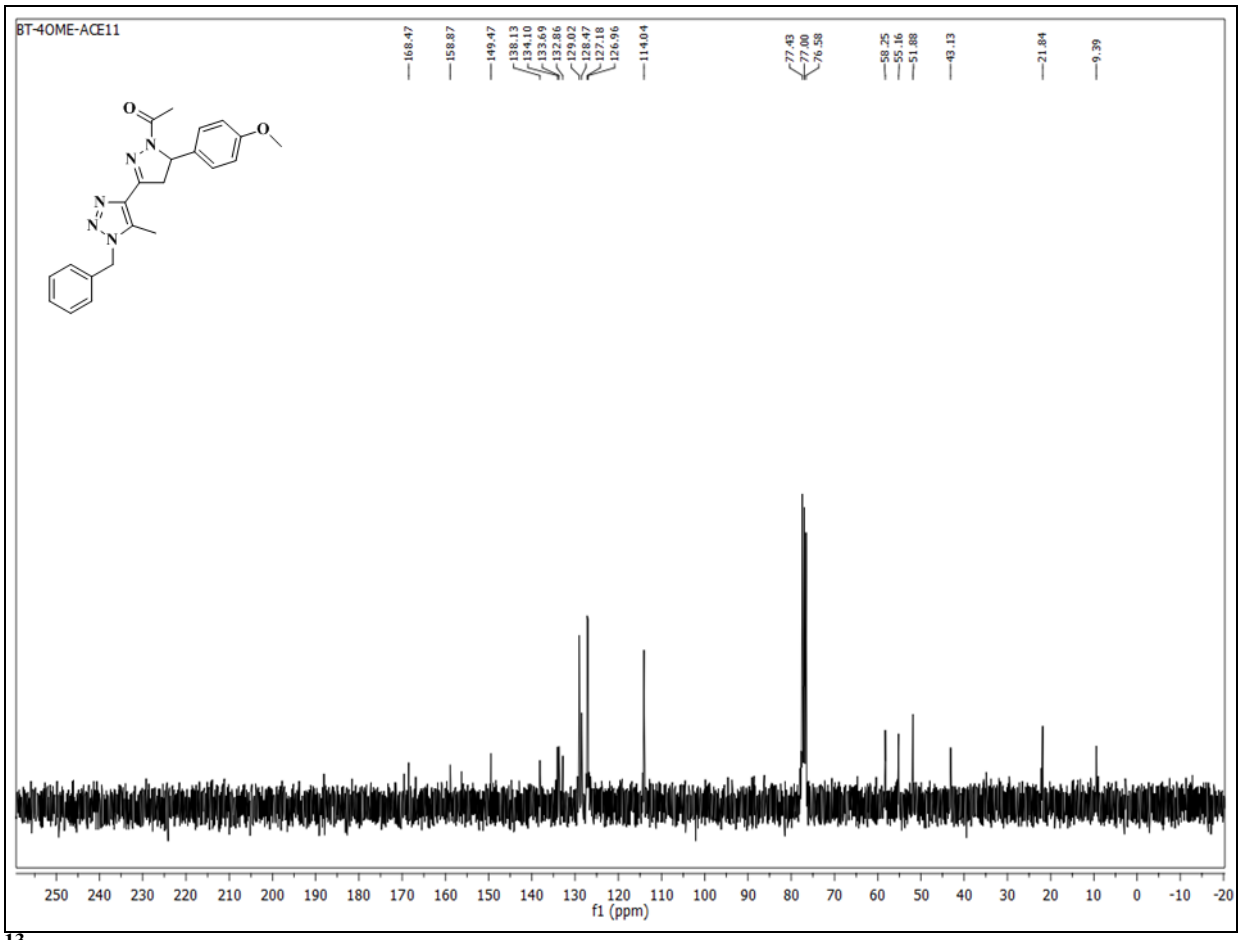


^{13}C NMR (75 MHZ, $CDCl_3$): 3-Mercapto-1-(5-(4-methoxyphenyl)-3-phenyl-4,5-dihydro-1*H*-pyrazol-1-yl)propan-1-one (3i)

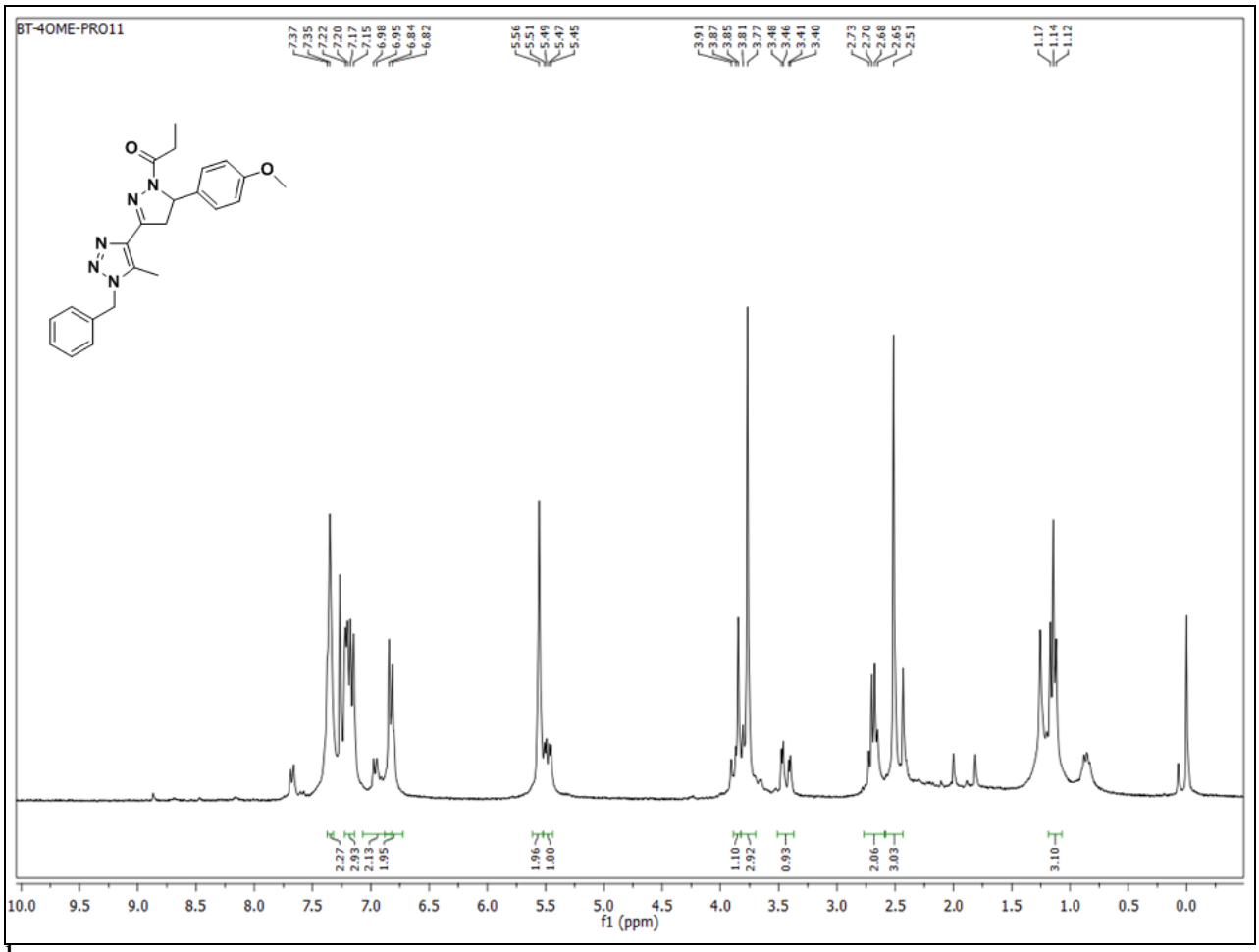
II Copies of ^{1}H&^{13}C NMR of **3j-r**



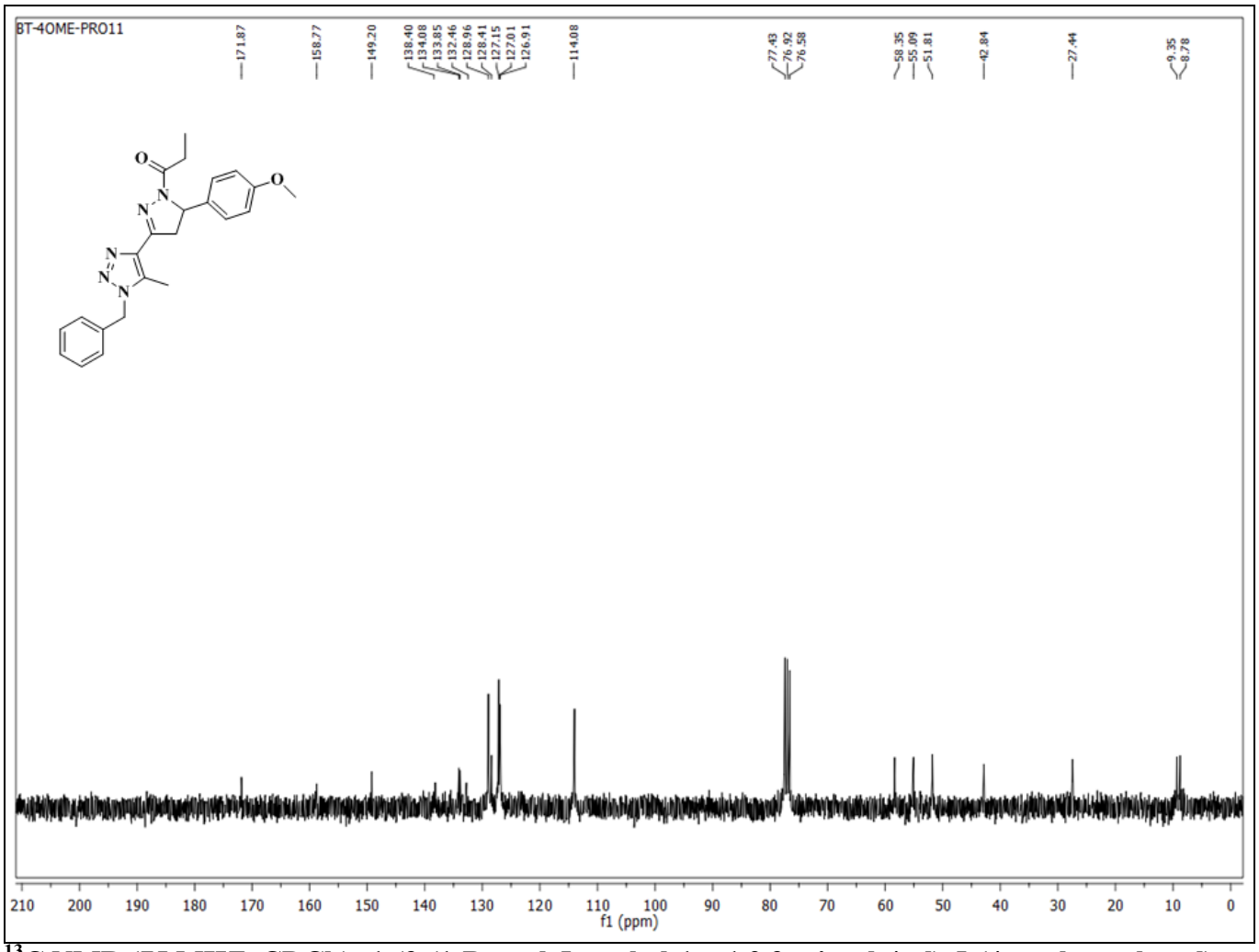
^{1}H NMR (300 MHZ, $CDCl_3$): 1-(3-(1-Benzyl-5-methyl-1*H*-1,2,3-triazol-4-yl)-5-(4-methoxyphenyl)-4,5-dihydro-1*H*-pyrazol-1-yl)ethanone (3j)



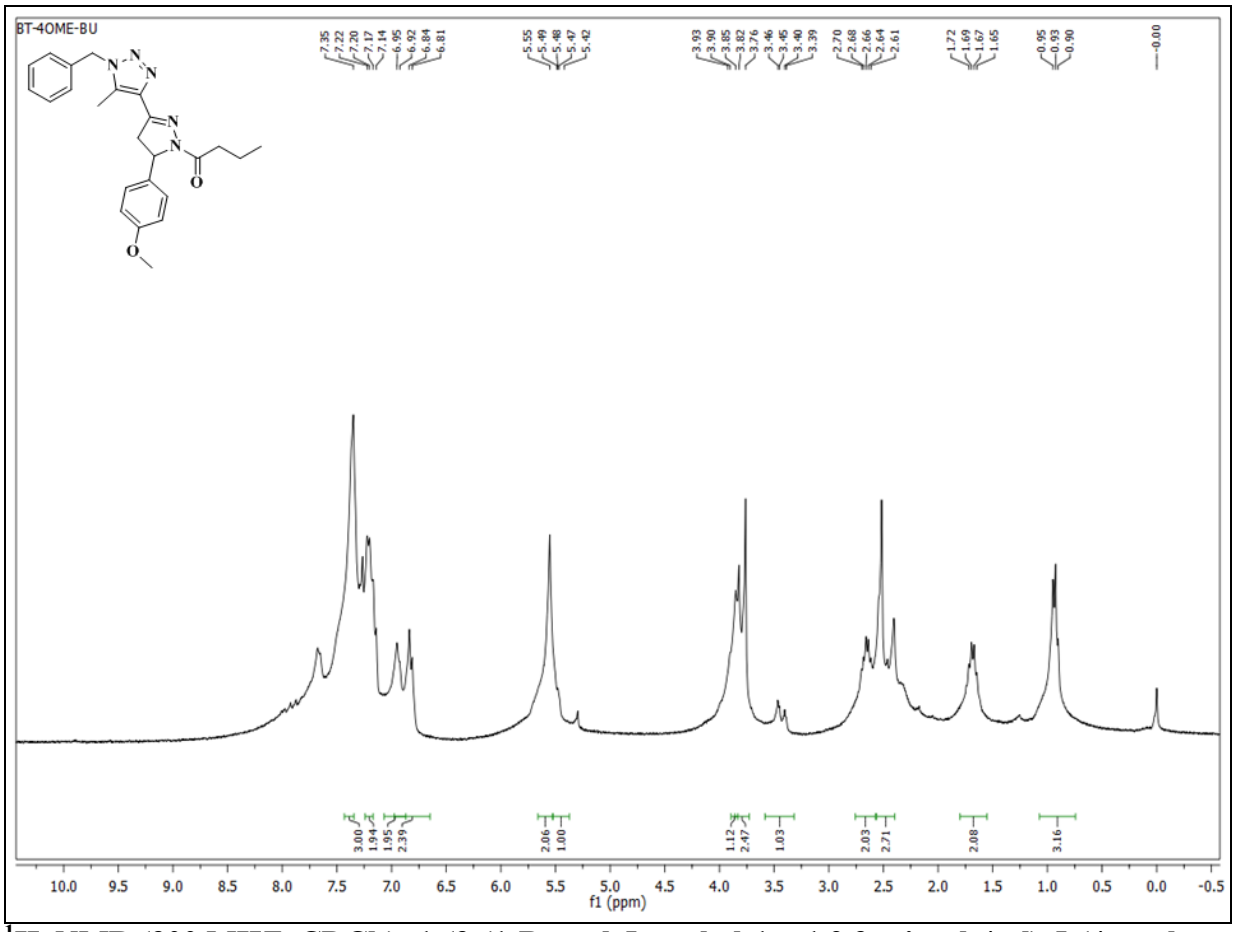
^{13}C NMR (75 MHZ, $CDCl_3$): 1-(3-(1-Benzyl-5-methyl-1*H*-1,2,3-triazol-4-yl)-5-(4-methoxyphenyl)-4,5-dihydro-1*H*-pyrazol-1-yl)ethanone (3j)



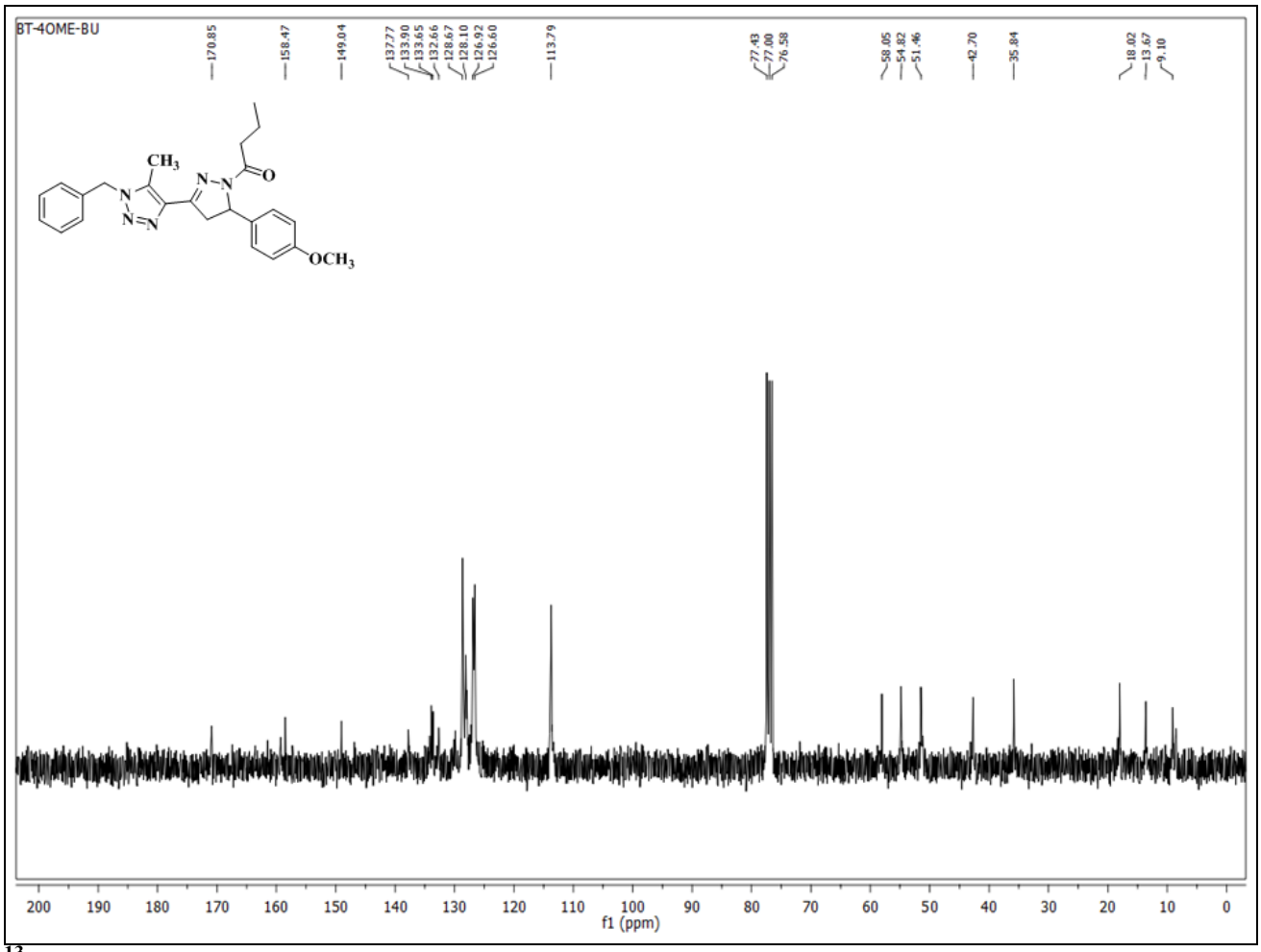
^{1}H NMR (300 MHZ, $CDCl_3$): 1-(3-(1-Benzyl-5-methyl-1*H*-1,2,3-triazol-4-yl)-5-(4-methoxyphenyl)-4,5-dihydro-1*H*-pyrazol-1-yl)propan-1-one(3k)



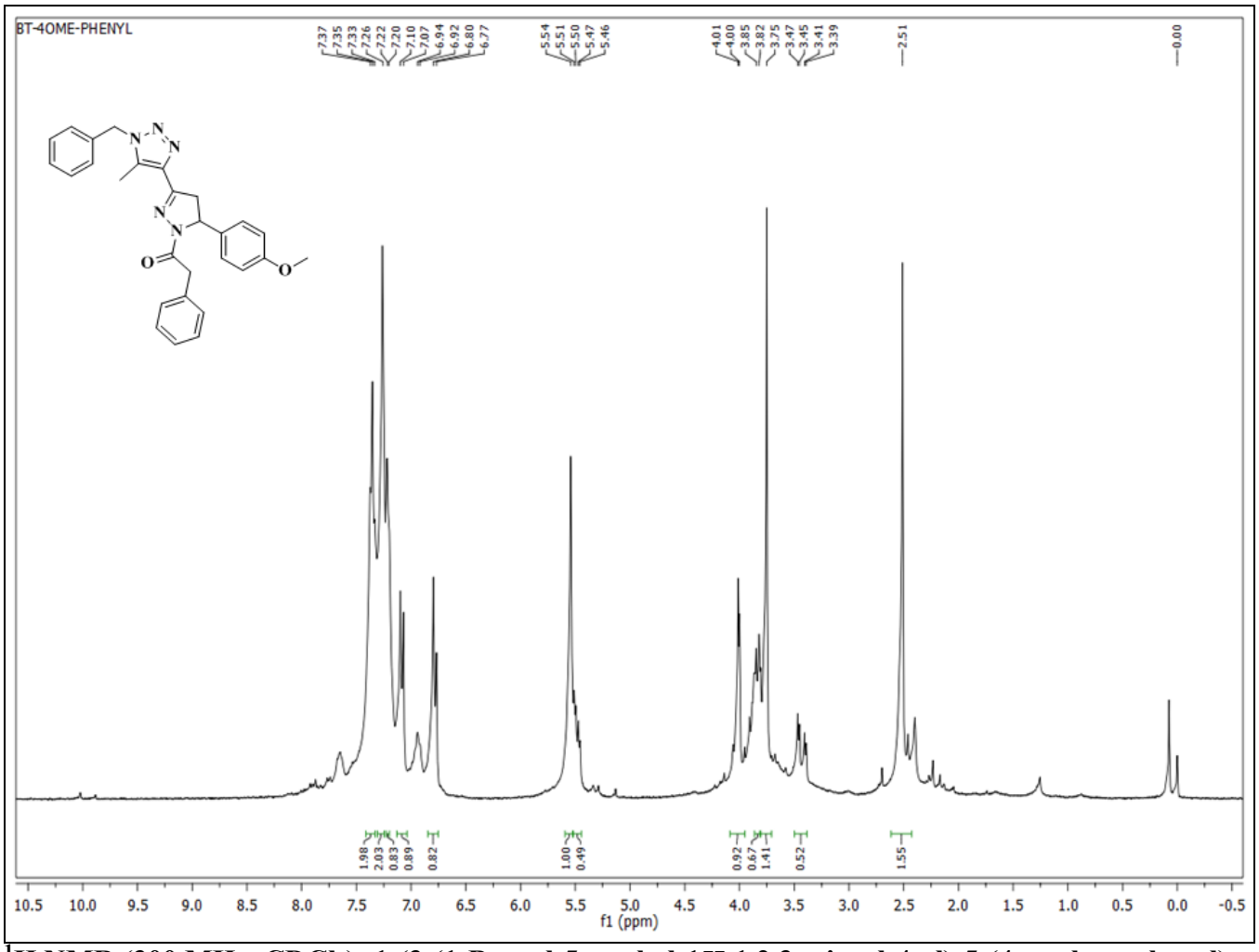
^{13}C NMR (75 MHZ, $CDCl_3$): 1-(3-(1-Benzyl-5-methyl-1*H*-1,2,3-triazol-4-yl)-5-(4-methoxyphenyl)-4,5-dihydro-1*H*-pyrazol-1-yl)propan-1-one (3k)



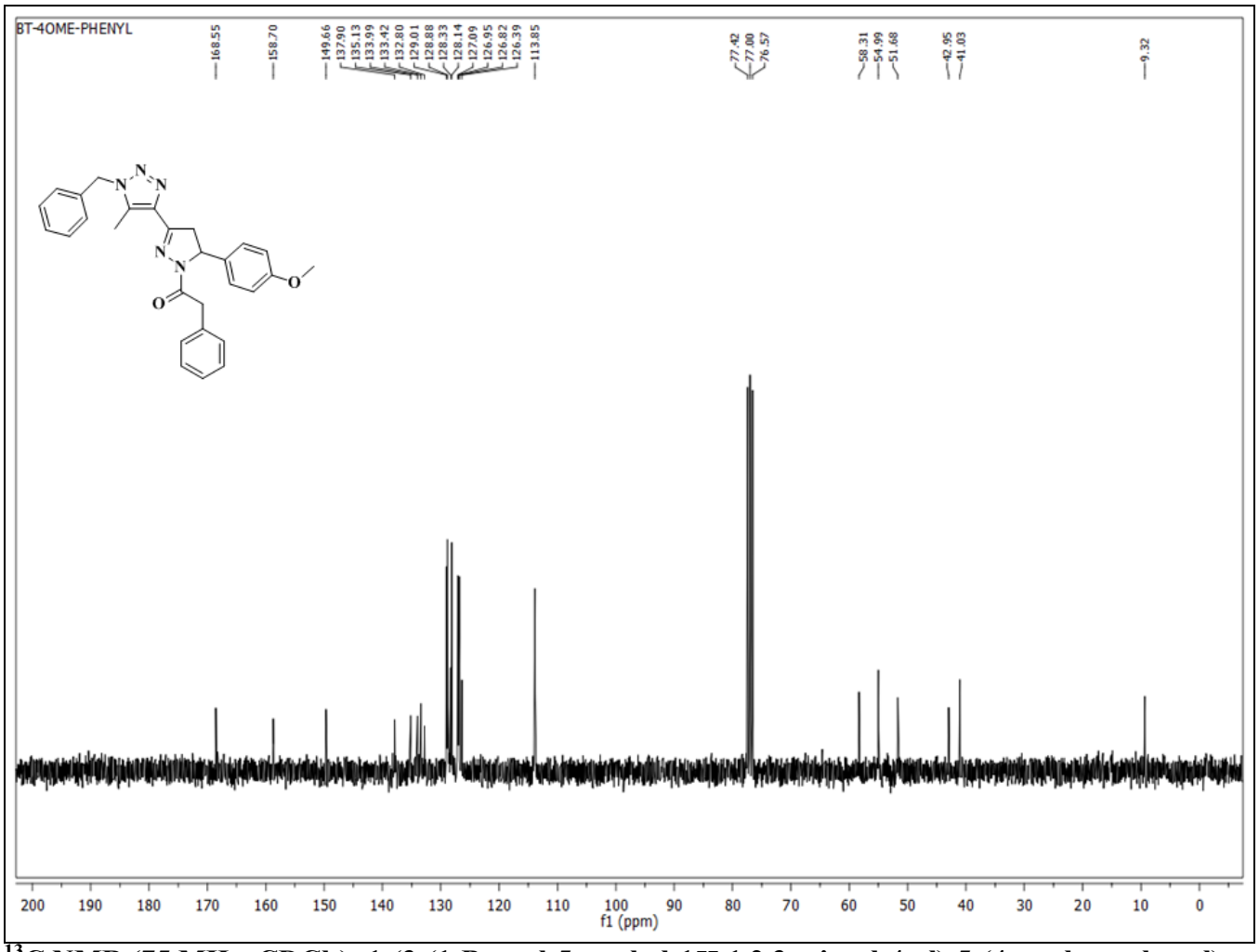
^{1}H NMR (300 MHZ, $CDCl_3$): 1-(3-(1-Benzyl-5-methyl-1*H*-1,2,3-triazol-4-yl)-5-(4-methoxyphenyl)-4,5-dihydro-1*H*-pyrazol-1-yl)butan-1-one (3l)



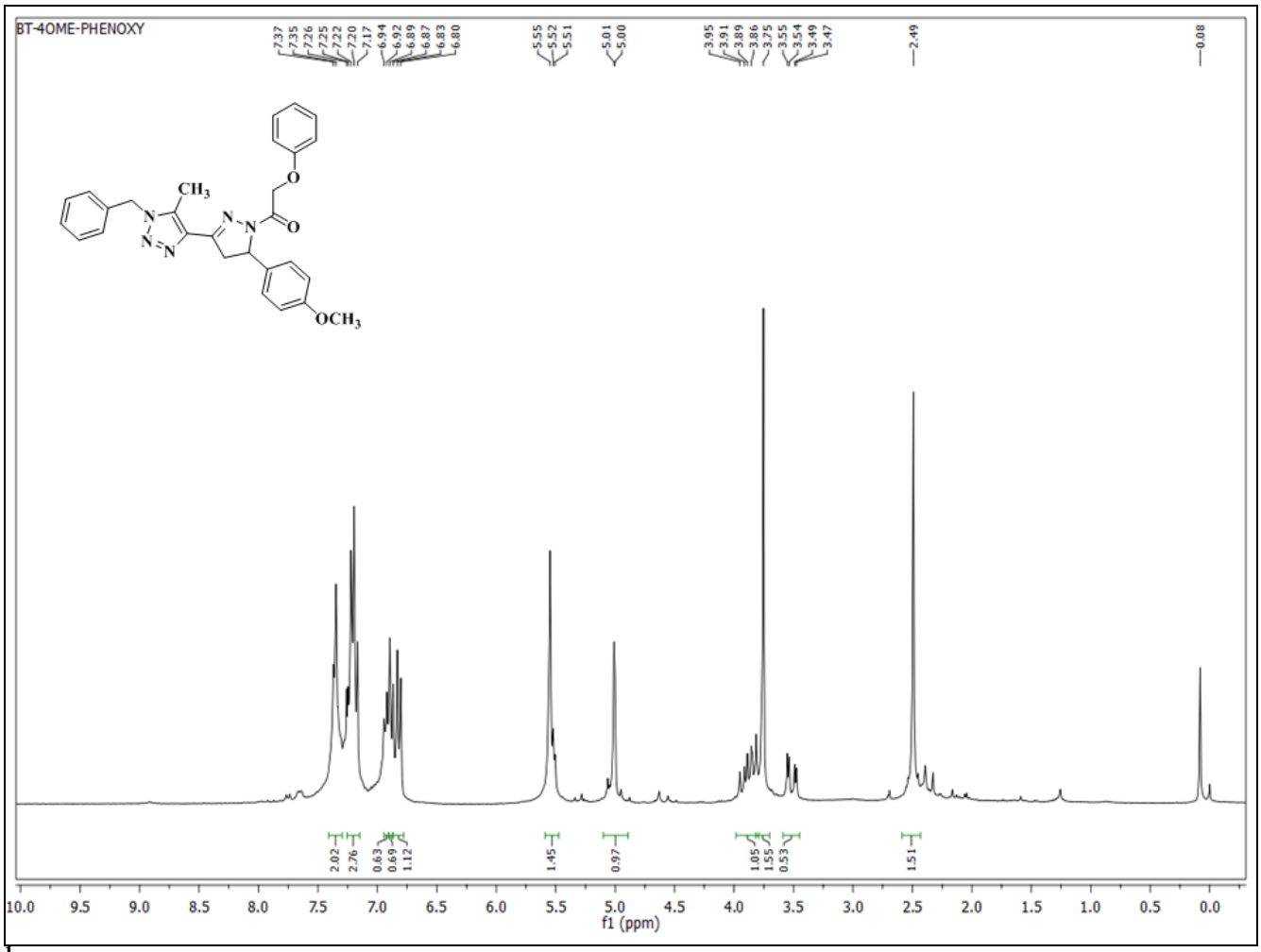
^{13}C NMR (75 MHz, $CDCl_3$): 1-(3-(1-Benzyl-5-methyl-1*H*-1,2,3-triazol-4-yl)-5-(4-methoxyphenyl)-4,5-dihydro-1*H*-pyrazol-1-yl)butan-1-one (3l)



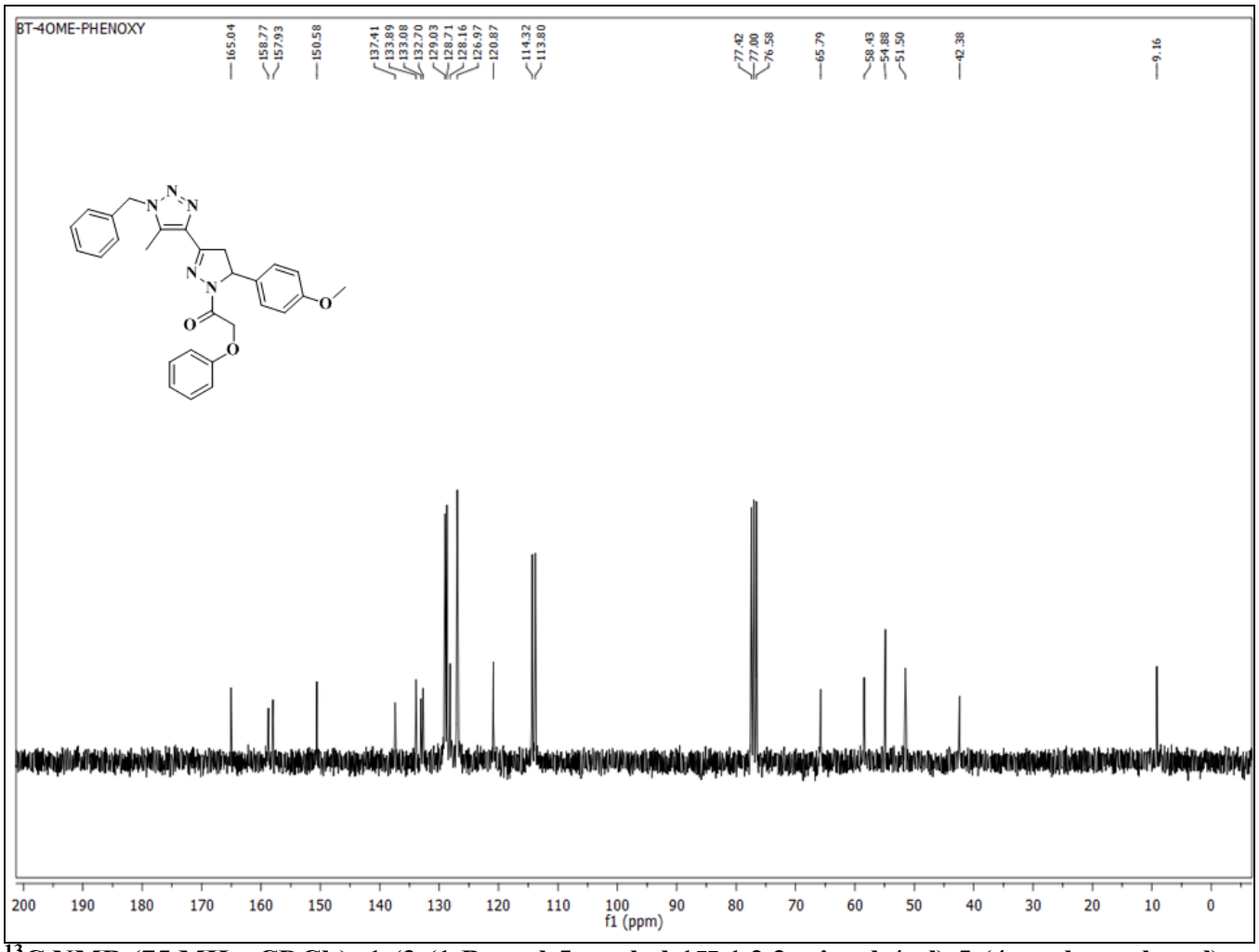
^{1}H NMR (300 MHz, $CDCl_3$): 1-(3-(1-Benzyl-5-methyl-1*H*-1,2,3-triazol-4-yl)-5-(4-methoxyphenyl)-1*H*-pyrazol-1-yl)-2-phenyl ethanone (3m)



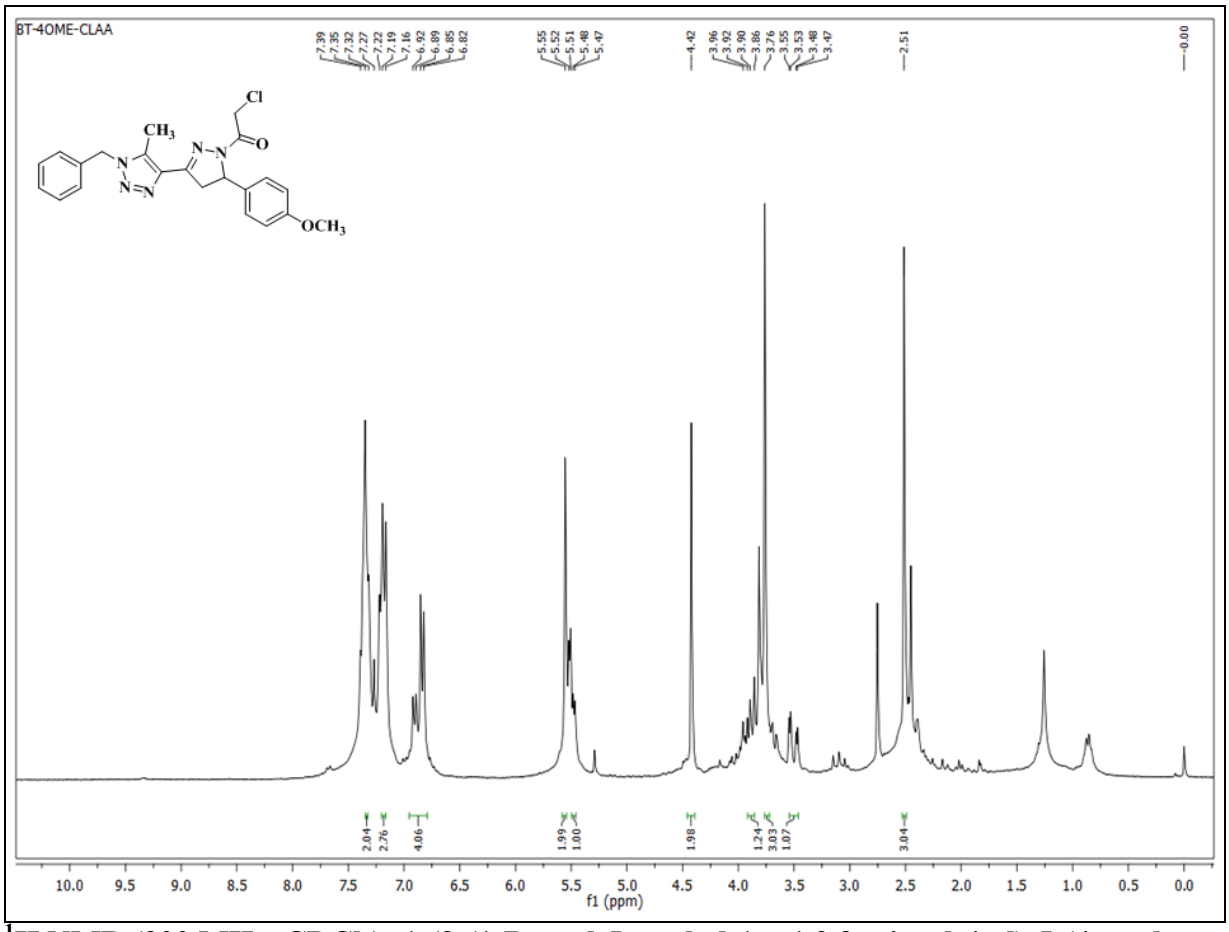
^{13}C NMR (75 MHz, $CDCl_3$): 1-(3-(1-Benzyl-5-methyl-1*H*-1,2,3-triazol-4-yl)-5-(4-methoxyphenyl)-1*H*-pyrazol-1-yl)-2-phenyl ethanone (3m)



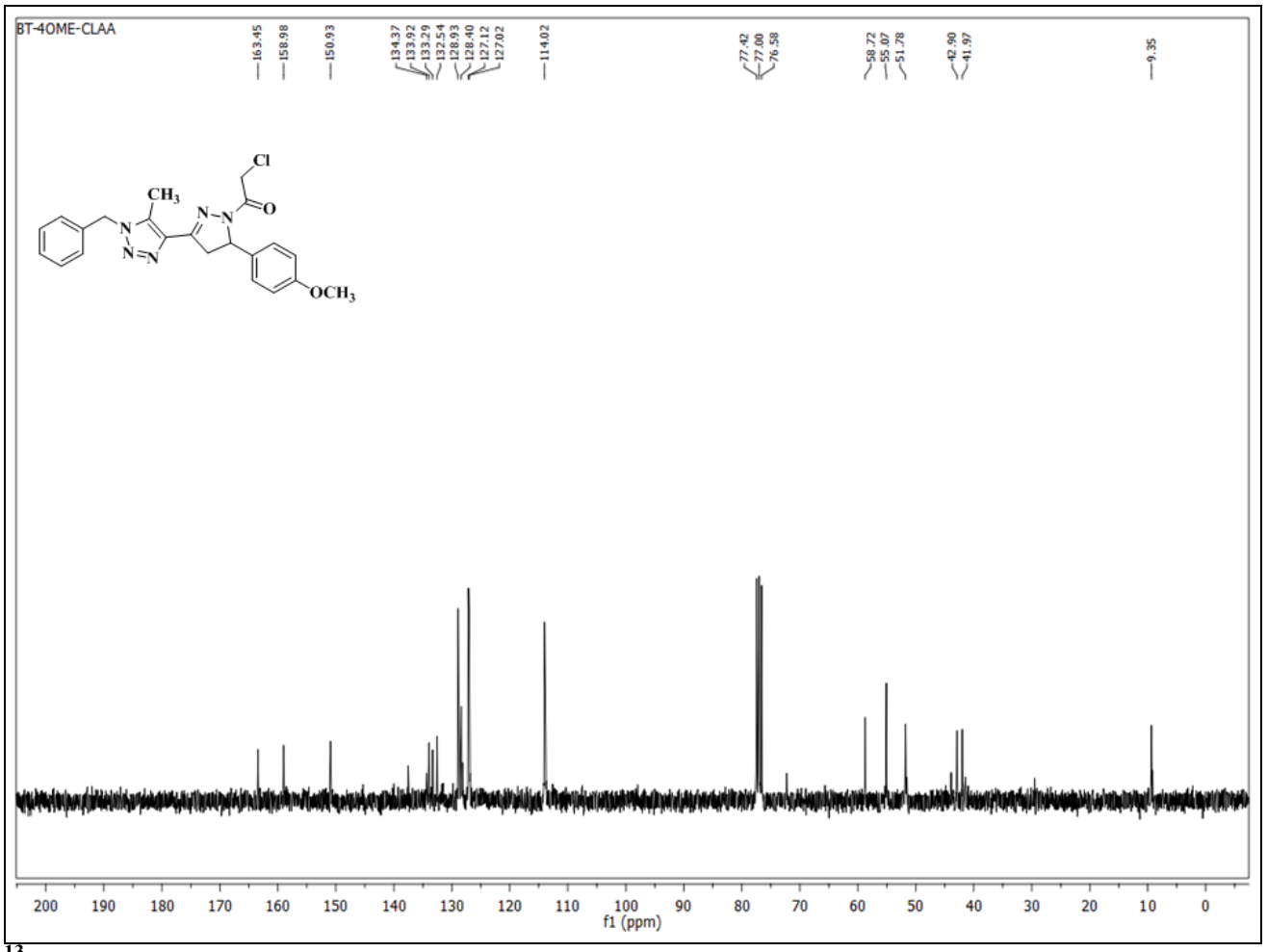
^{1}H NMR (300 MHz, $CDCl_3$): 1-(3-(1-Benzyl-5-methyl-1*H*-1,2,3-triazol-4-yl)-5-(4-methoxyphenyl)-1*H*-pyrazol-1-yl)-2-phenoxyethanone (3n)



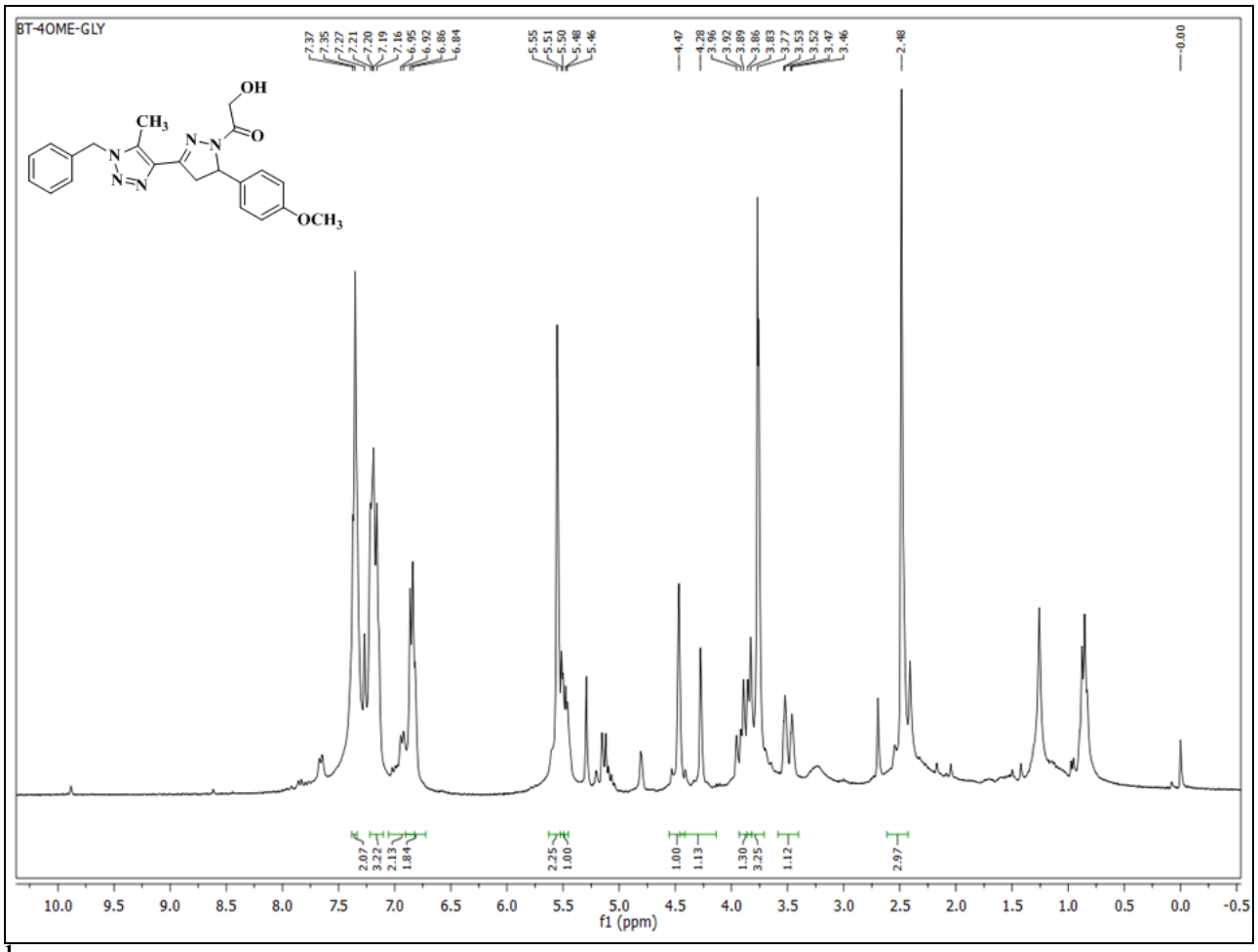
^{13}C NMR (75 MHz, $CDCl_3$): 1-(3-(1-Benzyl-5-methyl-1*H*-1,2,3-triazol-4-yl)-5-(4-methoxyphenyl)-1*H*-pyrazol-1-yl)-2-phenoxyethanone (3n)



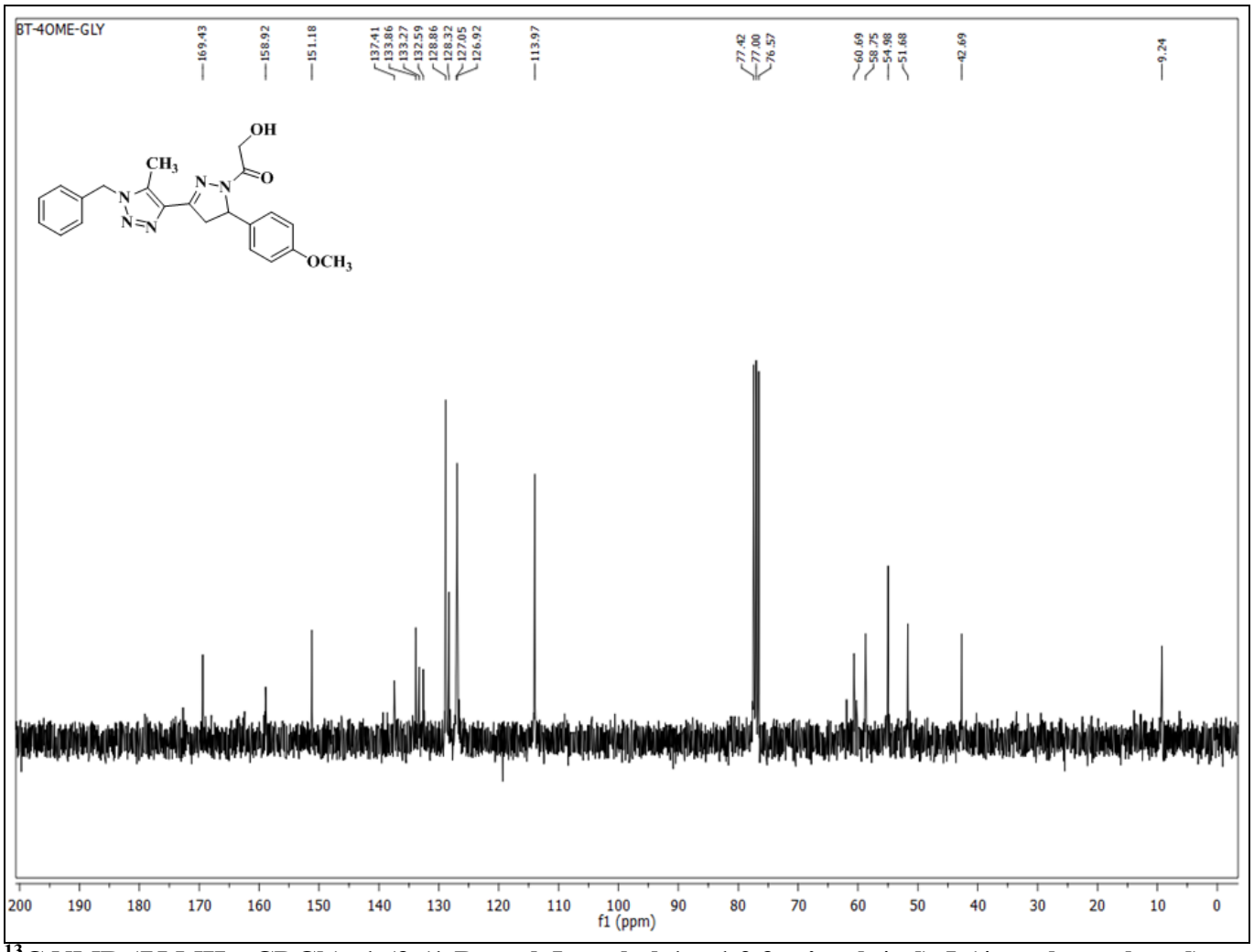
^{1}H NMR (300 MHz, $CDCl_3$): 1-(3-(1-Benzyl-5-methyl-1*H*-1,2,3-triazol-4-yl)-5-(4-methoxyphenyl)-4,5-dihydro-1*H*-pyrazol-1-yl)-2-chloroethanone (3o)



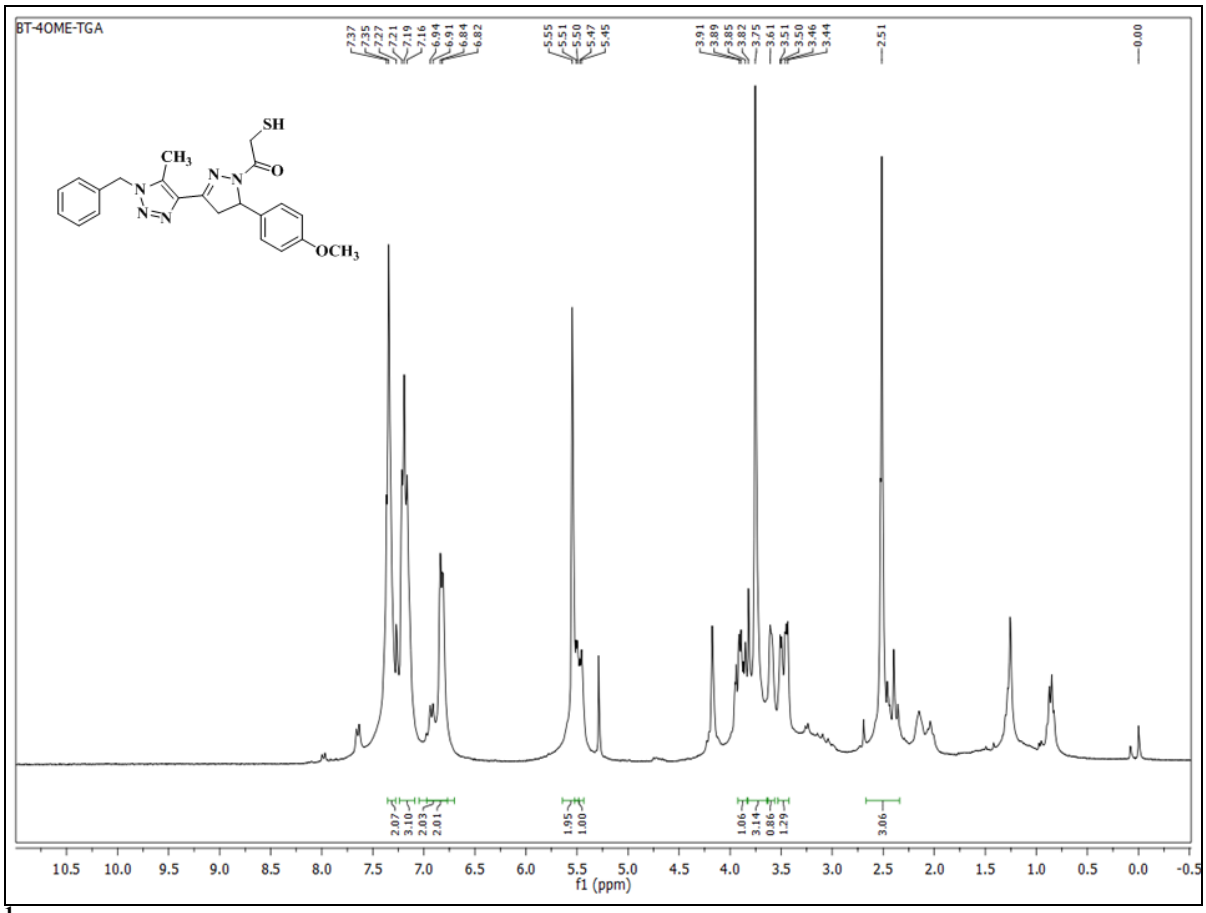
^{13}C NMR (75 MHz, $CDCl_3$): 1-(3-(1-Benzyl-5-methyl-1*H*-1,2,3-triazol-4-yl)-5-(4-methoxyphenyl)-4,5-dihydro-1*H*-pyrazol-1-yl)-2-chloroethanone (3o)



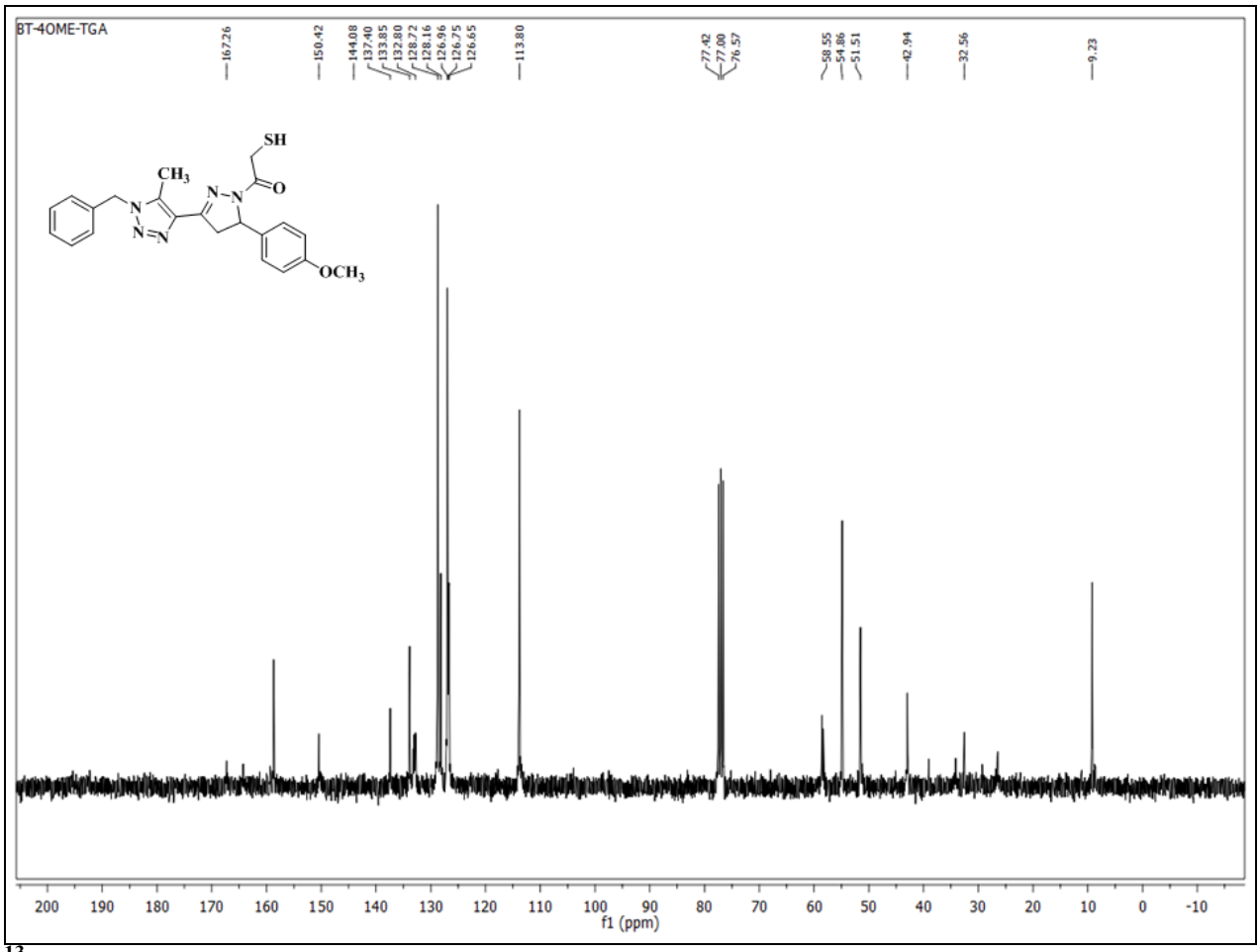
^{1}H NMR (300 MHz, $CDCl_3$): 1-(3-(1-Benzyl-5-methyl-1*H*-1,2,3-triazol-4-yl)-5-(4-methoxyphenyl)-4,5-dihydro-1*H*-pyrazol-1-yl)-2-hydroxyethanone (3p)



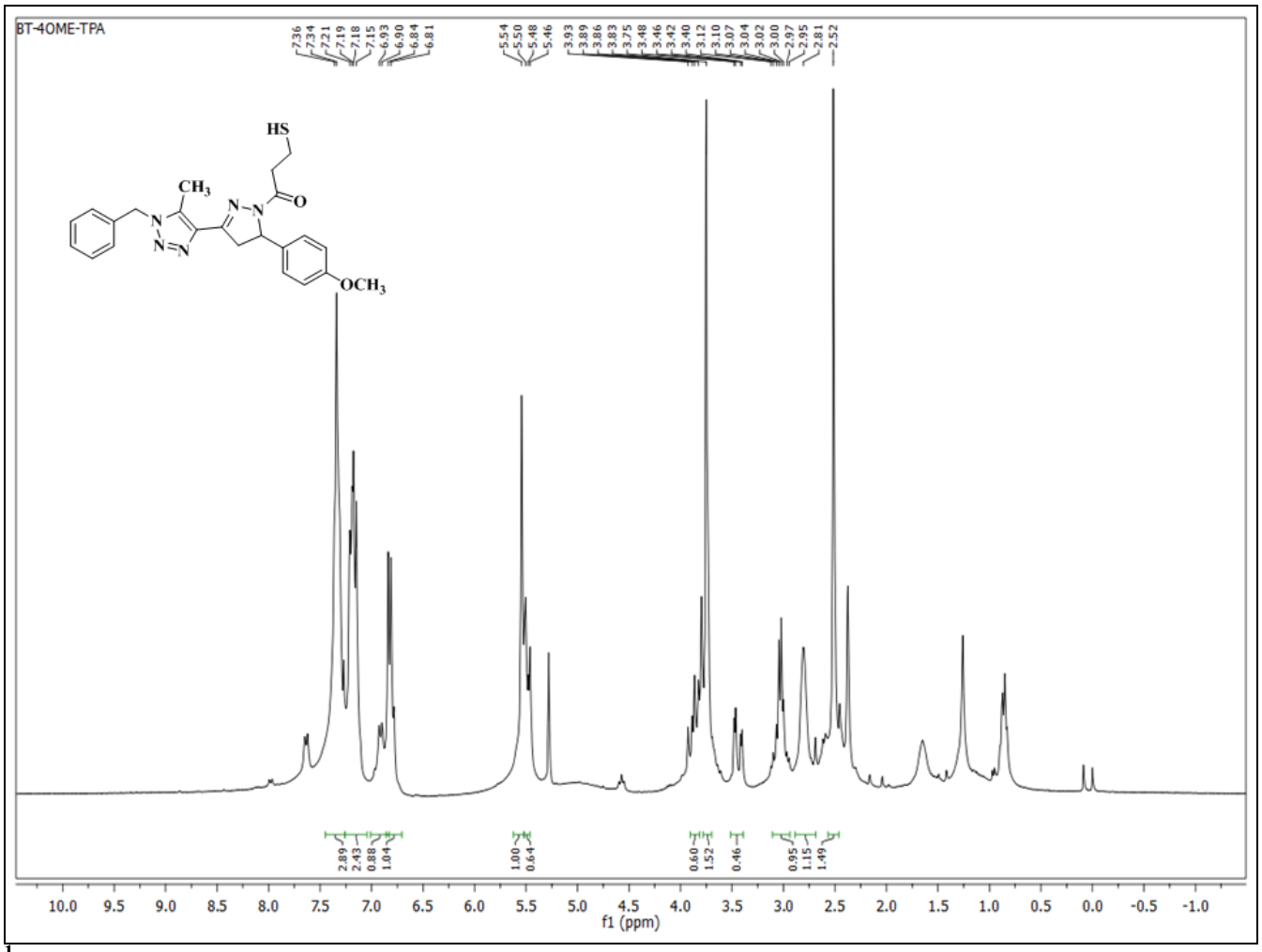
^{13}C NMR (75 MHz, $CDCl_3$): 1-(3-(1-Benzyl-5-methyl-1*H*-1,2,3-triazol-4-yl)-5-(4-methoxyphenyl)-4,5-dihydro-1*H*-pyrazol-1-yl)-2-hydroxyethanone (3p)



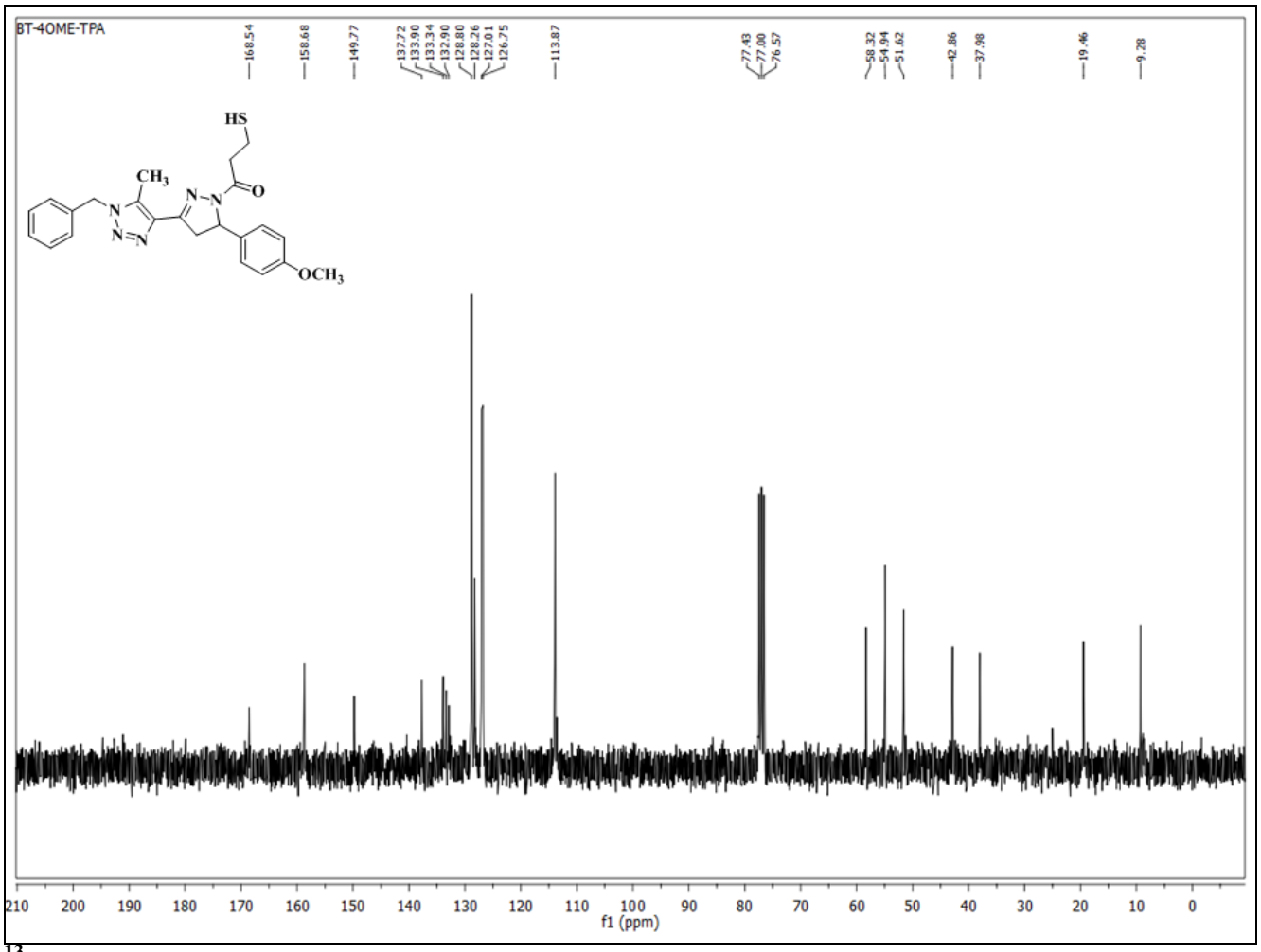
^{1}H NMR (300 MHz, $CDCl_3$): **1-(3-(1-Benzyl-5-methyl-1*H*-1,2,3-triazol-4-yl)-5-(4-methoxyphenyl)-4,5-dihydro-1*H*-pyrazol-1-yl)-2-mercaptoethanone (3q)**



^{13}C NMR (75MHz, $CDCl_3$): 1-(3-(1-Benzyl-5-methyl-1*H*-1,2,3-triazol-4-yl)-5-(4-methoxyphenyl)-4,5-dihydro-1*H*-pyrazol-1-yl)-2-mercaptoethanone (3q)

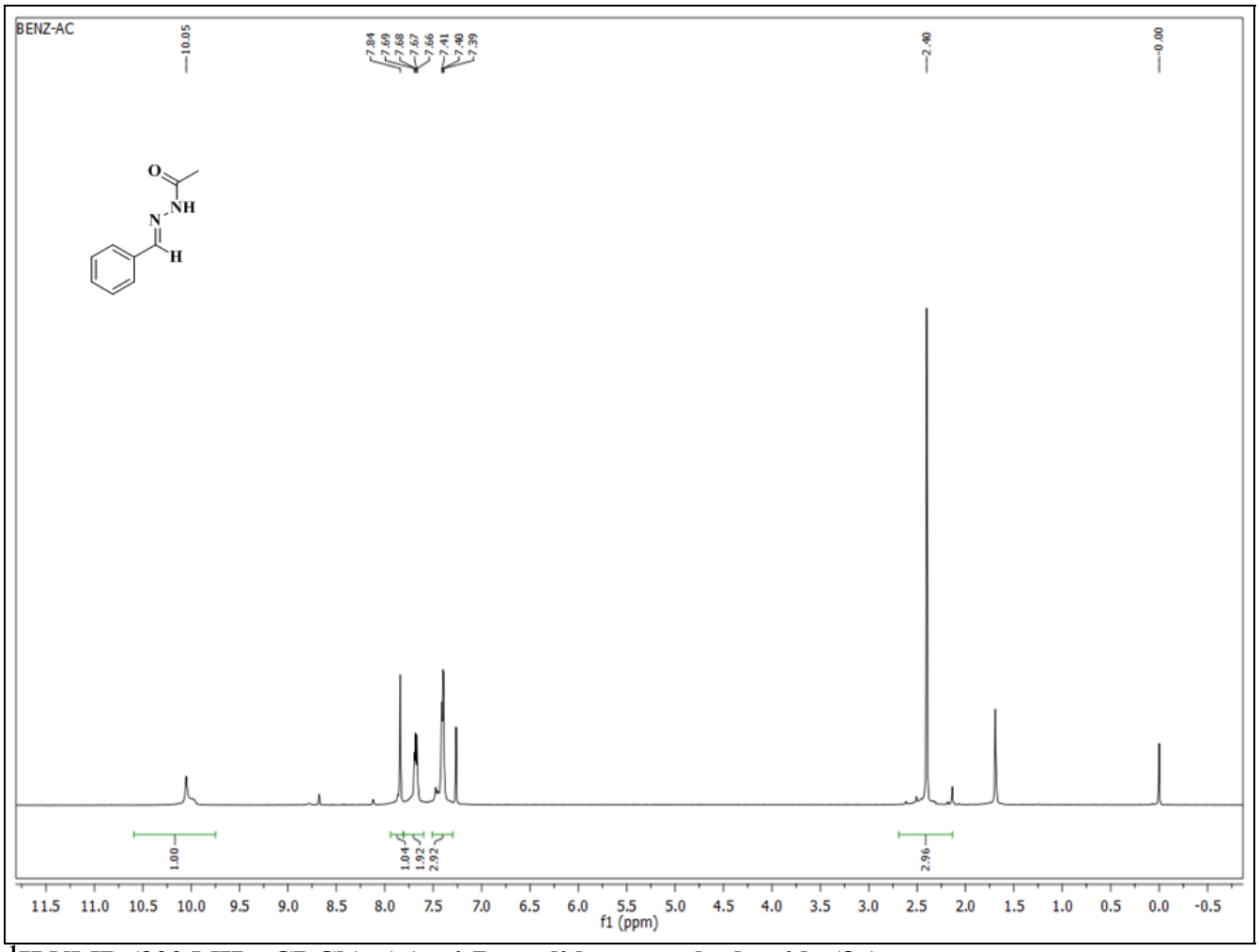


^{1}H NMR (300 MHz, $CDCl_3$): 1-(3-(1-Benzyl-5-methyl-1*H*-1,2,3-triazol-4-yl)-5-(4-hydroxyphenyl)-4,5-dihydro-1*H*-pyrazol-1-yl)-3-mercaptopropan-1-one (3r)

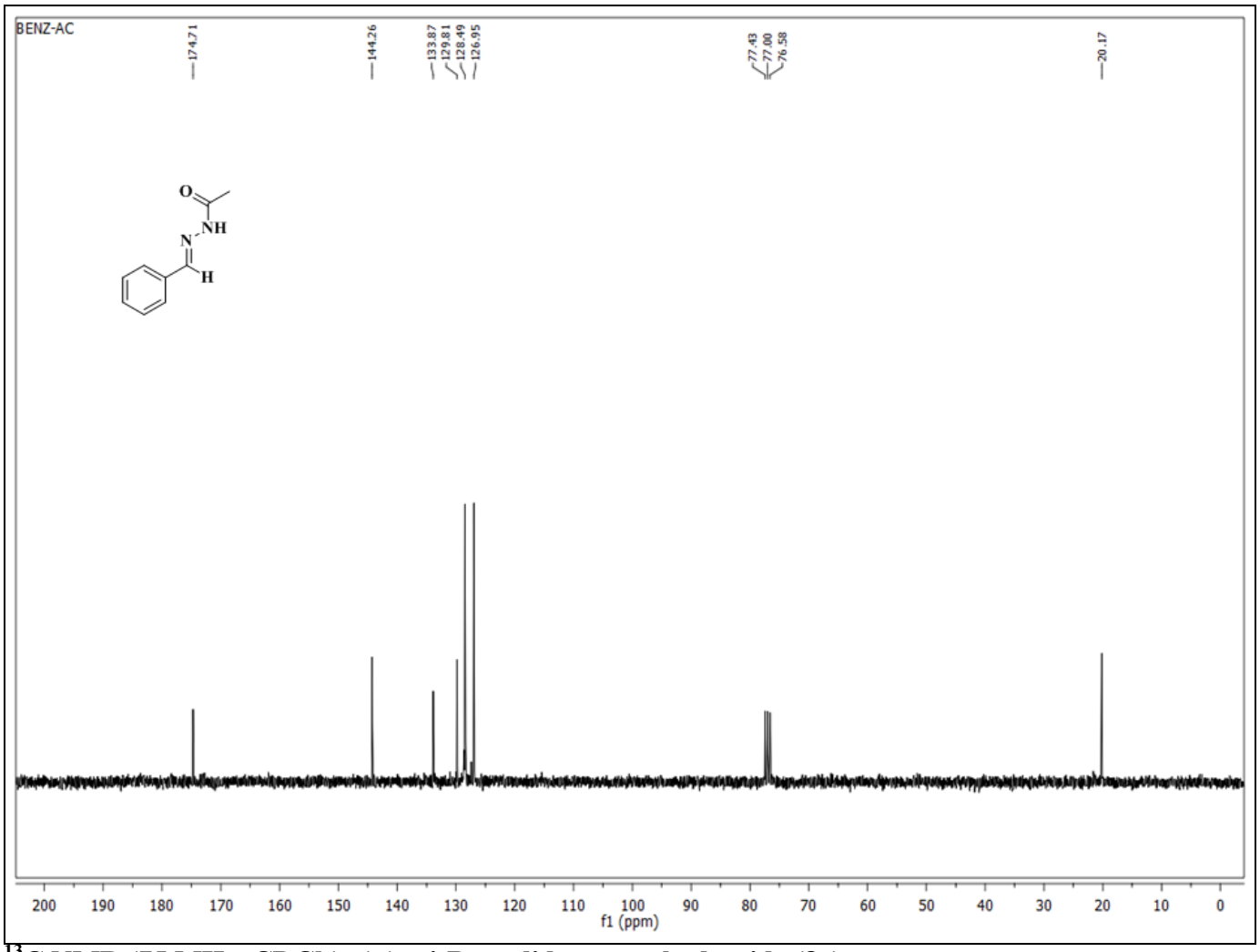


^{13}C NMR (75 MHz, $CDCl_3$): 1-(3-(1-Benzyl-5-methyl-1*H*-1,2,3-triazol-4-yl)-5-(4-hydroxyphenyl)-4,5-dihydro-1*H*-pyrazol-1-yl)-3-mercaptopropan-1-one (3r)

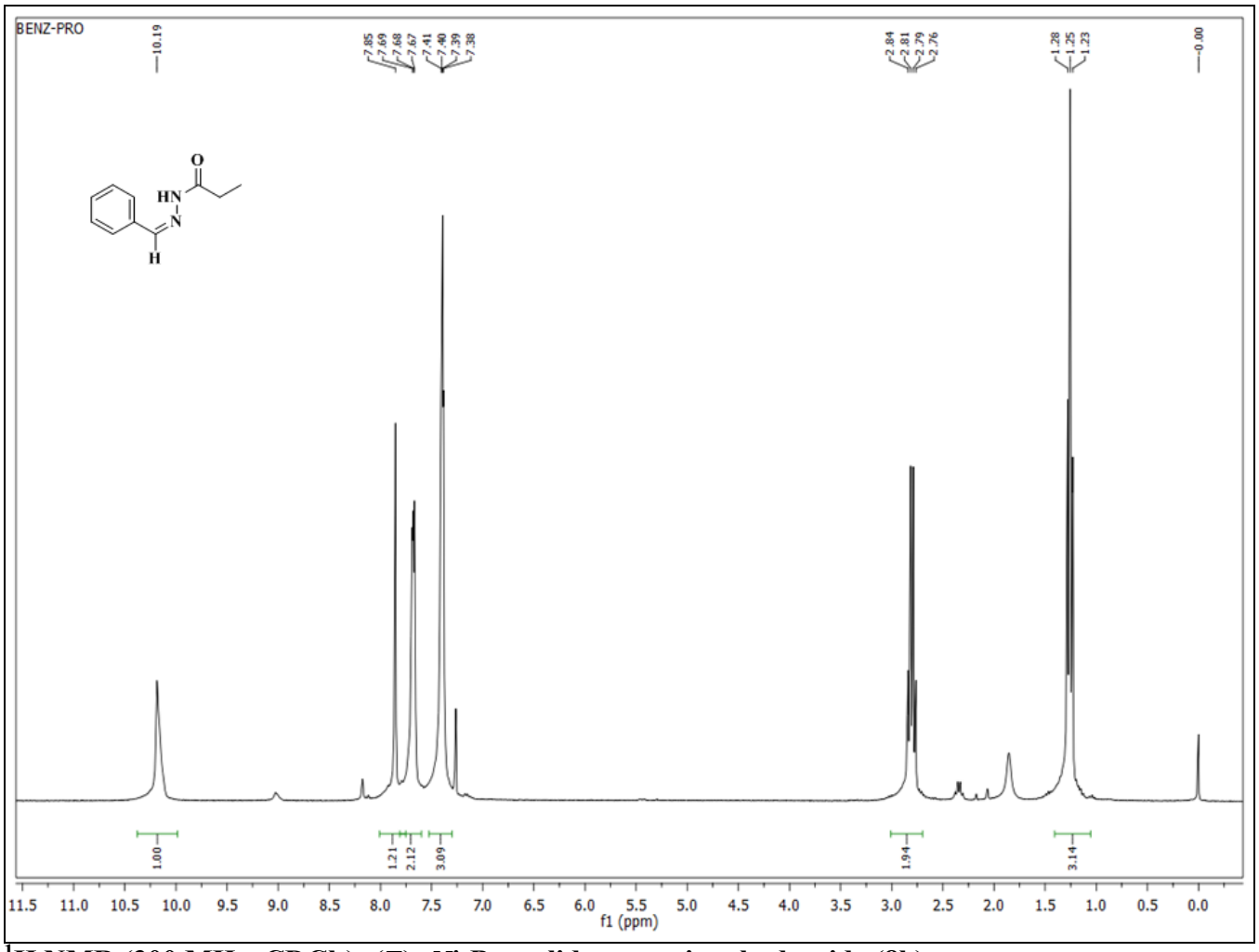
III Copies of ^{1}H&^{13}C NMR of **8a-i**



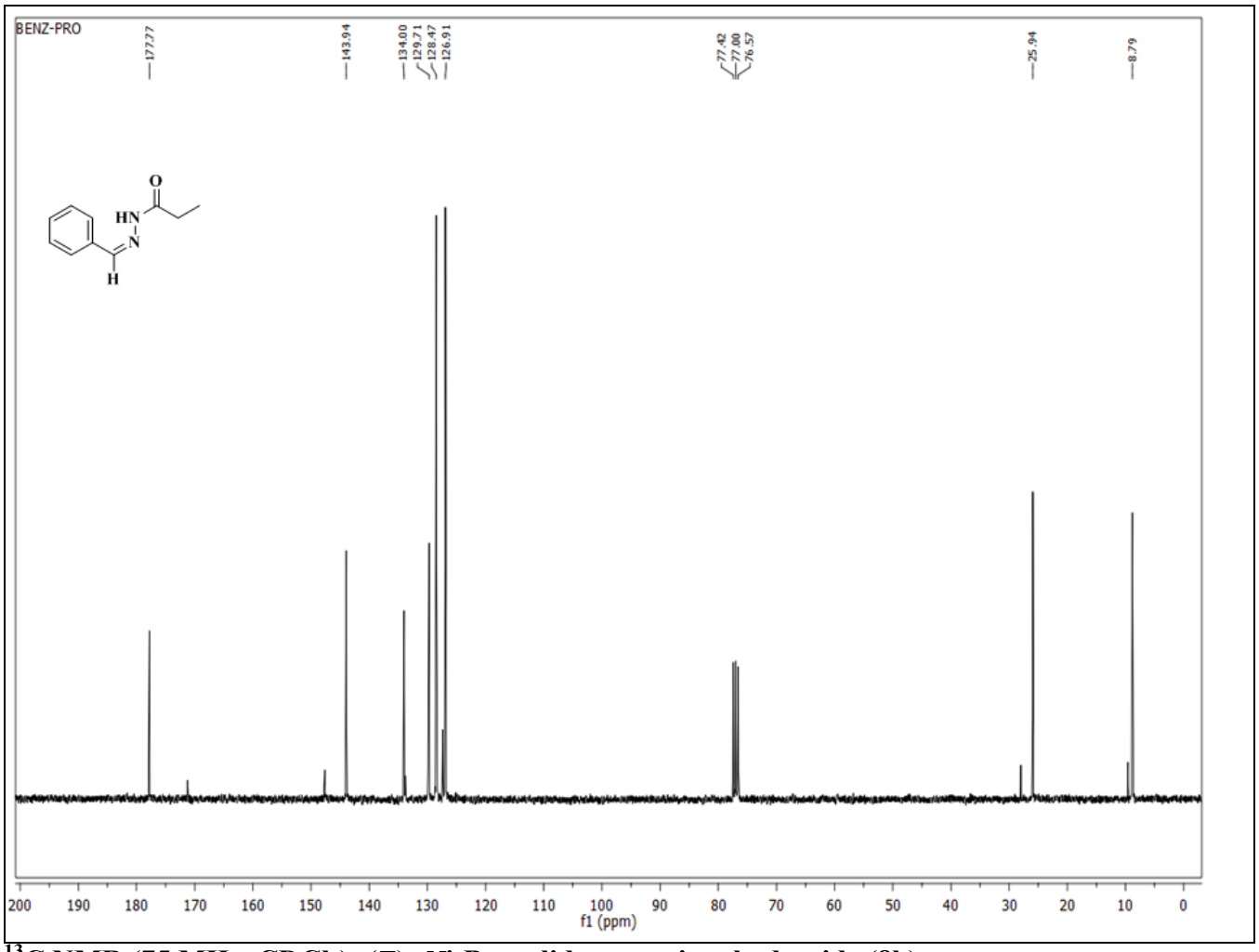
^{1}H NMR (300 MHz, $CDCl_3$): (*E*)-*N*'-Benzylideneacetohydrazide (8a)



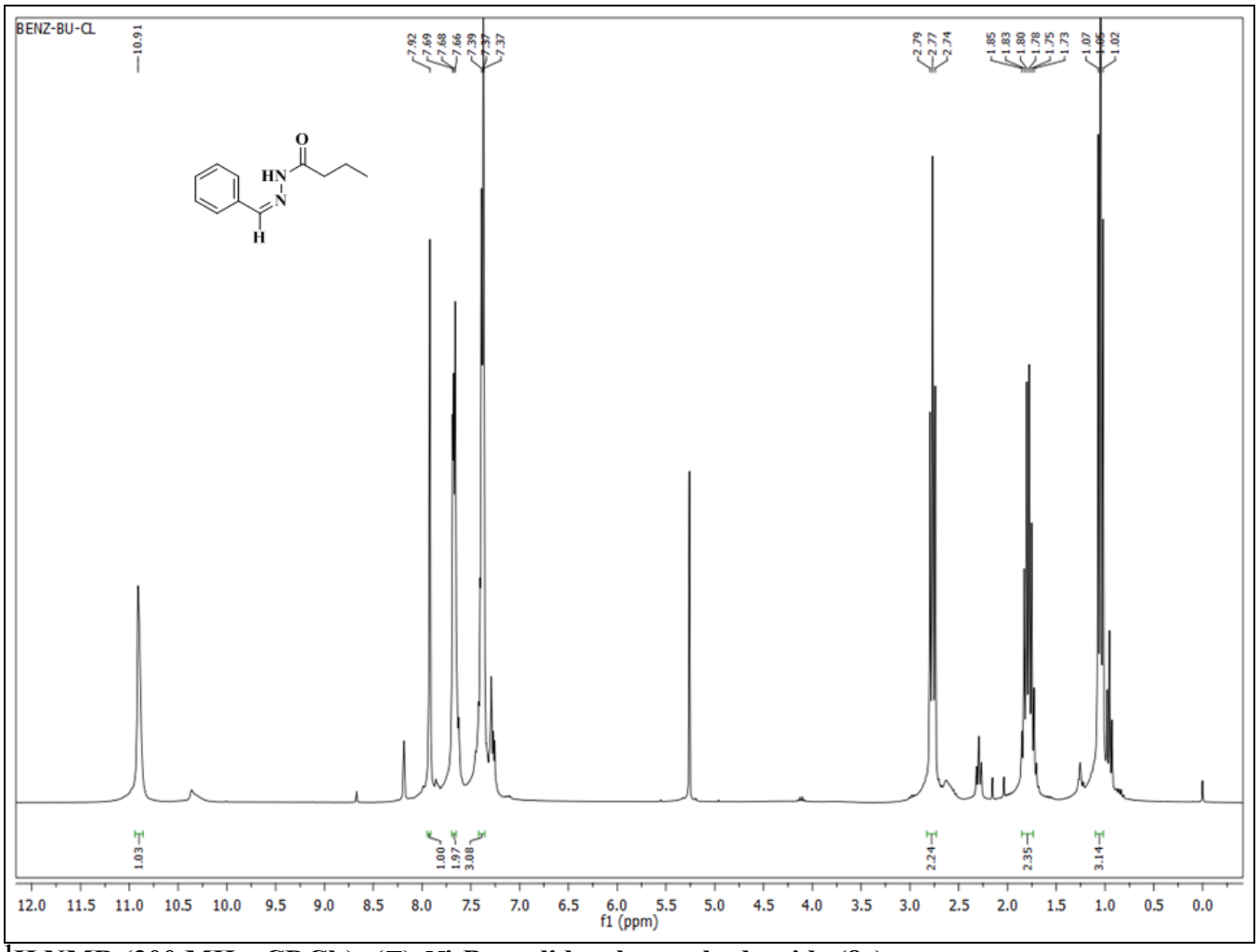
^{13}C NMR (75 MHz, $CDCl_3$): (*E*)-*N*'-Benzylideneacetohydrazide (8a)



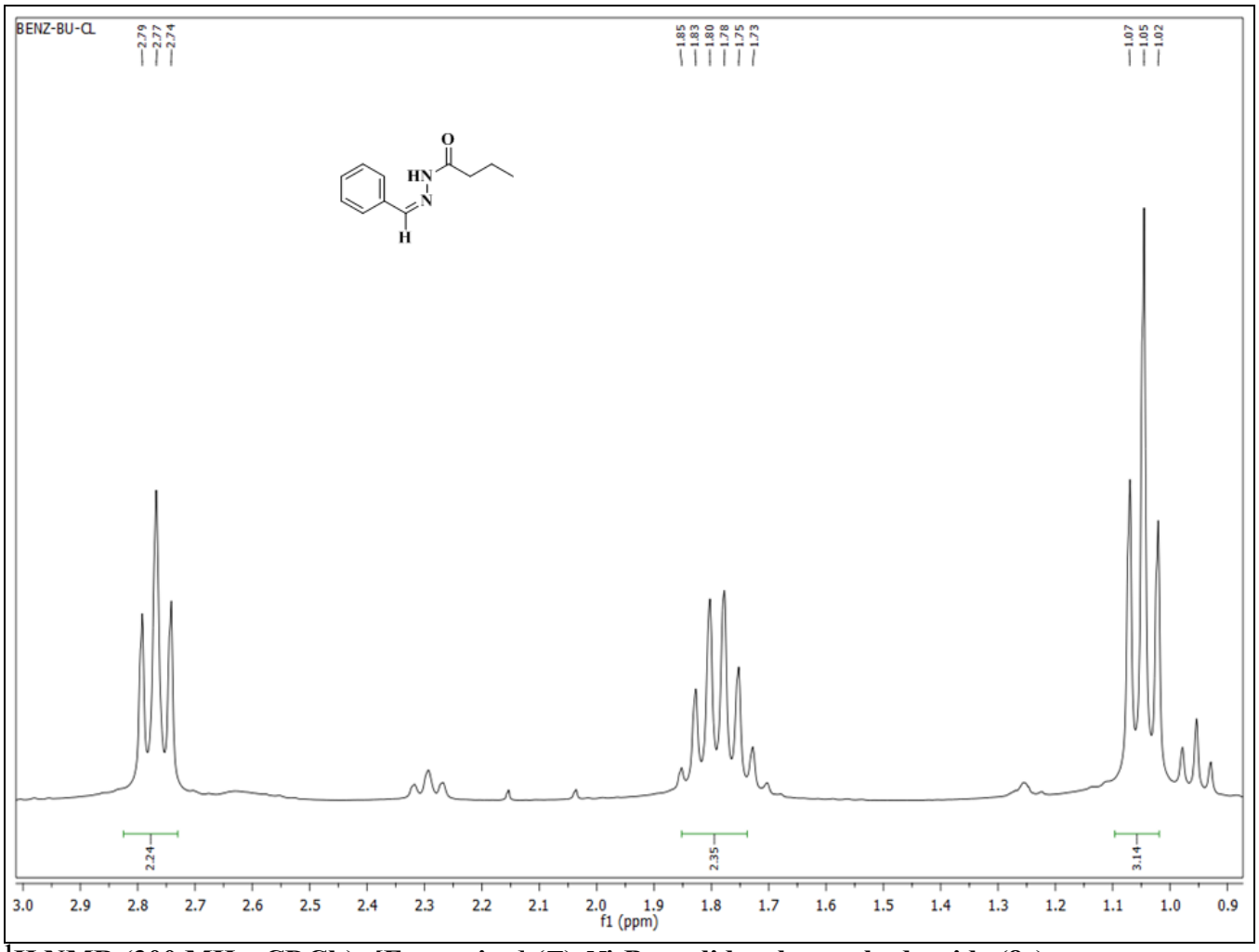
^{1}H NMR (300 MHz, $CDCl_3$): (*E*)- *N*'-Benzylidenepropionohydrazide (8b)



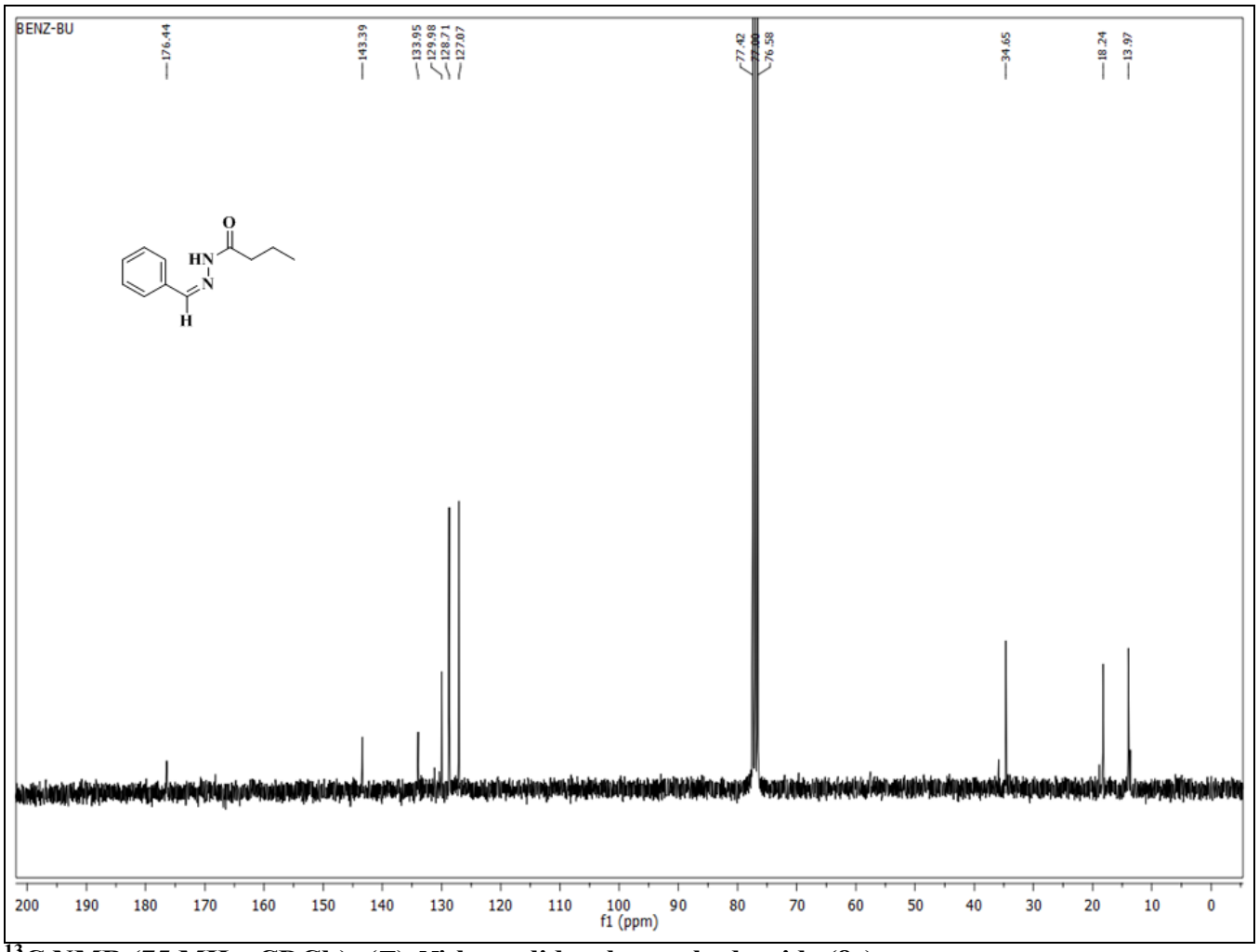
^{13}C NMR (75 MHz, $CDCl_3$): (*E*)- *N*'-Benzylidenepropionohydrazide (8b)



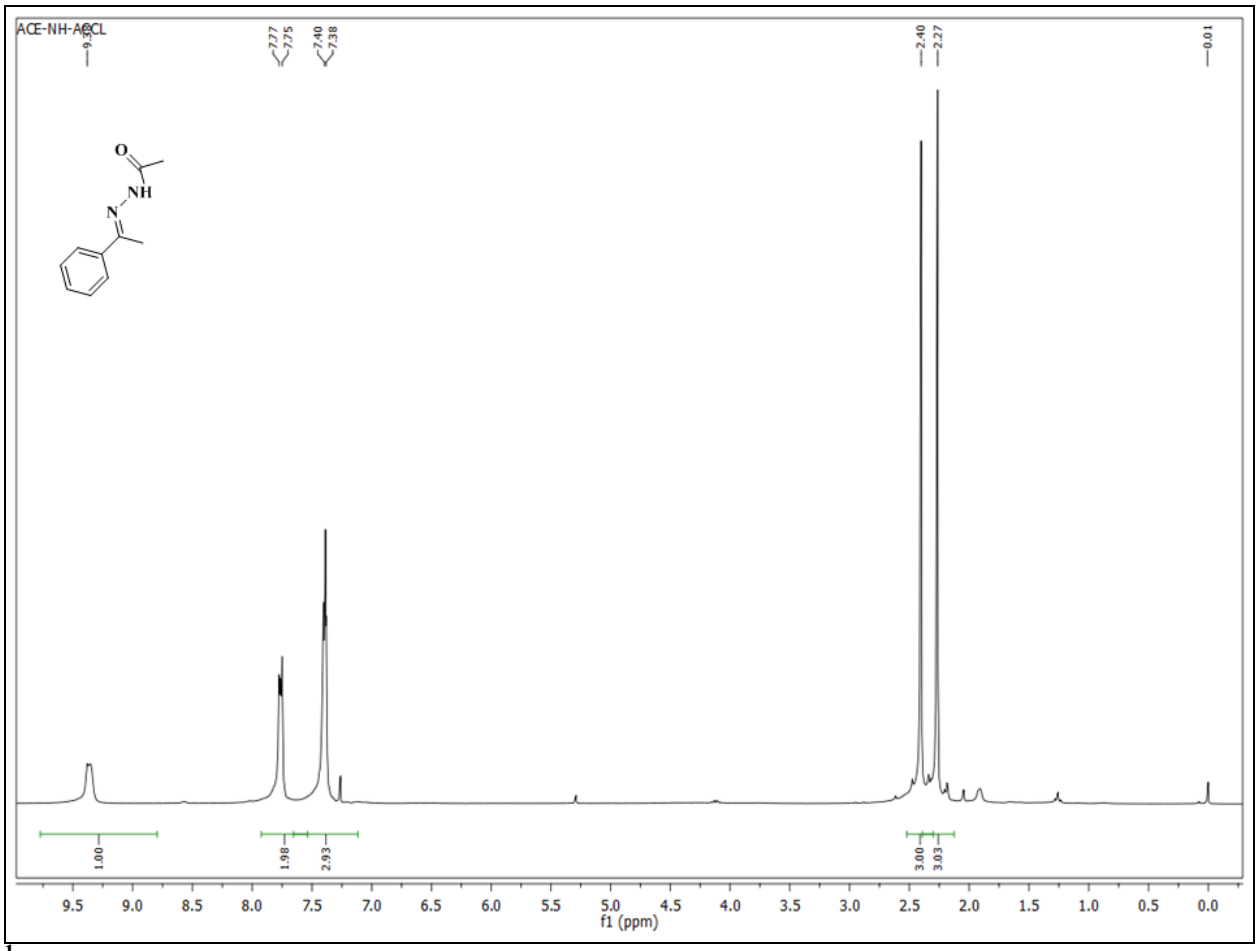
^{1}H NMR (300 MHz, $CDCl_3$): (*E*)-*N*'-Benzylidenebutyrohydrazide (8c)



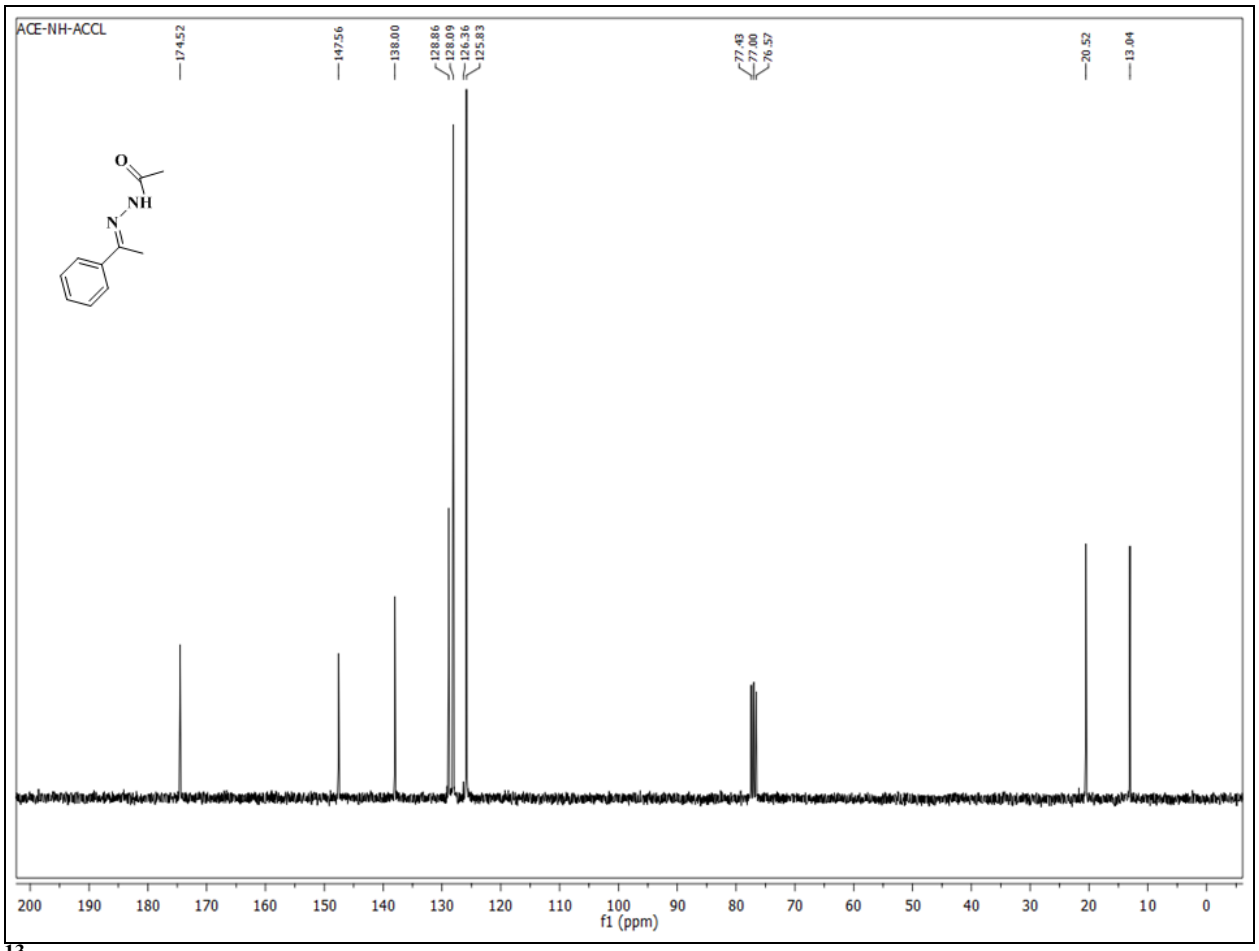
^{1}H NMR (300 MHz, $CDCl_3$): [Expansion] (*E*)-*N*'-Benzylidenebutyrohydrazide (8c)



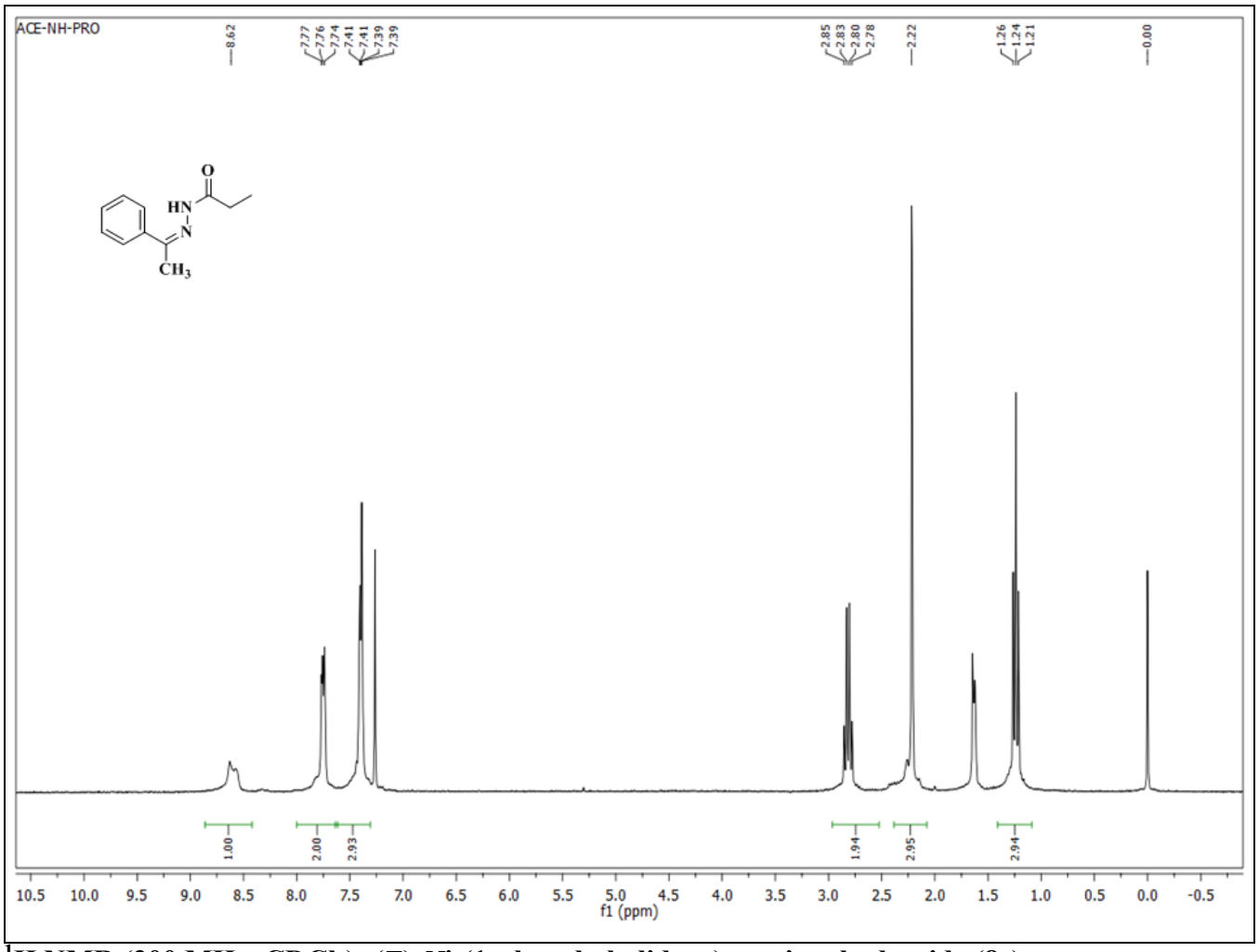
^{13}C NMR (75 MHz, $CDCl_3$): (*E*)-*N*'-benzylidenebutyrohydrazide (8c)



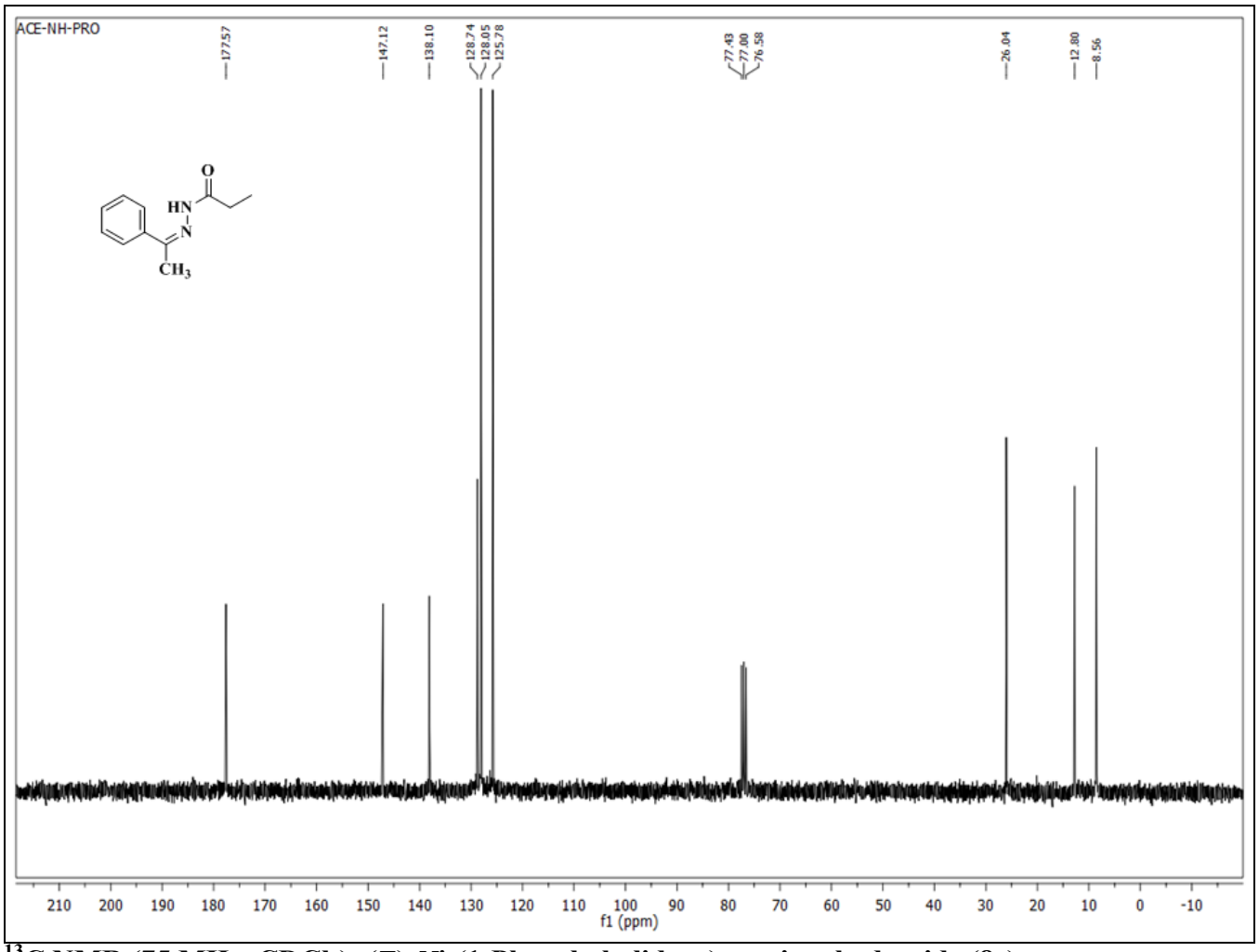
^{1}H NMR (300 MHz, $CDCl_3$): (*E*)-*N*'-(1-Phenylethylidene)acetohydrazide (8d)



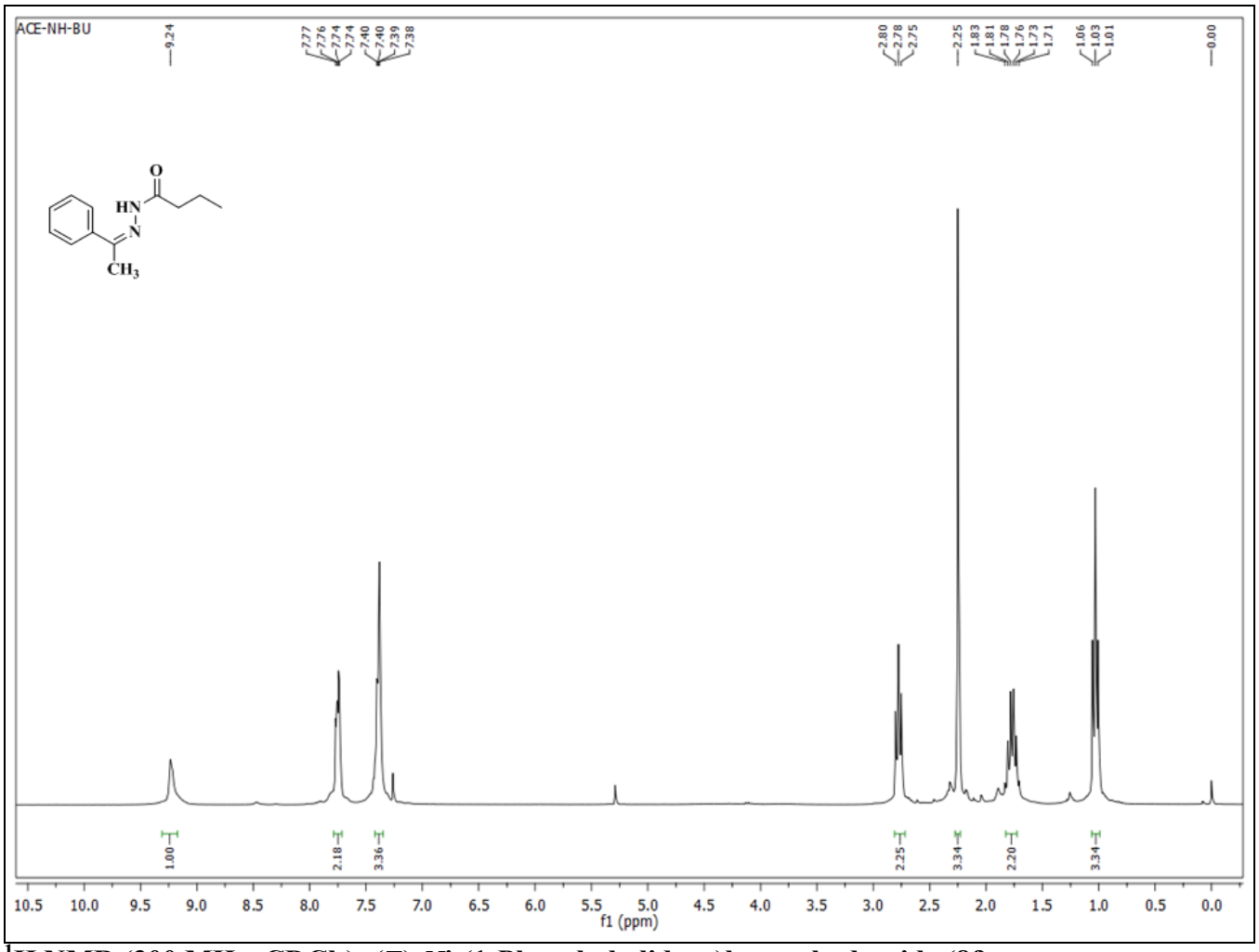
^{13}C NMR (75 MHz, $CDCl_3$): (*E*)-*N*'-(1-Phenylethylidene)acetohydrazide (8d)



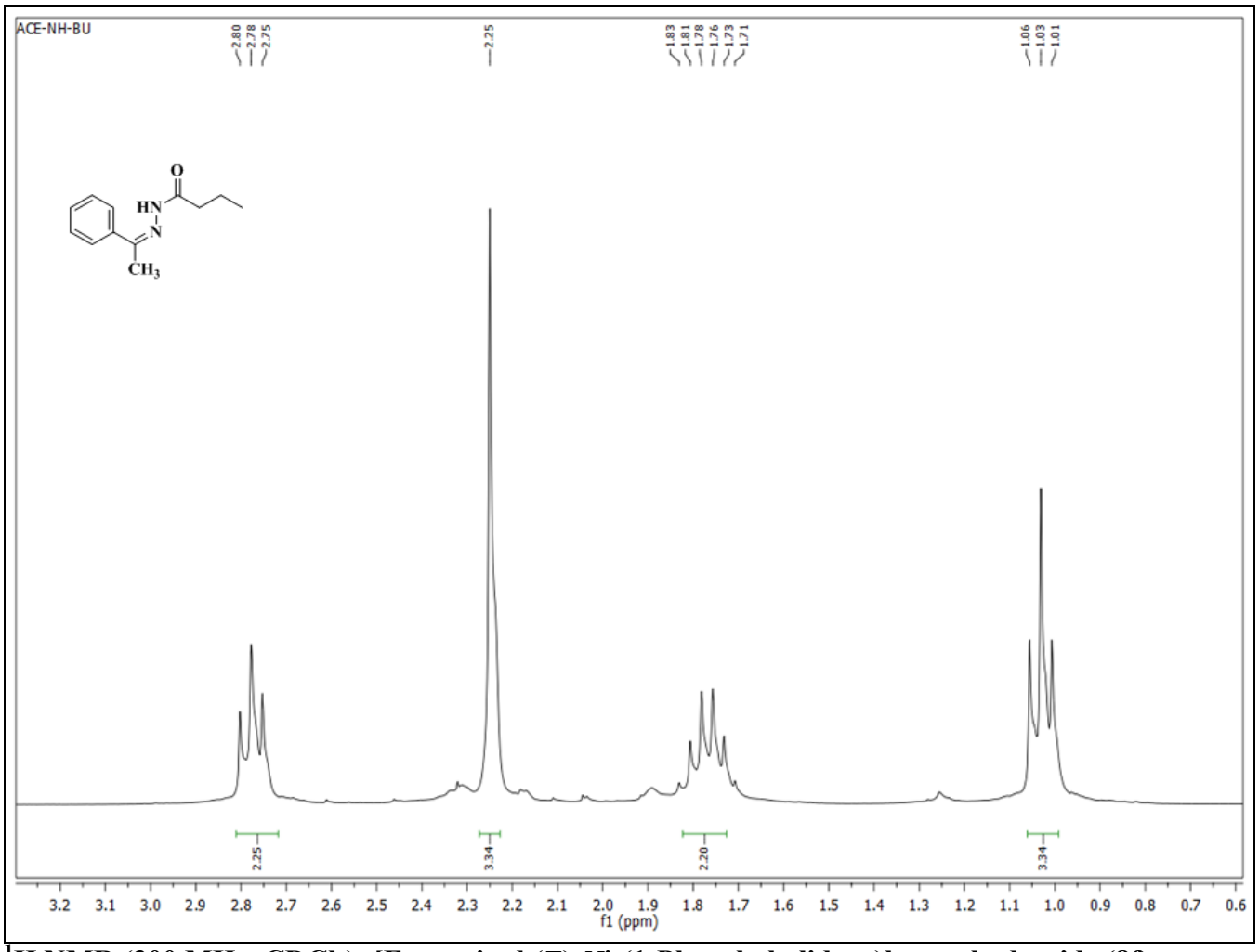
^{1}H NMR (300 MHz, $CDCl_3$) :(*E*)-*N*'-(1-phenylethylidene)propionohydrazide (8e)



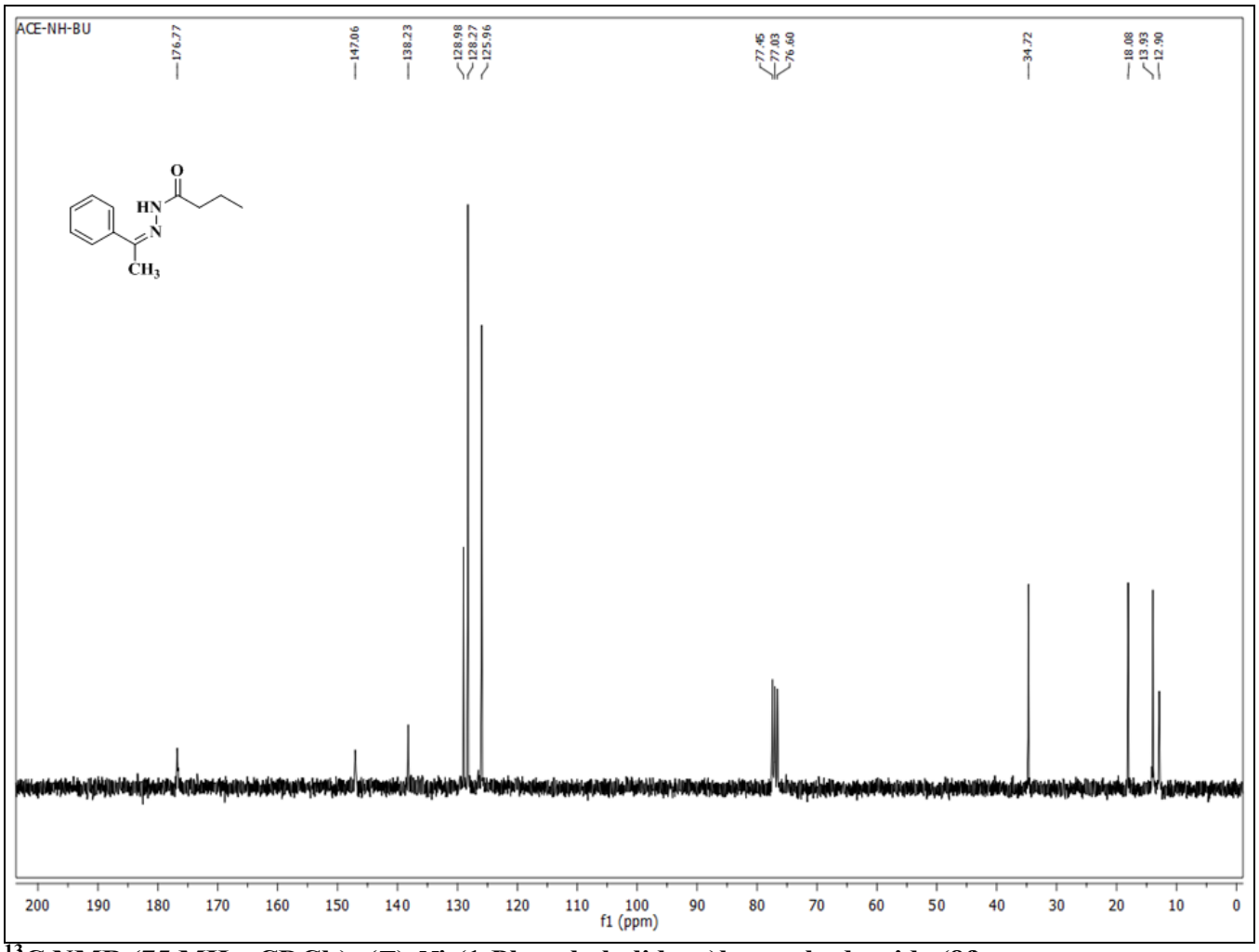
^{13}C NMR (75 MHz, $CDCl_3$): (*E*)-*N*'-(1-Phenylethylidene)propionohydrazide (8e)



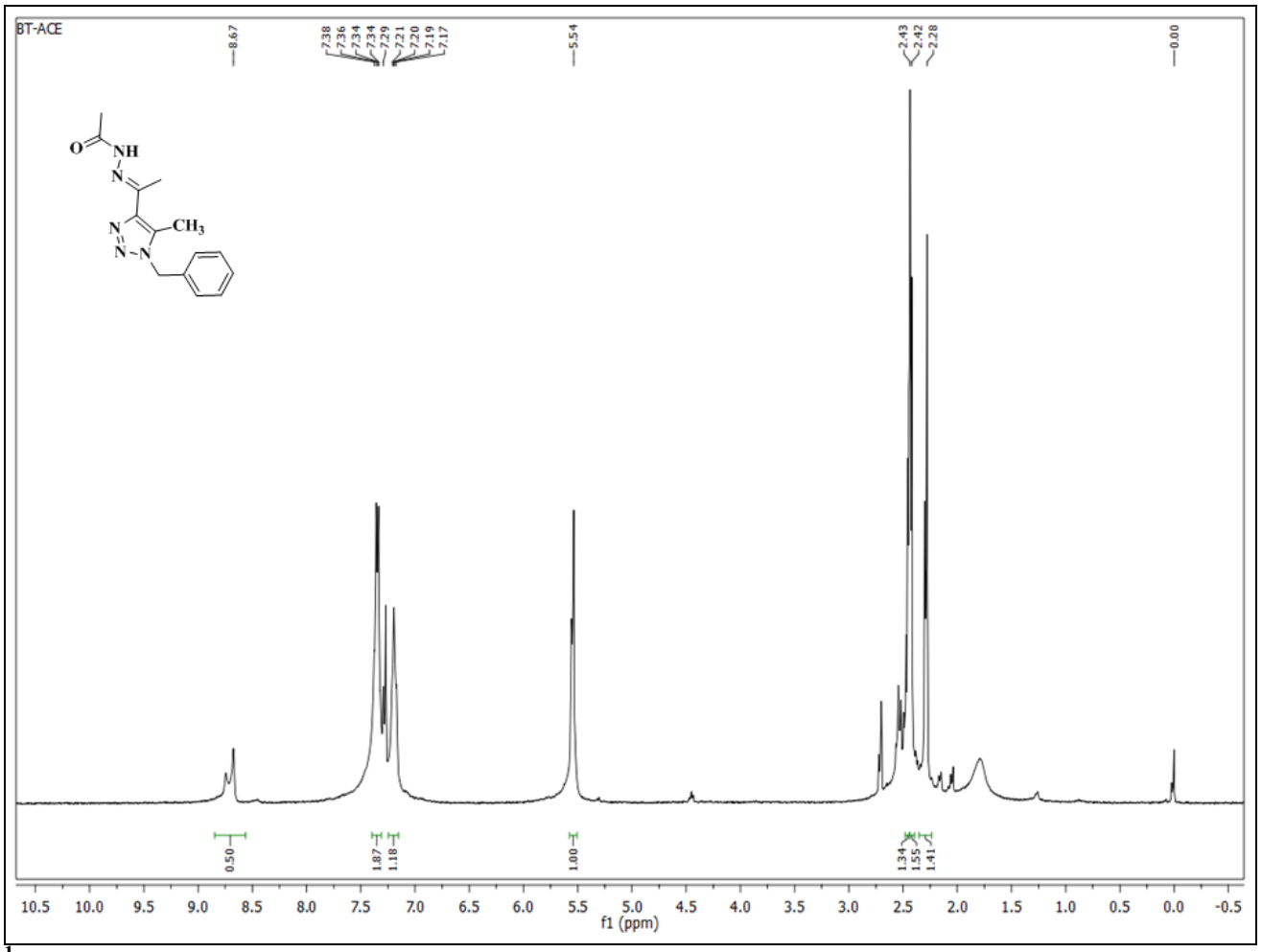
^{1}H NMR (300 MHz, $CDCl_3$): (*E*)-*N*'-(1-Phenylethylidene)butyrohydrazide (8f)



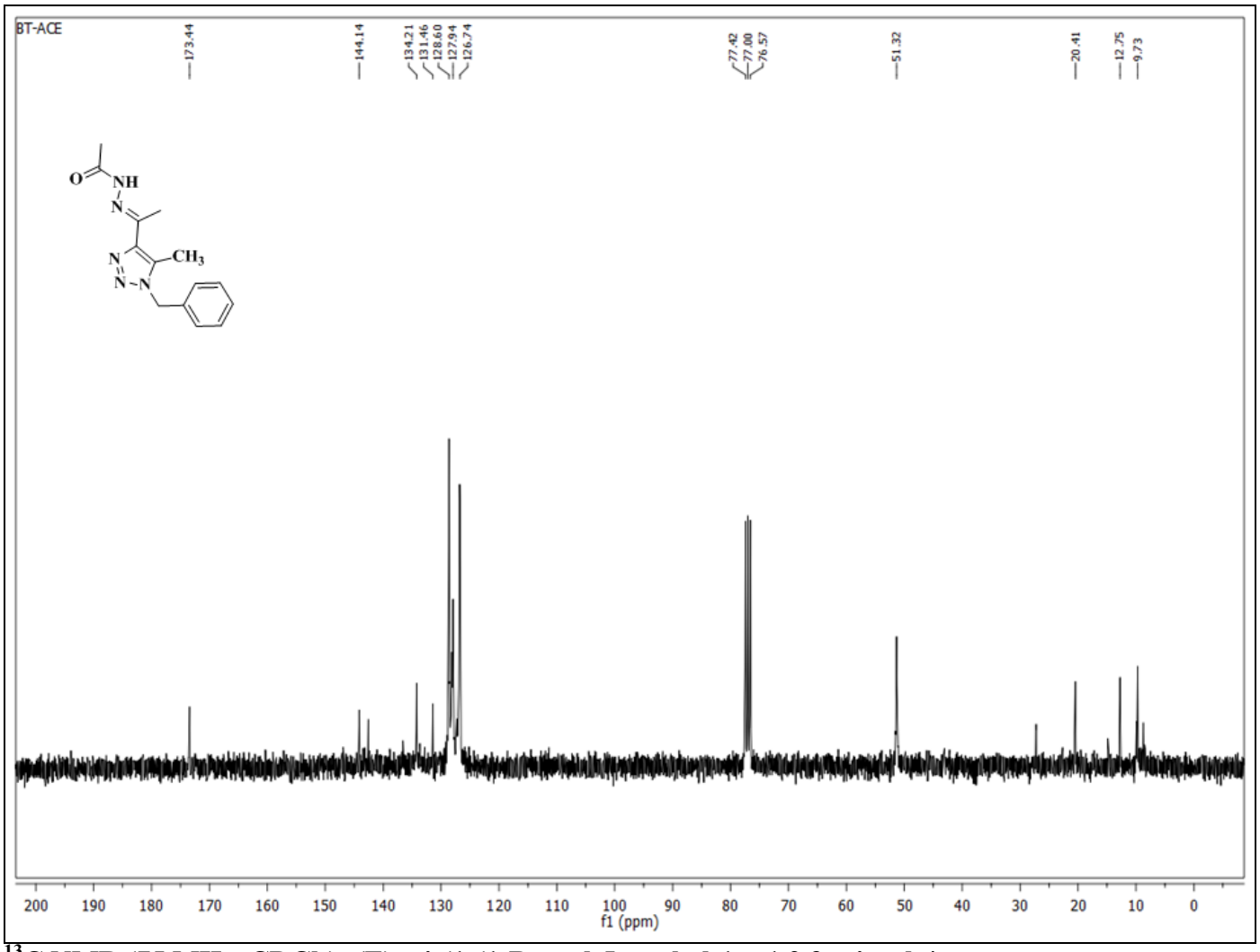
^{1}H NMR (300 MHz, $CDCl_3$): [Expantion] (*E*)-*N*'-(1-Phenylethylidene)butyrohydrazide (8f)



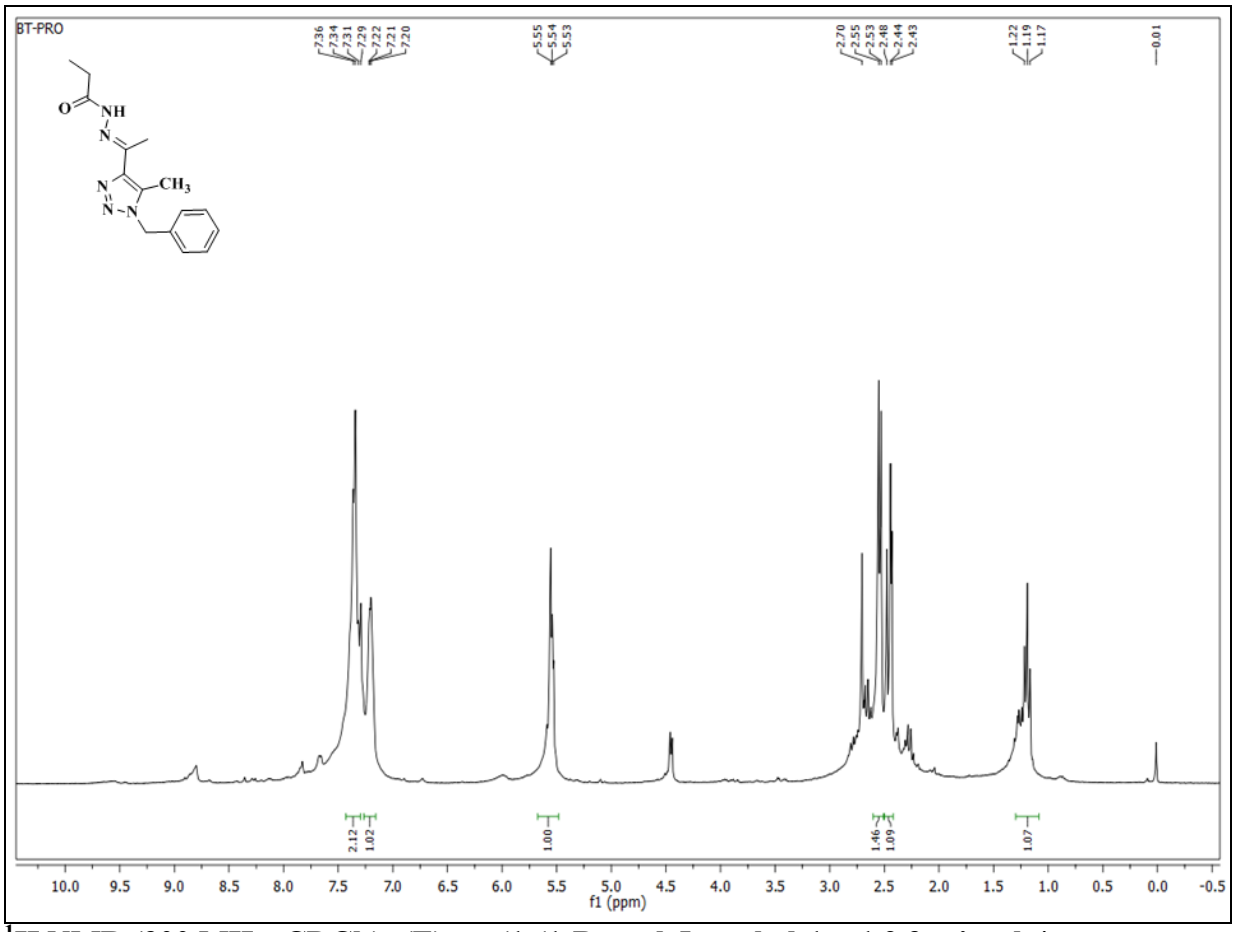
^{13}C NMR (75 MHz, $CDCl_3$): (*E*)-*N*'-(1-Phenylethylidene)butyrohydrazide (8f)



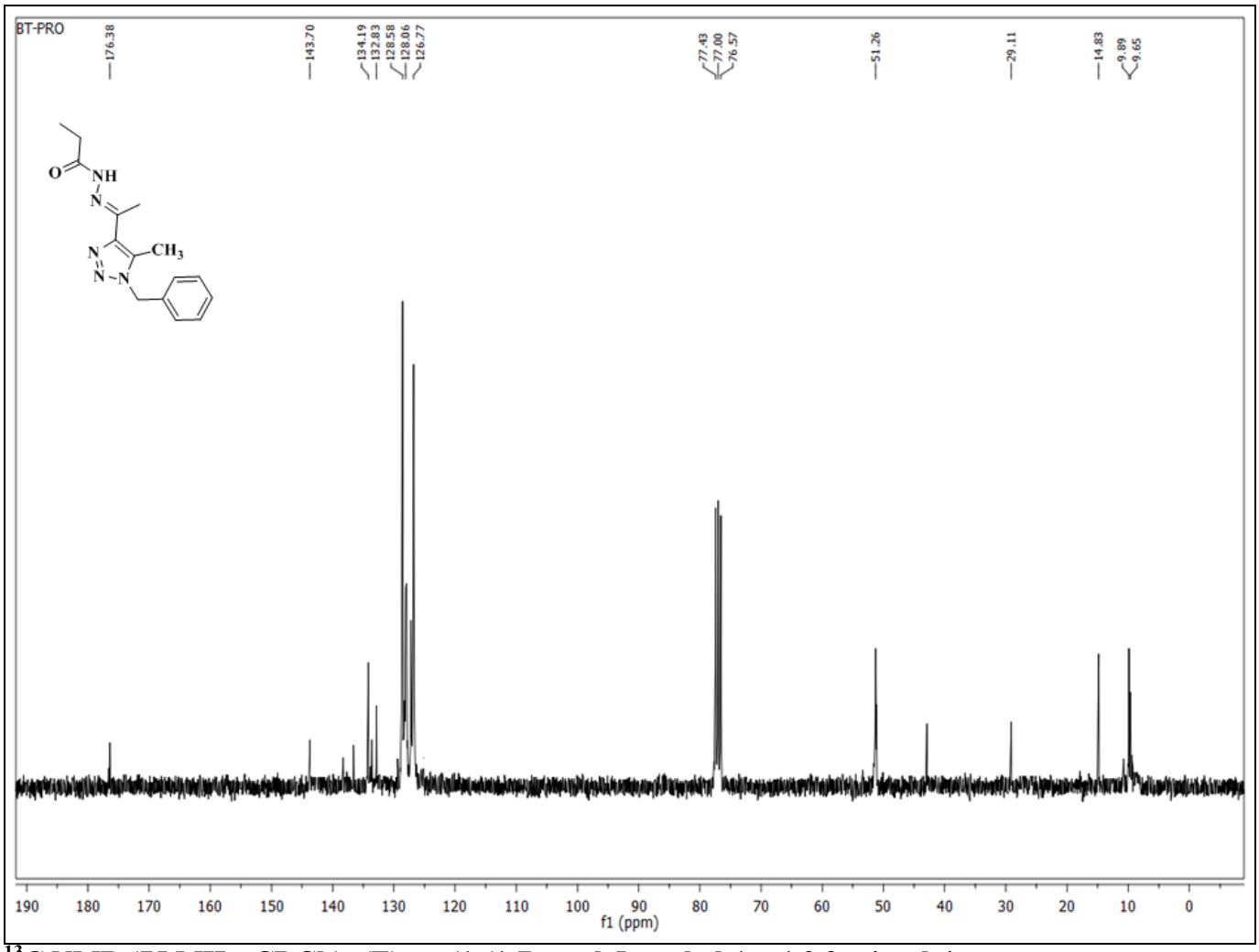
^{1}H NMR (300 MHz, $CDCl_3$): (E)-*N*'-(1-(1-Benzyl-5-methyl-1*H*-1,2,3-triazol-4-yl)ethylidene)acetohydrazide (8g)



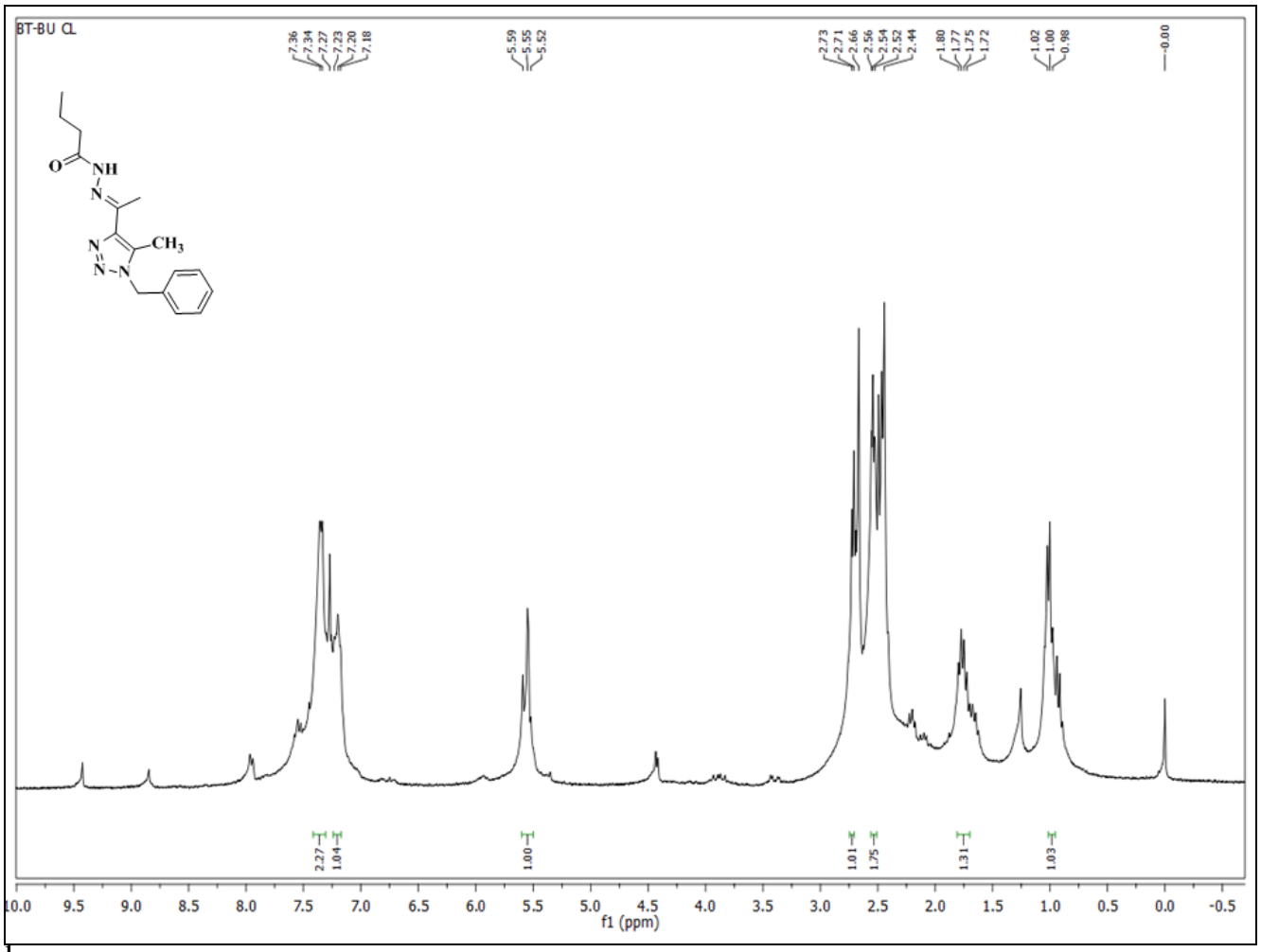
^{13}C NMR (75 MHz, $CDCl_3$): (E)-*N*'-(1-(1-Benzyl-5-methyl-1*H*-1,2,3-triazol-4-yl)ethylidene)acetohydrazide (8g)



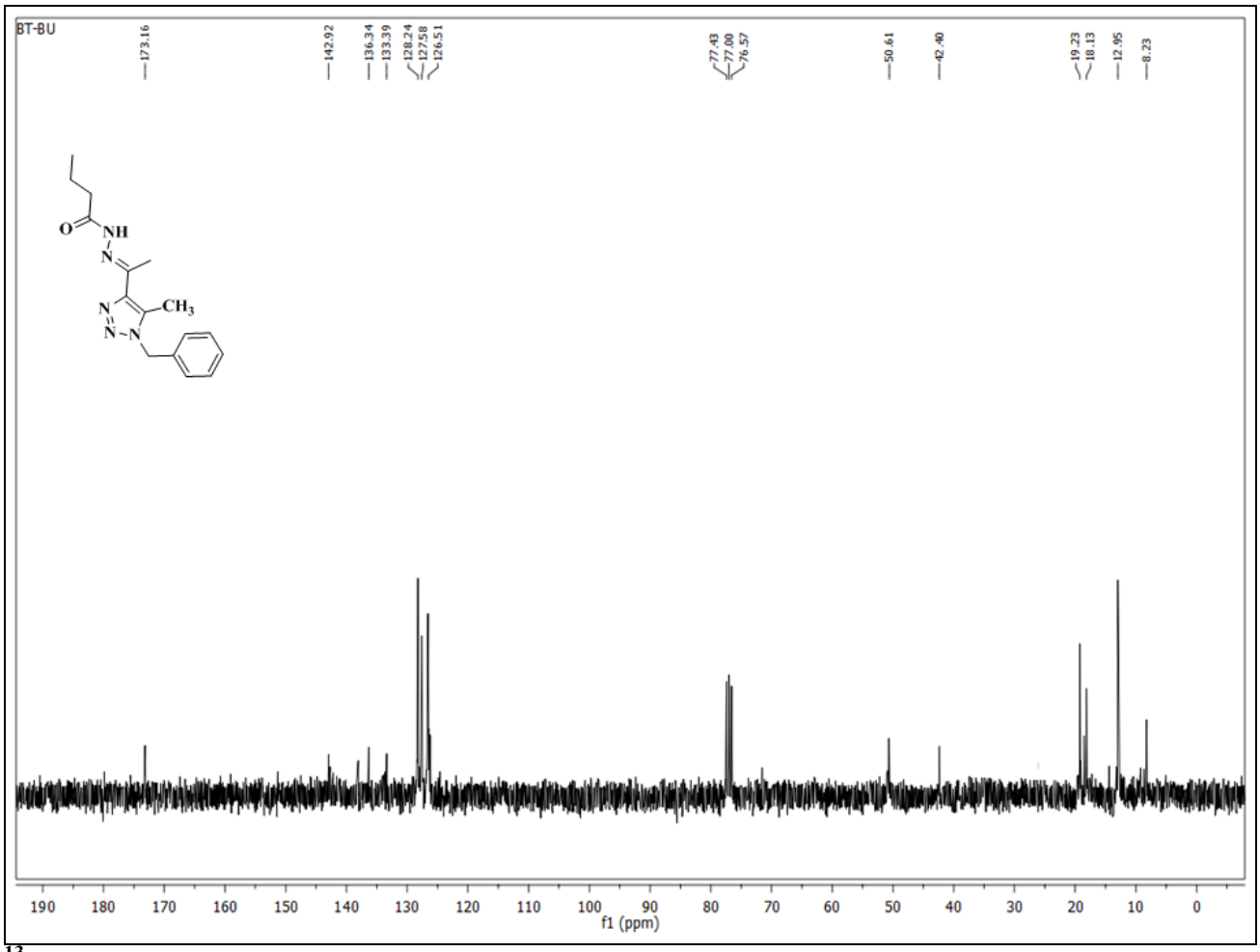
^{1}H NMR (300 MHz, $CDCl_3$): (E)-*N'*-(1-(1-Benzyl-5-methyl-1*H*-1,2,3-triazol-4-yl)ethylidene)propionohydrazide (8h)



^{13}C NMR (75 MHz, $CDCl_3$): (E)-*N'*-(1-(1-Benzyl-5-methyl-1*H*-1,2,3-triazol-4-yl)ethylidene)propionohydrazide (8h)



^{1}H NMR (300 MHz, $CDCl_3$): (E)-*N'*-(1-(1-Benzyl-5-methyl-1*H*-1,2,3-triazol-4-yl)ethylidene)butyrohydrazide (8i)



^{13}C NMR (75 MHz, $CDCl_3$): (E)-*N'*-(1-(1-Benzyl-5-methyl-1*H*-1,2,3-triazol-4-yl)ethylidene)butyrohydrazide (8i)

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