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SUPPLEMENTARY MATERIAL TO

Microwave-assisted synthesis and antimicrobial evaluation of 6-[3-aryl-1-phenyl-4′,5′-dihydro[4,5′-bi-1*H*-pyrazol]-3′-yl]--2*H*-chromen-5-ols

DONGAMANTI ASHOK[1]*, RANGU KAVITHA[1], SRINIVAS GUNDU[1] and MADDERLA SARASIJA[2]

[1]*Green and Medicinal Chemistry Laboratory, Department of Chemistry, Osmania University, Hyderabad- 500 007, India and* [2]*Department of Chemistry, Satavahana University, Karimnagar- 505001, India*

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^{1}H-, ^{13}C-NMR AND MASS SPECTRA OF COMPOUNDS **6a**–**j**

*6-[1,3-diphenyl-4',5'-dihydro[4,5'-bi-1*H*-pyrazol]-3'-yl]-2*H*-chromen-5-ol* **(6a):** Anal. Calcd. for $C_{27}H_{22}N_4O_2$: C, 74.46; H, 5.10; N, 12.89; Found: C, 74.41; H, 5.12; N, 12.85; IR (KBr, cm^{-1}): 3435 (OH), 3254 (NH), 1590 (C=N); ^{1}H NMR (400 MHz, $CDCl_3$, δ / ppm): 3.11 (1H, *dd*, *J* = 8.68 Hz, *J* = 16.80 Hz, H_A), 3.50 (1H, *dd*, *J* = 9.82 Hz, *J* = 16.80 Hz, H_B), 4.81 (2H, *s*, OCH_2), 5.04–5.10 (1H, *m*, H_X), 5.73–5.77 (1H, *m*, OCH_2–C<u>H</u>=CH), 6.35 (1H, *d*, *J* = 8.30 Hz, Ar-H), 6.88 (1H, *d*, *J* = 9.63 Hz, OCH_2-CH=C<u>H</u>), 6.95 (1H, *d*, *J* = 8.49 Hz, Ar-H), 7.29 (1H, *d*, *J* = 7.17 Hz, Ar-H), 7.38-7.50 (6H, *m*, Ar-H), 7.70 (4H, *t*, *J* = 7.28 Hz, Ar-H), 7.99 (1H, *s*, pyrazole-H), 11.36 (1H, *br.-s*, OH); ^{13}C NMR (100 MHz, $CDCl_3$, δ / ppm): 40.6, 53.6, 65.1, 106.6, 109.8, 110.0, 118.5, 118.7, 119.1, 122.0, 125.2, 126.1, 127.3, 127.6, 127.8, 128.3, 128.9, 132.4, 139.3, 150.7, 153.5, 154.7, 155.5; LC–MS (*m/z*) 435 ($[M+H]^+$, 100%).

*6-[3-(4-bromophenyl)-1-phenyl-4',5'-dihydro[4,5'-bi-1*H*-pyrazol]-3'-yl]-2*H*--chromen-5-ol* **(6b)**: Anal. Calcd. for $C_{27}H_{21}BrN_4O_2$: C, 63.17; H, 4.12; N, 10.9; Found: C, 63.19; H, 4.16; N, 11.02; IR (KBr, cm^{-1}): 3439 (OH), 3260 (NH), 1593 (C=N); ^{1}H NMR (400 MHz, $CDCl_3$, δ / ppm): 3.08 (1H, *dd*, *J* = 8.68 Hz, *J* = 16.05 Hz, H_A), 3.48 (1H, *dd*, *J* = 10.00 Hz, *J* = 16.05 Hz, H_B), 4.82 (2H, *s*, OCH_2), 5.04 (1H, *dd*, *J* = 8.68 Hz, *J* = 10.00 Hz, H_X), 5.72–5.78 (1H, *m*, OCH_2––C<u>H</u>=CH), 6.35 (1H, *d*, *J* = 8.49 Hz, Ar-H), 6.87 (1H, *d*, *J* = 10.00 Hz, OCH_2––CH=C<u>H</u>), 6.93 (1H, *d*, *J* = 8.49 Hz, Ar-H), 7.31 (1H, *d*, *J* = 7.36 Hz, Ar-H), 7.44 (2H, *t*, *J* = 8.49 Hz, Ar-H), 7.59 (4H, *s*, Ar-H), 7.71 (3H, *d*, *J* = 7.74 Hz,

*Corresponding author E-mail: ashokdou@gmail.com

Ar-H), 7.99 (1H, *s*, pyrazole-H), 11.39 (1H, *s*, OH); ^{13}C NMR (100 MHz, $CDCl_3$, δ / ppm): 40.5, 53.5, 65.1, 106.7, 107.5, 109.7, 110.1, 118.6, 118.7, 119.2, 122.0, 125.5, 126.3, 127.3, 129.0, 129.1, 131.3, 131.4, 139.2, 149.4, 153.5, 154.7, 155.6. LC–MS (*m/z*) 513 ($[M+H]^+$, 515 $[M+H+2]^+$, 100%).

*6-[3-(4-chlorophenyl)-1-phenyl-4',5'-dihydro[4,5'-bi-1*H*-pyrazol]-3'-yl]-2*H*-chromen-5-ol* **(6c)**: Anal. Calcd. for $C_{27}H_{21}ClN_4O_2$: C, 69.15; H, 4.51; N, 11.95; Found: C, 69.19; H, 4.54; N, 11.91; IR (KBr, cm^{-1}): 3438 (OH), 3257 (NH), 1591 (C=N); ^{1}H NMR (400 MHz, $CDCl_3$, δ / ppm): 3.07 (1H, *dd*, *J* = 8.87 Hz, *J* = 16.05 Hz, H_A), 3.48 (1H, *dd*, *J* = 10.19 Hz, *J* = 16.05 Hz, H_B), 4.80–4.82 (2H, *m*, OCH_2), 5.03 (1H, *dd*, *J* = 8.87 Hz, *J* = 10.19 Hz, H_X), 5.71–5.77 (1H, *m*, OCH_2–C<u>H</u>=CH), 5.89 (1H, *broad-s*, NH), 6.34 (1H, *d*, *J* = 8.68 Hz, Ar-H), 6.87 (1H, *d*, *J* = 10.00 Hz, OCH_2–CH=C<u>H</u>), 6.92 (1H, *d*, *J* = 8.49 Hz, Ar-H), 7.30 (1H, d, *J* = 7.36 Hz, Ar-H), 7.41–7.46 (4H, *m*, Ar-H), 7.64–7.71 (4H, *m*, Ar-H), 7.99 (1H, *s*, pyrazole-H), 11.33 (1H, *s*, OH); ^{13}C NMR (100 MHz, $CDCl_3$, δ / / ppm): 40.5, 53.5, 65.1, 106.6, 109.7, 110.0, 118.5, 118.6, 119.2, 122.0, 125.5, 126.3, 127.3, 128.5, 128.8, 129.0, 131.0, 133.8, 139.2, 149.4, 153.5, 154.7, 155.6. LC–MS (*m/z*) 469 ($[M+H]^+$, 100%).

*6-[1-phenyl-3-p-tolyl-4',5'-dihydro[4,5'-bi-1*H*-pyrazol]-3'-yl]-2*H*-chromen-5-ol* **(6d)**: Anal. Calcd. for $C_{28}H_{24}N_4O_2$: C, 74.98; H, 5.39; N, 12.49; Found: C, 74.95; H, 5.43; N, 12.46; IR (KBr, cm^{-1}): 3440 (OH), 3258 (NH), 1594 (C=N); ^{1}H NMR (400 MHz, $CDCl_3$, δ / ppm): 2.40 (3H, *s*, Ar-CH_3), 3.08 (1H, *dd*, *J* = 8.49 Hz, *J* = 16.25 Hz, H_A), 3.46 (1H, *dd*, *J* = 10.19 Hz, *J* = 16.25 Hz, H_B), 4.80–4.84 (2H, *m*, 2H, OCH_2), 5.04 (1H, *dd*, *J* = 8.49 Hz, *J* = 10.19 Hz, H_X), 5.72–5.77 (1H, *m*, OCH_2–C<u>H</u>=CH), 5.88 (1H, *br.-s*, NH), 6.34 (1H, *d*, *J* = 8.68 Hz, Ar-H), 6.87 (1H, *d*, *J* = 10.00 Hz, OCH_2–CH=C<u>H</u>), 6.94 (1H, *d*, *J* = 8.30 Hz, Ar-H), 7.27 (3H, *d*, *J* = 7.74 Hz, Ar-H), 7.42 (2H, *t*, *J* = 7.74 Hz, Ar-H), 7.57 (2H, *d*, *J* = = 7.93 Hz, Ar-H), 7.71 (2H, *d*, *J* = 7.93 Hz, Ar-H), 7.97 (1H, *s*, pyrazole-H), 11.40 (1H, *br.-s*, OH); ^{13}C NMR (100 MHz, $CDCl_3$, δ / ppm): 20.8, 40.5, 53.5, 65.0, 106.6, 109.8, 110.0, 118.4, 118.6, 119.2, 121.9, 125.1, 126.0, 127.3, 127.4, 128.9, 129.0, 129.4, 137.6, 139.3, 150.6, 153.5, 154.7, 155.4. LC–MS (*m/z*) 449 ($[M+H]^+$, 100%).

*6-[3-(4-hydroxyphenyl)-1-phenyl-4',5'-dihydro[4,5'-bi-1*H*-pyrazol]-3'-yl]-2*H*-chromen-5-ol* **(6e)**: Anal. Calcd. for $C_{27}H_{22}N_4O_3$: C, 71.99; H, 4.92; N, 12.44; Found: C, 71.94; H, 4.95; N, 12.41; IR (KBr, cm^{-1}): 3443 (OH), 3256 (NH), 1591 (C=N); ^{1}H NMR (400 MHz, $CDCl_3$, δ / ppm): 3.09 (1H, *dd*, *J* = 8.12 Hz, *J* = 15.86 Hz, H_A), 3.47 (1H, *dd*, *J* = 10.57 Hz, *J* = 15.86 Hz, H_B), 4.81 (2H, *s*, OCH_2), 5.01 (1H, *dd*, *J* = 8.12 Hz, *J* = 10.57 Hz, H_X), 5.73–5.77 (1H, *m*, OCH_2–C<u>H</u>=CH), 6.35 (1H, *d*, *J* = 8.30 Hz, Ar-H), 6.85–6.95 (5H, *m*, Ar-H), 7.28 (1H, *d*, *J* = 7.53 Hz, Ar-H), 7.40–7.54 (6H, *m*, Ar-H), 7.95 (1H, *s*, pyrazole-H), 8.04 (1H, *s*, OH), 11.38 (1H, *br.-s*, OH); ^{13}C NMR (100 MHz, $CDCl_3$, δ / / ppm): 40.5, 53.5, 65.1, 106.7, 109.7, 110.0, 118.5, 118.5, 118.6, 119.2, 121.9,

125.5, 126.3, 127.3, 128.5, 128.8, 129.0, 133.8, 139.18, 149.4, 153.5, 154.8, 156.6. LC–MS (*m/z*) 451 ([M+H]$^+$, 100%).

*6-[3-(4-methoxyphenyl)-1-phenyl-4',5'-dihydro[4,5'-bi-1*H*-pyrazol]-3'-yl]--2*H*-chromen-5-ol* **(6f)**: Anal. Calcd. for $C_{28}H_{24}N_4O_3$; C, 72.40; H, 5.21; N, 12.06; Found: C, 72.43; H, 5.18; N, 12.10; IR (KBr, cm^{-1}): 3445 (OH), 3261 (NH), 1595 (C=N); ^{1}H NMR (400 MHz, $CDCl_3$, δ / ppm): 3.11 (1H, *dd*, *J* = 8.68 Hz, *J* = 16.05 Hz, H_A), 3.48 (1H, *dd*, *J* = 10.00 Hz, *J* = 16.05 Hz, H_B), 3.86 (3H, *s*, Ar-OCH_3), 4.81–4.83 (2H, *m*, OCH_2), 5.02–5.08 (1H, *m*, H_X), 5.73–5.78 (1H, *m*, OCH_2–C<u>H</u>=CH), 5.87 (1H, *br.-s*, NH), 6.35 (1H, *d*, *J* = 8.68 Hz, Ar-H), 6.87 (1H, *d*, *J* = 10.19 Hz, OCH_2–CH=C<u>H</u>), 6.95 (1H, *d*, *J* = 8.49 Hz, Ar-H), 7.00 (2H, *d*, *J* = 8.68 Hz, Ar-H), 7.28 (1H, *d*, *J* = 7.55 Hz, Ar-H), 7.43 (2H, *t*, *J* = 8.49 Hz, Ar-H), 7.62 (2H, *d*, *J* = 8.68 Hz, Ar-H), 7.71 (2H, *d*, *J* = 7.93 Hz, Ar-H), 7.97 (1H, *s*, pyrazole-H), 11.38 (1H, *br.-s*, OH); ^{13}C NMR (100 MHz, $CDCl_3$, *δ* / ppm): 40.5, 53.6, 54.9, 65.1, 106.6, 109.8, 110.0, 113.7, 118.4, 118.6, 119.2, 121.7, 124.9, 125.1, 126.0, 127.3, 128.8, 128.9, 139.3, 150.5, 153.5, 154.7, 155.5, 159.2. LC–MS (*m/z*) 465 ([M+H]$^+$, 100%).

*6-[3-(4-ethoxyphenyl)-1-phenyl-4',5'-dihydro[4,5'-bi-1*H*-pyrazol]-3'-yl]-2*H*--chromen-5-ol* **(6g)**: Anal. Calcd. for $C_{29}H_{26}N_4O_3$: C, 72.79; H, 5.48 ; N, 11.71; Found: C, 72.76; H, 5.51; N, 11.75; IR (KBr, cm^{-1}): 3442 (OH), 3261 (NH), 1596 (C=N); ^{1}H NMR (400 MHz, DMSO-d_6, *δ* / ppm): 1.35 (3H, *t*, *J* = 6.18 Hz, CH_3), 3.08 (1H, *dd*, *J* = 10.76 Hz, *J* = 16.61 Hz, H_A), 3.58 (1H, *dd*, *J* = 10.57 Hz, *J* = 16.61 Hz, H_B), 4.08 (2H, *q*, *J* = 7.68 Hz, Ar-OCH_2), 4.75–4.78 (2H, *m*, OCH_2), 4.86–4.95 (1H, *dd*, *J* = 10.76 Hz, *J* = 10.57 Hz, H_X), 5.84 (1H, *m*, OCH_2––C<u>H</u>=CH), 6.33 (1H, *d*, *J* = 8.49 Hz, Ar-H), 6.73 (1H, *d*, *J* = 10.00 Hz, OCH_2––CH=C<u>H</u>), 7.01 (2H, *d*, *J* = 8.68 Hz, Ar-H), 7.06 (1H, *d*, *J* = 8.49 Hz, Ar-H), 7.30 (1H, *d*, *J* = 7.55 Hz, Ar-H), 7.48 (2H, *t*, *J* = 8.49 Hz, Ar-H), 7.65 (3H, *dd*, *J* = 3.77 Hz, *J* = 8.68 Hz, Ar-H), 7.87 (2H, *d*, *J* = 7.74 Hz, Ar-H), 8.57 (1H, *s*, pyrazole-H), 11.72 (1H, *s*, OH); ^{13}C NMR (100 MHz, DMSO-d_6, *δ* / ppm): 14.5, 40.3, 53.1, 62.9, 64.8, 106.7, 109.5, 110.4, 113.7, 114.2, 118.1, 118.9, 120.5, 120.7, 122.3, 126.2, 127.5, 127.9, 129.4, 129.6, 134.1, 139.3, 150.2, 152.8, 153.6, 154.7, 158.5. LC–MS (*m/z*) 479 ([M+H]$^+$, 100%).

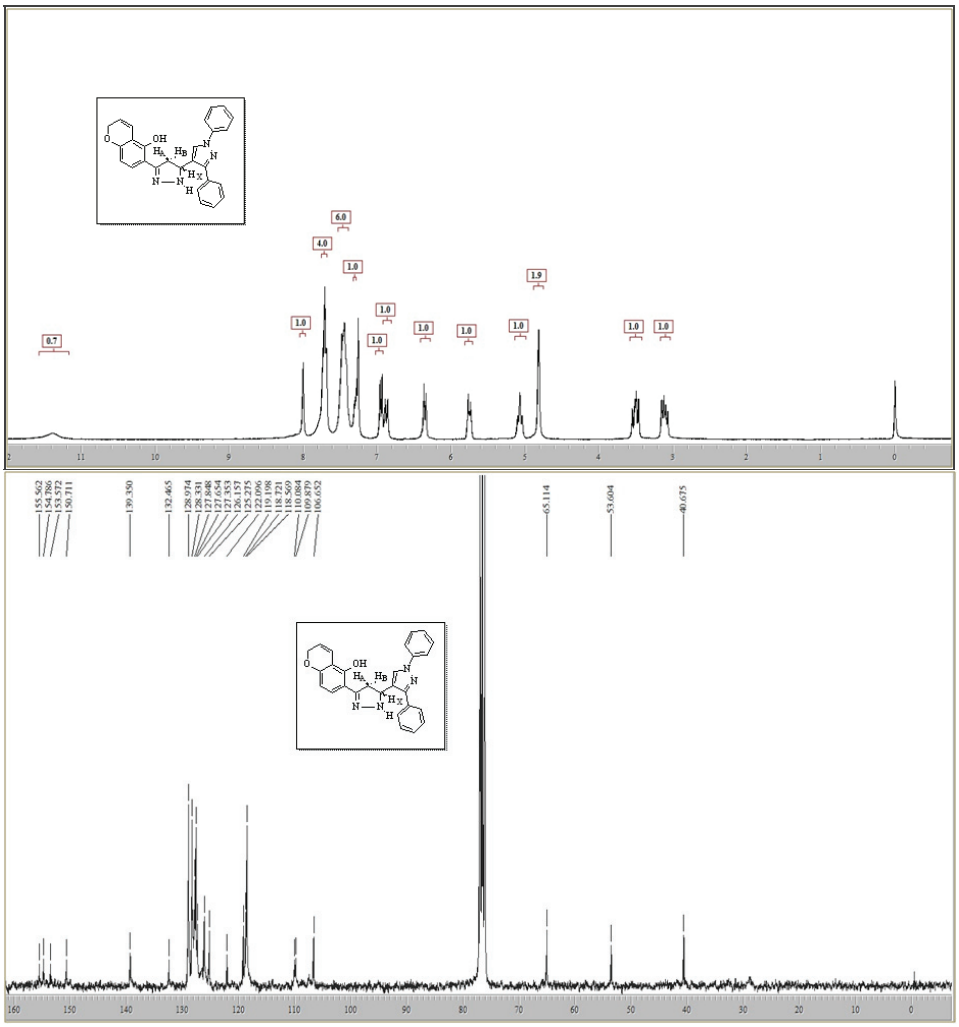
*6-[3-(3-ethoxyphenyl)-1-phenyl-4',5'-dihydro[4,5'-bi-1*H*-pyrazol]-3'-yl]-2*H*--chromen-5-ol* **(6h)**: Anal. Calcd. for $C_{29}H_{26}N_4O_3$: C, 72.79; H, 5.48 ; N, 11.71; Found: C, 72.76; H, 5.44; N, 11.75; IR (KBr, cm^{-1}): 3464 (OH), 3268 (NH), 1599 (C=N); ^{1}H NMR (400 MHz, $CDCl_3$, *δ* / ppm): 1.43 (3H, *t*, *J* = 5.45 Hz, CH_3), 3.09 (1H, *dd*, *J* = 8.87 Hz, *J* = 16.24 Hz, H_A), 3.48 (1H, *dd*, *J* = 10.19 Hz, *J* = = 16.24 Hz, H_B), 4.09 (2H, *q*, *J* = 7.15 Hz, Ar-OCH_2), 4.80–4.82 (2H, *m*, OCH_2), 5.08 (1H, *dd*, *J* = 8.87 Hz, *J* = 10.19 Hz, H_X), 5.74 (1H, *m*, OCH_2-C<u>H</u>=CH), 5.90 (1H, *br.-s*, NH), 6.34 (1H, *d*, *J* = 8.49 Hz, Ar-H), 6.87 (1H, *d*, *J* = 10.00 Hz, OCH_2–CH=C<u>H</u>), 6.93 (2H, *d*, *J* = 8.49 Hz, Ar-H), 7.29 (2H, *d*, *J* = 7.55 Hz, Ar-H), 7.34–7.46 (4H, *m*, Ar-H), 7.71 (2H, *d*, *J* = 7.74 Hz, Ar-H), 7.98 (1H, *s*,

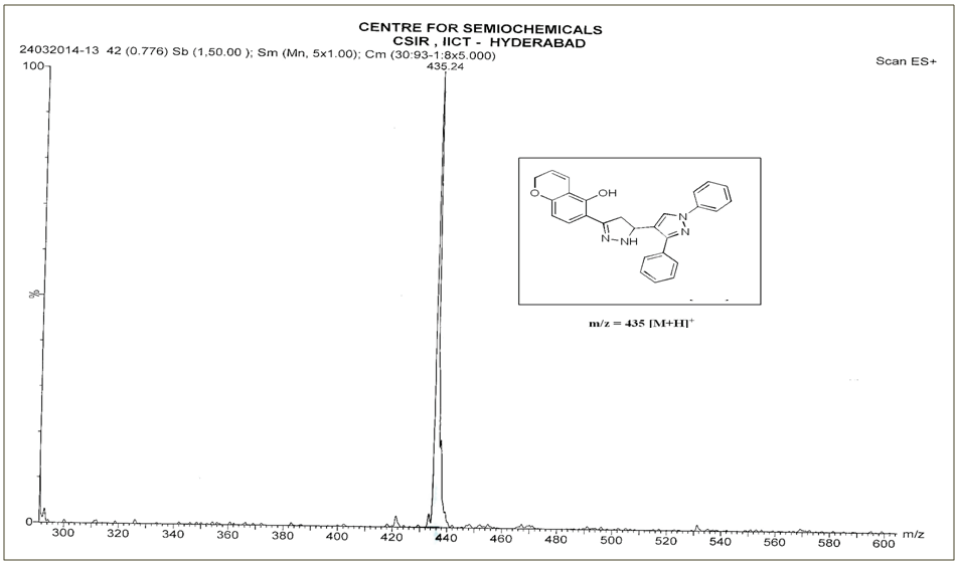
pyrazole-H), 11.38 (1H, *br.-s*, OH); ^{13}C NMR (100 MHz, $CDCl_3$, δ / ppm): 14.8, 40.9, 54.1, 63.5, 65.5, 107.0, 110.3, 110.5, 114.7, 118.9, 119.1, 119.6, 122.2, 125.2, 125.5, 126.4, 127.8, 129.3, 129.4, 139.8, 151.0, 154.0, 155.2, 156.0, 159.1. LC–MS (*m/z*) 479 ($[M+H]^+$, 100%).

*6-[3-(3,4-dimethoxyphenyl)-1-phenyl-4',5'-dihydro[4,5'-bi-1*H*-pyrazol]-3'-yl]--2*H*-chromen-5-ol* **(6i)**: Anal. Calcd. for $C_{29}H_{26}N_4O_4$: C, 70.43; H, 5.30; N, 11.33; Found: C, 70.39; H, 5.33; N, 11.38; IR (KBr, cm^{-1}): 3444 (OH), 3261 (NH), 1596 (C=N); ^{1}H NMR (400 MHz, $CDCl_3$, δ / ppm): 3.11 (1H, *dd*, J = 8.87 Hz, J = 16.05 Hz, H_A), 3.47 (1H, *dd*, J = 10.19 Hz, J = 16.05 Hz, H_B), 3.93 (3H, *s*, Ar-OCH_3), 3.93 (3H, *s*, Ar-OCH_3), 4.81 (2H, *s*, OCH_2), 5.07 (1H, *dd*, J = 8.87 Hz, J = 10.19 Hz, H_X), 5.72–5.78 (1H, *m*, OCH_2–C<u>H</u>=CH), 6.34 (1H, *d*, J = 8.49 Hz, Ar-H), 6.86–6.99 (3H, *m*, Ar-H), 7.19 (1H, *d*, J = 8.49 Hz, Ar-H), 7.35 (1H, *s*, Ar-H), 7.42–7.49 (3H, *m*, Ar-H), 7.71 (2H, *d*, J = 7.74 Hz, Ar-H), 7.82 (1H, *d*, J = 7.93 Hz, Ar-H), 7.97 (1H, *s*, pyrazole-H), 11.38 (1H, *br.-s*, OH); ^{13}C NMR (100 MHz, $CDCl_3$, δ / ppm): 40.3, 53.7, 55.5, 55.6, 65.1, 109.8 110.8, 111.1, 118.5, 118.7, 118.9, 119.1, 120.0, 121.6, 125.4, 126.1, 126.5, 126.7, 127.3, 128.9, 129.0, 139.3, 148.8, 148.8, 153.6, 154.0, 154.8, 155.6. LC–MS (*m/z*) 495 ($[M+H]^+$, 100%).

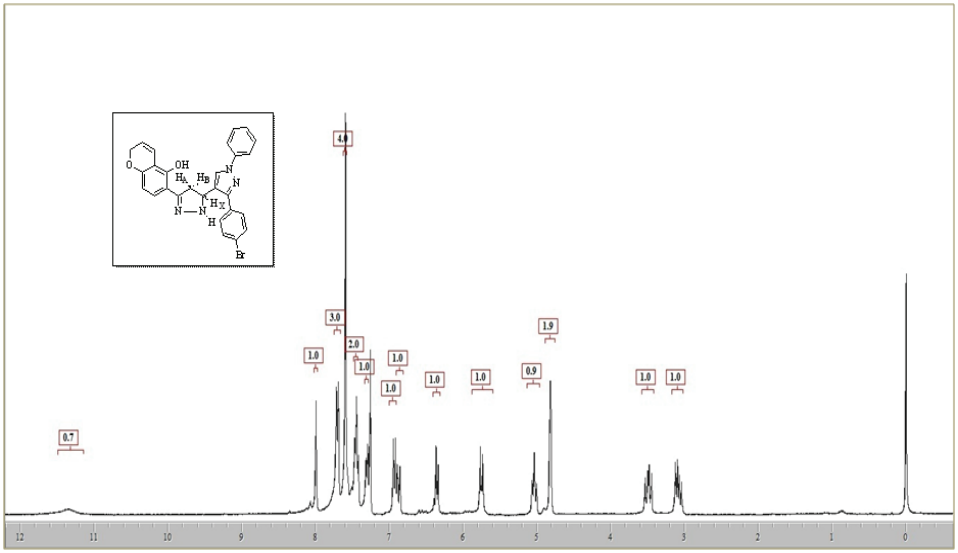
*6-[3-(naphthalen-2-yl)-1-phenyl-4',5'-dihydro[4,5'-bi-1*H*-pyrazol]-3'-yl]--2*H*-chromen-5-ol* **(6j)**: Anal. Calcd. for $C_{31}H_{24}N_4O_2$: C, 76.84; H, 4.99; N, 11.56; Found: C, 76.81; H, 5.02; N, 11.52; IR (KBr, cm^{-1}): 3441 (OH), 3257 (NH), 1590 (C=N); ^{1}H NMR (400 MHz, $CDCl_3$, δ / ppm): 3.14 (1H, *dd*, J = 8.80 Hz, J = 16.26 Hz, H_A), 3.53 (1H, *dd*, J = 10.14 Hz, J = 16.26 Hz, H_B), 4.81–4.82 (2H, *m*, OCH_2), 5.19 (1H, *dd*, J = 8.80 Hz, J = 10.14 Hz, H_X), 5.72–5.78 (1H, *m*, OCH_2–C<u>H</u>=CH), 6.33 (1H, *d*, J = 8.43 Hz, Ar-H), 6.87 (1H, *d*, J = 9.90 Hz, OCH_2–CH=C<u>H</u>), 6.93 (1H, *d*, J = 8.43 Hz, Ar-H), 7.31 (1H, *d*, J = 7.33 Hz, Ar-H), 7.46 (2H, *t*, J = 7.33 Hz, Ar-H), 7.51–7.53 (2H, *m*, Ar-H), 7.76 (2H, *d*, J = 8.12 Hz, Ar-H), 7.87–7.92 (4H, *m*, Ar-H), 7.95 (1H, *d*, J = 8.55 Hz, Ar-H), 8.03 (1H, *s*, Ar-H), 8.14 (1H, *s*, pyrazole-H), 11.39 (1H, *br.-s*, OH); ^{13}C NMR (100 MHz, $CDCl_3$, δ / ppm): 41.0, 54.0, 65.5, 107.0, 110.2, 110.4, 119.0, 119.1, 125.8, 126.3, 126.4, 126.6, 127.0, 127.7, 127.7, 128.2, 128.4, 129.4, 130.3, 132.9, 133.3, 139.7, 150.9, 153.9, 155.2, 155.9. LC–MS (*m/z*) 485 ($[M+H]^+$, 100%).

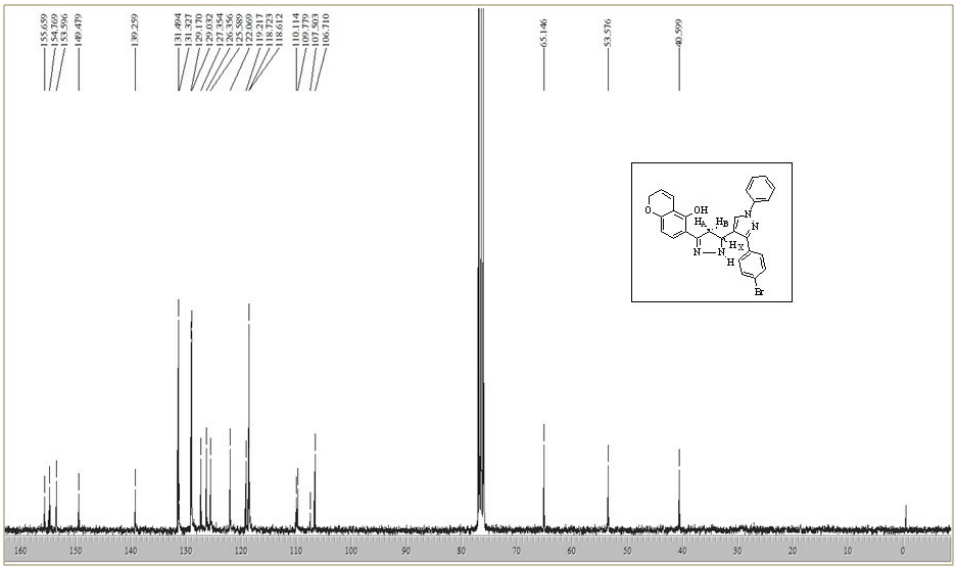
*^{1}H-, ^{13}C-NMR and mass spectra of 6-[1,3-diphenyl-4',5'-dihydro[4,5'-bi-1*H*-pyrazol]-3'--yl]-2*H*-chromen-5-ol (**6a**)*





*^{1}H-, ^{13}C-NMR and mass spectra of 6-[3-(4-bromophenyl)-1-phenyl-4',5'-dihydro[4,5'-bi-1*H*--pyrazol]-3'-yl]-2*H*-chromen-5-ol (**6b**)*

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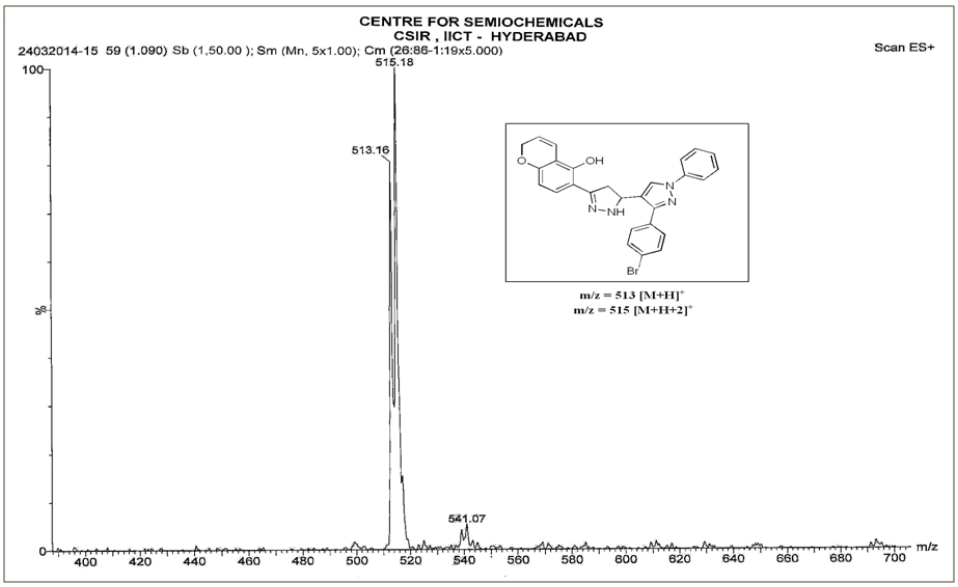
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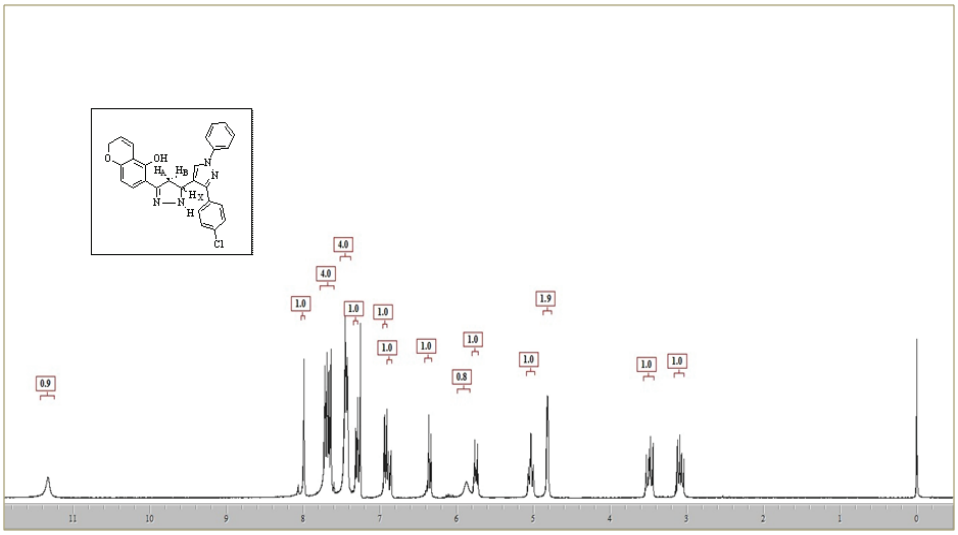
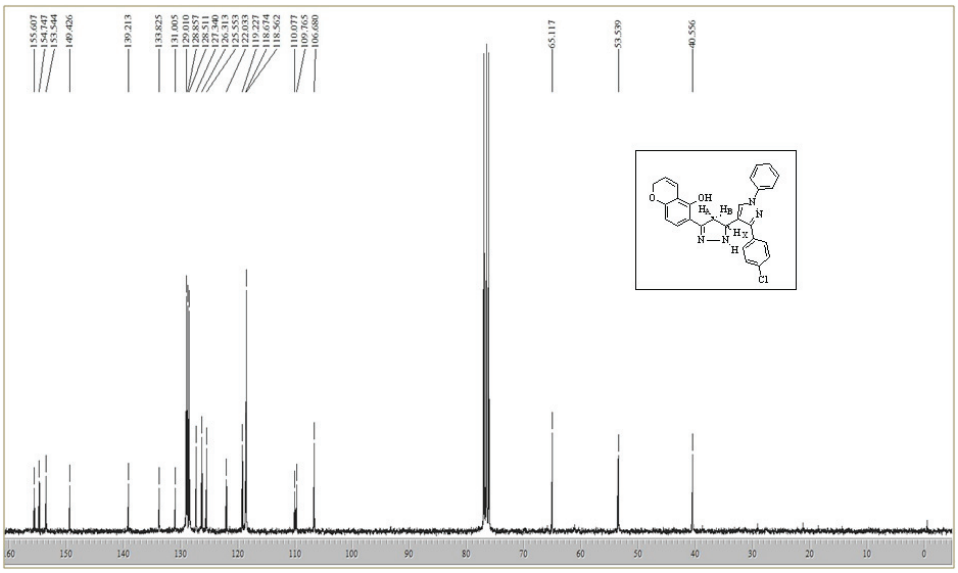
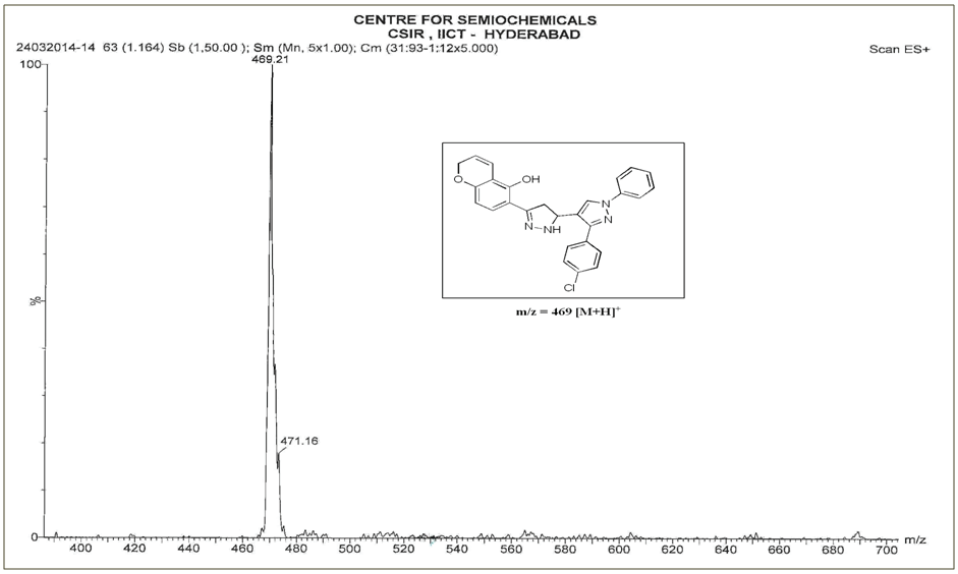
500
520
540
560
580
600
620
640
660
680
700
m/z

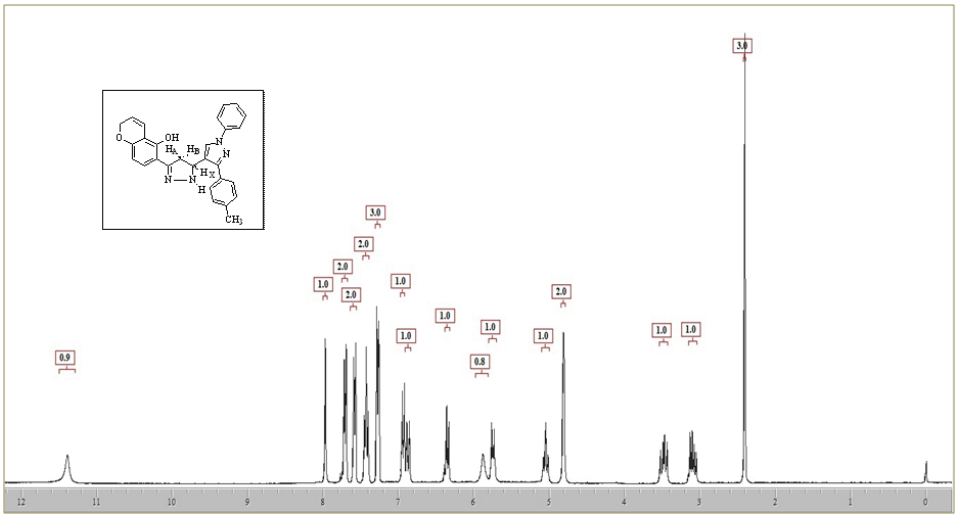
*^{1}H-, ^{13}C-NMR and mass spectra of 6-[3-(4-chlorophenyl)-1-phenyl-4',5'-dihydro[4,5'-bi-1*H*--pyrazol]-3'-yl]-2*H*-chromen-5-ol (**6c**)*

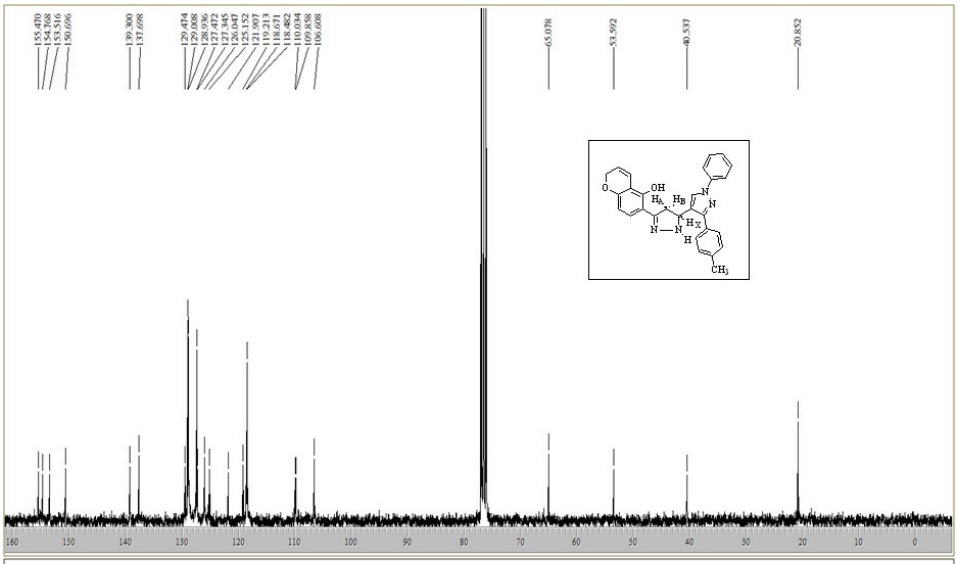


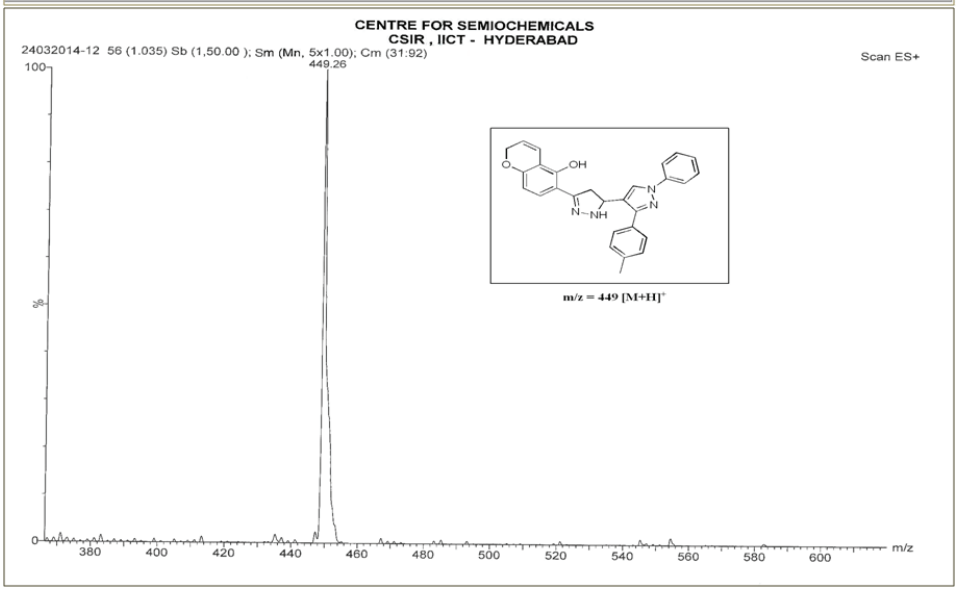




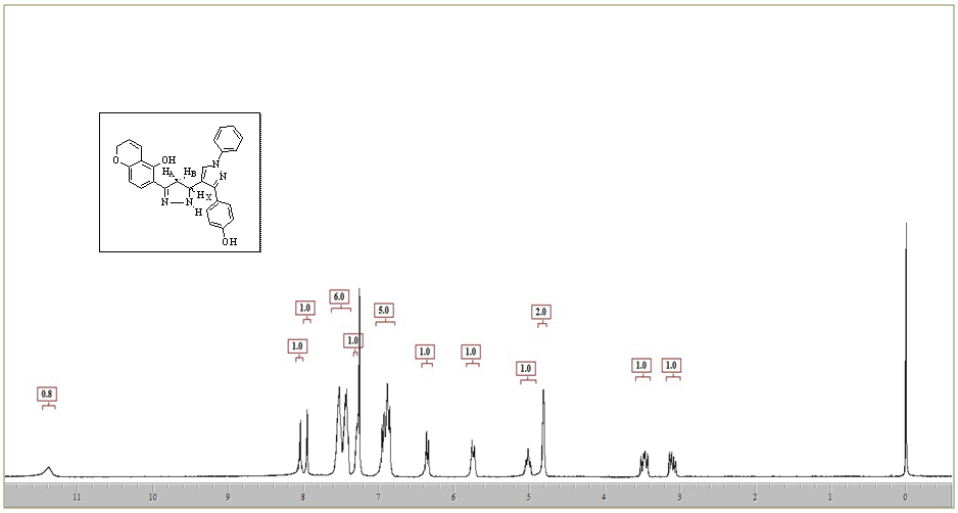
*^{1}H-, ^{13}C-NMR and mass spectra of 6-[1-phenyl-3-*p*-tolyl-4',5'-dihydro[4,5'-bi-1*H*-pyrazol]-3'--yl]-2*H*-chromen-5-ol (**6d**)*

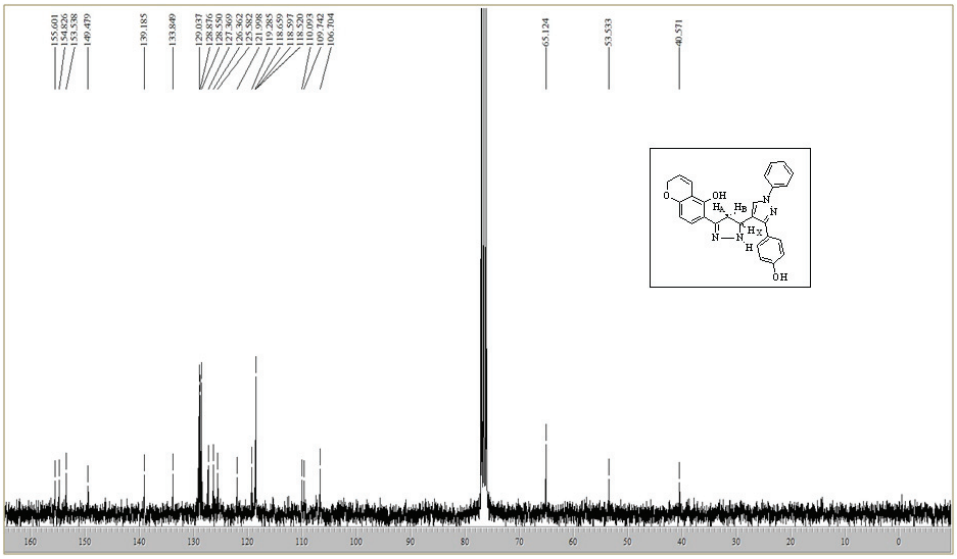



155.470
154.768
153.516
150.096
139.300
137.698
129.474
129.038
128.936
127.472
127.345
126.447
125.152
121.907
119.213
118.671
118.482
110.034
109.858
106.608
65.078
53.592
40.537
20.852
160
150
140
130
120
110
100
90
80
70
60
50
40
30
20
10
0

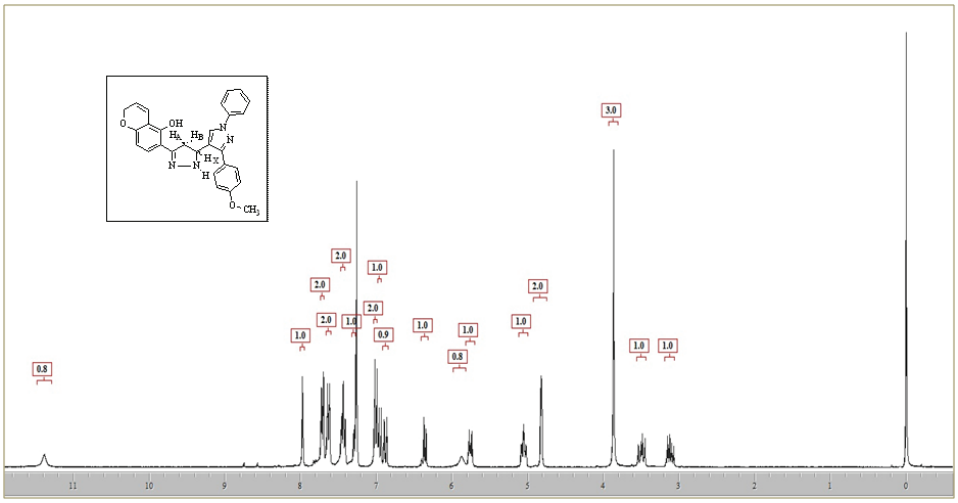

CENTRE FOR SEMIOCHEMICALS
CSIR , IICT - HYDERABAD
24032014-12 56 (1.035) Sb (1,50.00); Sm (Mn, 5x1.00); Cm (31:92)
Scan ES+
449.26
100
%
0
380
400
420
440
460
480
500
520
540
560
580
600
m/z
m/z = 449 [M+H]+

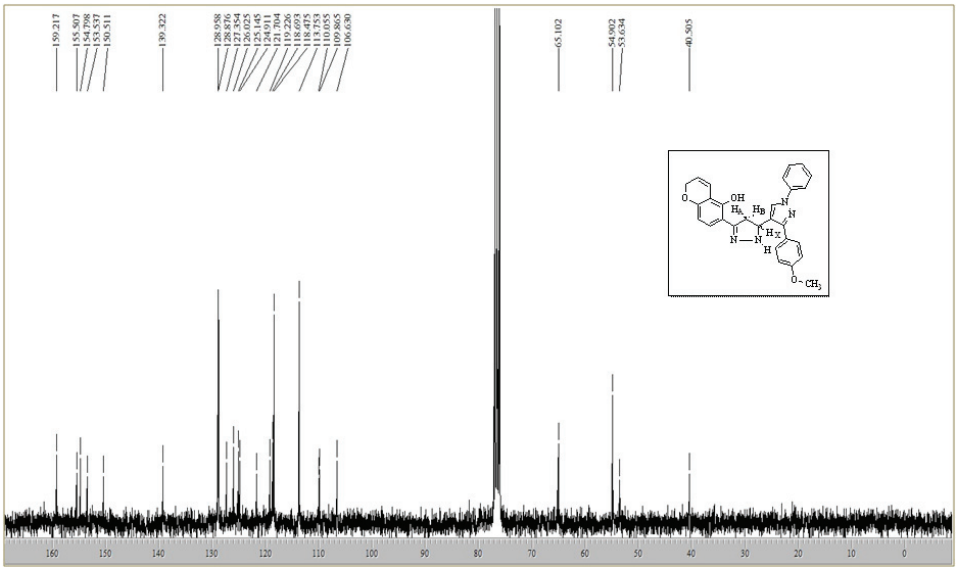
*[1]H- and [13]C-NMR spectra of 6-[3-(4-hydroxyphenyl)-1-phenyl-4',5'-dihydro[4,5'-bi-1*H*--pyrazol]-3'-yl]-2*H*-chromen-5-ol (**6e**)*



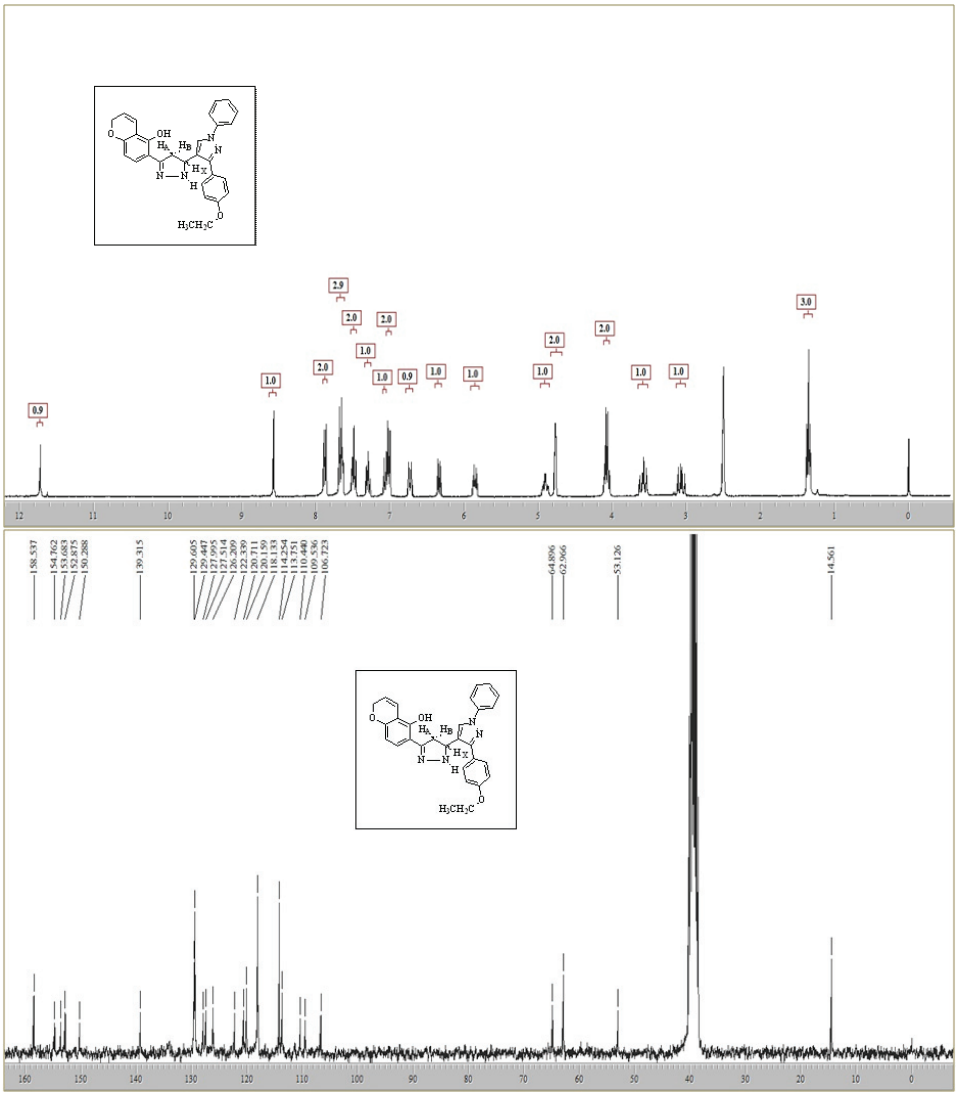


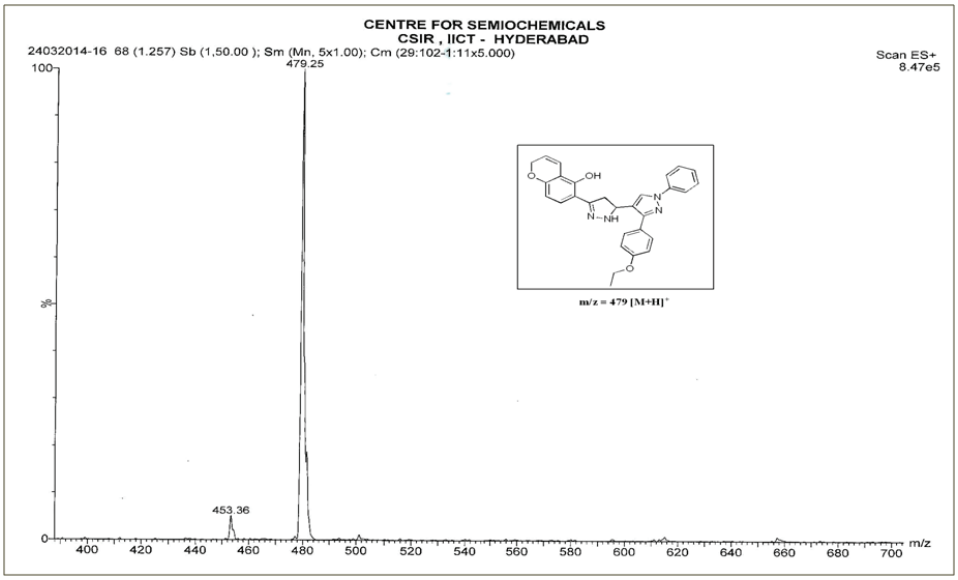
*^{1}H-, ^{13}C-NMR spectra of 6-[3-(4-methoxyphenyl)-1-phenyl-4',5'-dihydro[4,5'-bi-1*H*-pyrazol]-3'-yl]-2*H*-chromen-5-ol (**6f**)*



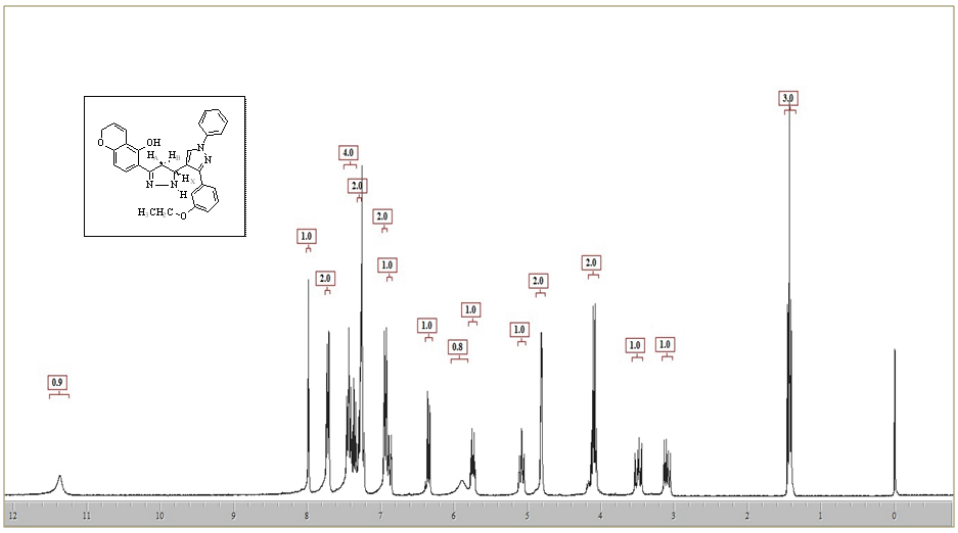


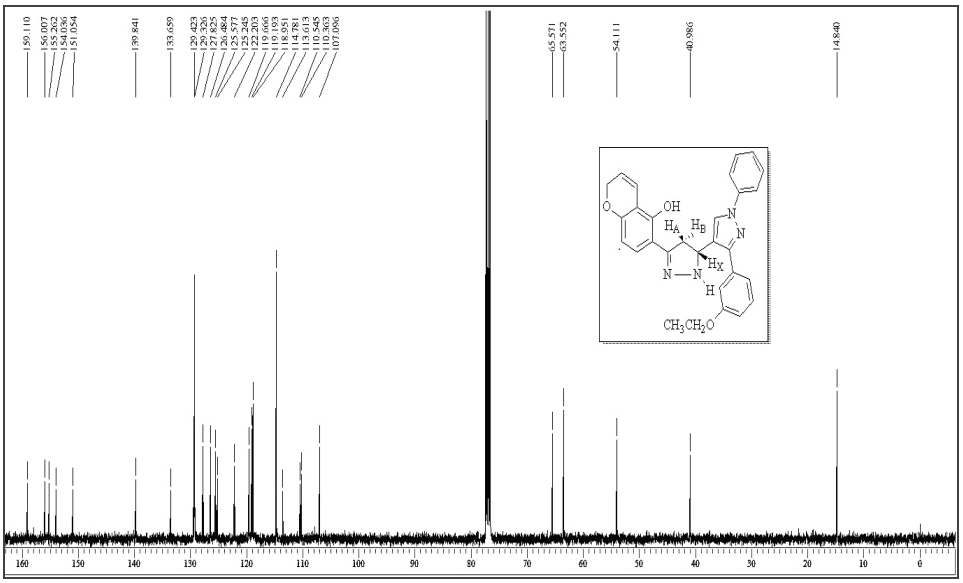
*^{1}H-, ^{13}C-NMR and mass spectra of 6-[3-(4-ethoxyphenyl)-1-phenyl-4',5'-dihydro[4,5'-bi-1*H*--pyrazol]-3'-yl]-2*H*-chromen-5-ol (**6g**)*

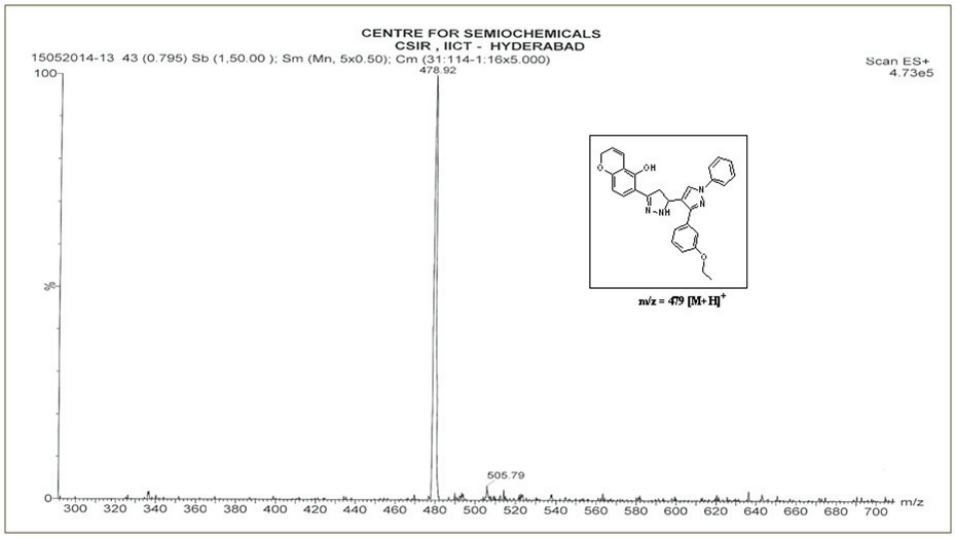




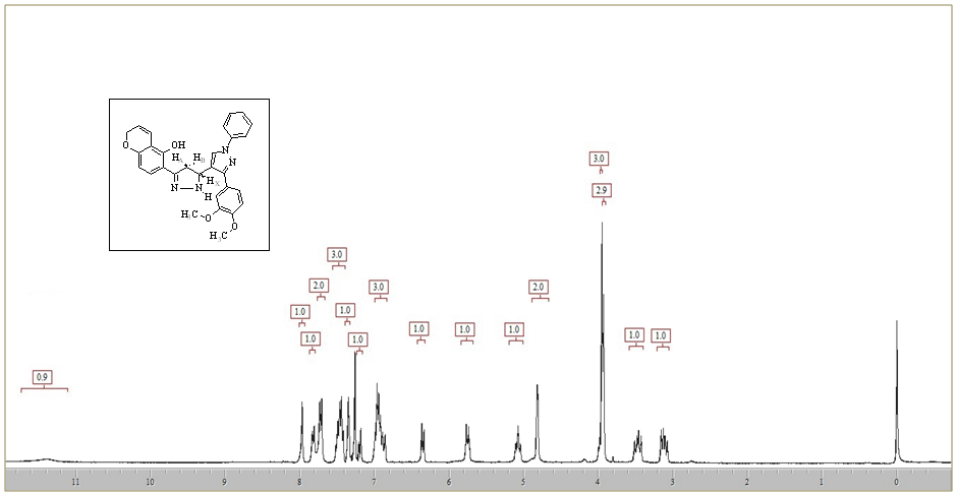
*^{1}H-, ^{13}C-NMR and mass spectra of 6-[3-(3-ethoxyphenyl)-1-phenyl-4',5'-dihydro[4,5'-bi-1*H*--pyrazol]-3'-yl]-2*H*-chromen-5-ol (**6h**)*

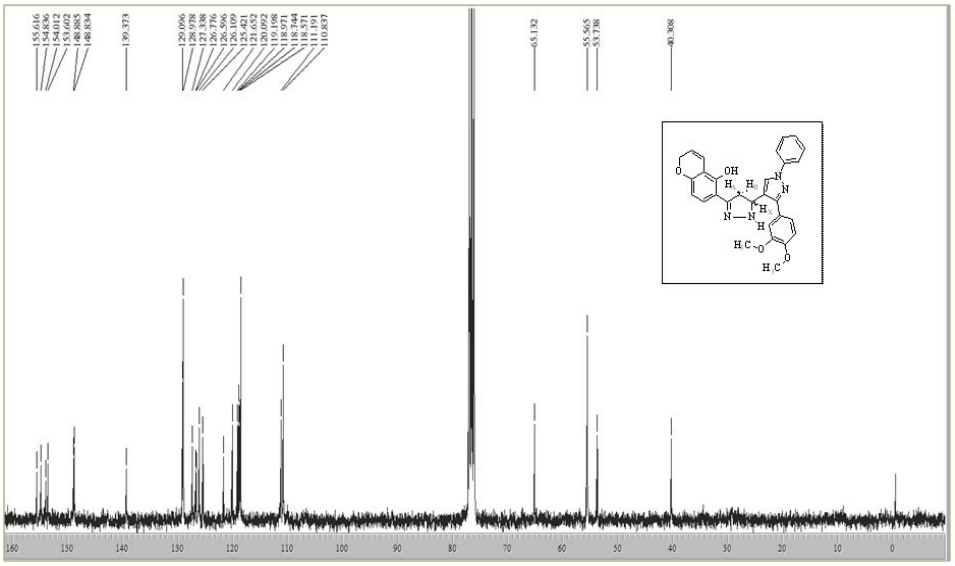


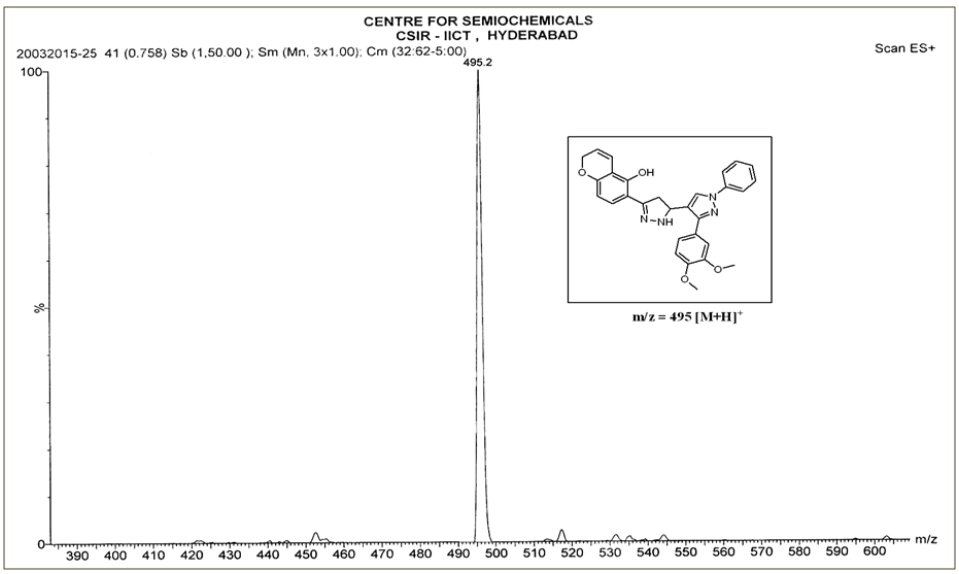

159.110
156.007
155.702
154.056
151.054
139.841
133.659
129.423
129.326
127.825
126.484
125.577
123.245
122.203
119.666
119.358
118.951
114.781
113.618
110.545
110.363
107.096
65.571
63.552
54.111
40.986
14.840
OH
H_A
H_B
H_X
N
N
N
H
CH_3CH_2O
160
150
140
130
120
110
100
90
80
70
60
50
40
30
20
10
0


CENTRE FOR SEMIOCHEMICALS
CSIR , IICT - HYDERABAD
15052014-13 43 (0.795) Sb (1,50.00); Sm (Mn, 5x0.50); Cm (31:114-1:16x5.000)
Scan ES+
4.73e5
100
%
0
478.92
505.79
OH
N
N
NH
O
m/z = 479 [M+H]+
300
320
340
360
380
400
420
440
460
480
500
520
540
560
580
600
620
640
660
680
700
m/z

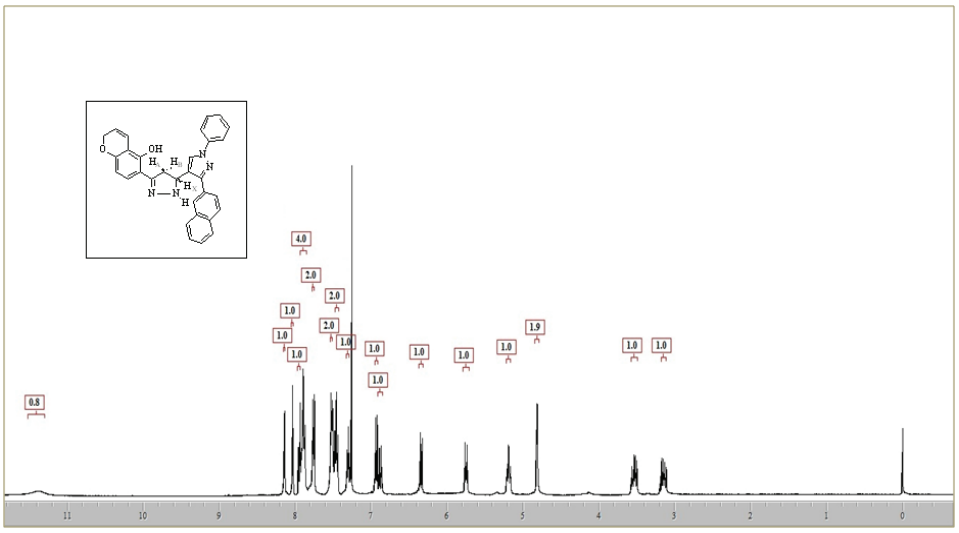
*^{1}H-, ^{13}C-NMR and mass spectra of 6-[3-(3,4-dimethoxyphenyl)-1-phenyl-4',5'-dihydro[4,5'--bi-1*H*-pyrazol]-3'-yl]-2*H*-chromen-5-ol (**6i**)*

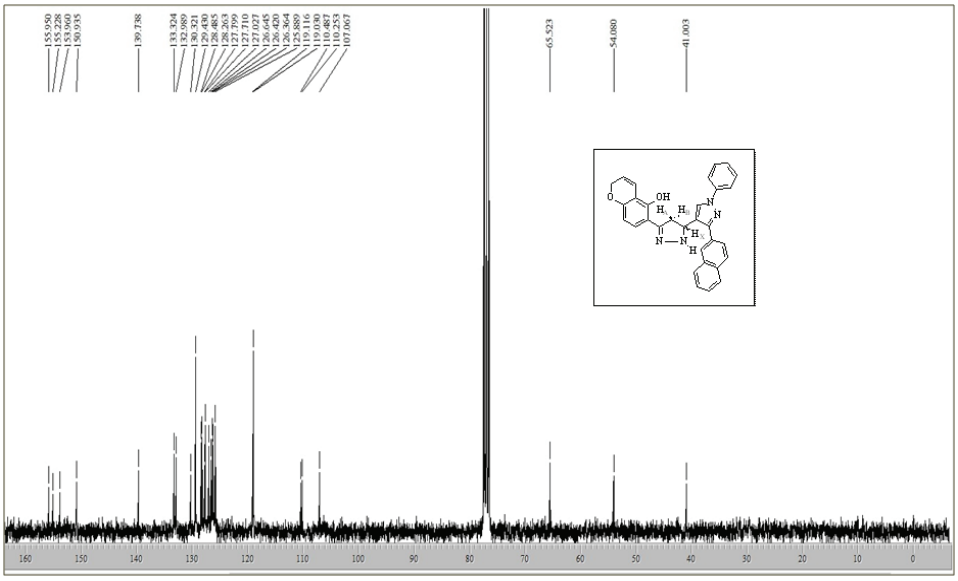






*^{1}H-, ^{13}C-NMR spectra of 6-[3-(naphthalen-1-yl)-1-phenyl-4',5'-dihydro[4,5'-bi-1*H*-pyrazol]-3'-yl]-2*H*-chromen-5-ol (**6j**):*




155.950
155.228
153.060
150.935
139.738
133.324
132.989
130.321
129.430
128.485
128.263
127.799
127.710
127.027
126.645
126.450
126.364
125.889
119.116
111.189
110.487
110.253
107.667
65.523
54.080
41.003
OH
H
H
N
N
N
H
O
160
150
140
130
120
110
100
90
80
70
60
50
40
30
20
10
0