

6-Acetyl-4-(1,2-dihydro-2-oxo-1-pyridyl)-2,2-dimethyl-2H-1-benzopyran (15). ^1H NMR (CDCl_3) δ 1.50 (s, 3H), 1.54 (s, 3H), 2.43 (s, 3H), 6.10 (s, 1H), 6.37 (m, 1H), 6.50 (dd, $J = 10$ Hz and 1 Hz, 1H), 6.97 (d, $J = 8.5$ Hz, 1H), 7.09 (d, $J = 2.1$ Hz, 1H), 7.61 (m, 2H), 7.87 (dd, $J = 8.5$ and 2.1 Hz, 1H) ppm; IR (KBr) 1679. 1666 cm^{-1} ; MS 295 (17, M), 280 (69), 201 (35), 185 (29), 43 (100).

4-(1,2-Dihydro-2-oxo-1-pyridyl)-2,2-dimethyl-6-propionyl-2H-1-benzopyran (16). ^1H NMR (DMSO-d_6) δ 1.00 (t, 3H), 1.50 (s, 3H), 1.54 (s, 3H), 2.87 (q, 2H), 6.09 (s, 1H), 6.37 (m, 1H), 6.50 (dd, $J = 10$ Hz and 1 Hz, 1H), 6.97 (d, $J = 8.4$ Hz, 1H), 7.10 (d, $J = 2$ Hz, 1H), 7.61 (m, 2H), 7.87 (dd, $J = 8.4$ Hz and 2 Hz, 1H) ppm; IR (KBr) 1674, 1662 cm^{-1} ; MS 309 (22, M), 294 (100), 215 (53), 198 (29), 157 (18), 111 (35).

6-Benzoyl-4-(1,2-dihydro-2-oxo-1-pyridyl)-2,2-dimethyl-2H-1-benzopyran (17). ^1H NMR (CDCl_3) δ 1.57 (s, 3H), 1.65 (s, 3H), 5.79 (s, 1H), 6.23 (m, 1H), 6.61 (dd, $J = 9.1$ Hz and 1.1 Hz, 1H), 6.91 (d, $J = 8.5$ Hz, 1H), 7.18 (dd, $J = 7.1$ and 2.1 Hz, 1H), 7.26 (d, $J = 2.3$ Hz, 1H), 7.46 (m, 4H), 7.66 (dd, $J = 8.5$ and 2.1 Hz, 1H), 7.72 (m, 2H) ppm; ^{13}C NMR (DMSO-d_6) δ 193.58, 160.62, 156.54, 141.18, 139.26, 137.05, 133.46, 132.64, 132.14, 129.20, 129.14, 128.97, 128.28, 124.51, 120.10, 117.74, 116.43, 105.86, 78.39, 28.02, 27.44 ppm; IR (KBr) 1666, 1591, 1274 cm^{-1} ; MS 357 (15, M), 342 (60), 263 (30), 105 (100).

4-(1,2-Dihydro-2-oxo-1-pyridyl)-6-(4-methoxybenzoyl)-2,2-dimethyl-2H-1-benzopyran (18). ^1H NMR (DMSO-d_6) δ 1.51 (s, 3H), 1.54 (s, 3H), 3.34 (s, 3H), 6.10 (s, 1H), 6.33 (m, 1H), 6.46 (dd, $J = 9.9$ and 1 Hz, 1H), 7.07 (m, 5H), 7.52 (m, 4H) ppm; ^{13}C NMR (DMSO-d_6) δ 193.53, 160.56, 156.92, 156.04, 141.11, 139.22, 133.29, 132.60, 131.48, 129.53, 129.19, 128.23, 128.14, 123.36, 120.35, 120.06, 117.91, 116.33, 111.45, 105.74, 78.45, 55.28, 27.99, 27.54 ppm; IR (KBr) 1666, 1598, 1275 cm^{-1} ; MS 387 (3, M), 372 (13), 293 (5), 135 (63), 78 (100).

4-(1,2-Dihydro-2-oxo-1-pyridyl)-2,2-dimethyl-6-(2-thenoyl)-2H-1-benzopyran (19). ^1H NMR (DMSO-d_6) δ 1.53 (s, 3H), 1.58 (s, 3H), 6.14 (s, 1H), 6.37 (m, 1H), 6.52 (d, $J = 9.1$ Hz, 1H), 7.05 (m, 3H), 7.26 (m, 1H), 7.60 (m, 3H), 7.63 (dd, $J = 8.3$ and 2.1 Hz, 1H), 8.07 (m, 1H) ppm; ^{13}C NMR (DMSO-d_6) δ 185.12, 160.69, 156.31, 142.57, 141.29, 139.34, 135.09, 134.48, 133.49, 131.54, 129.56, 129.20, 128.49, 123.82, 120.06, 117.66, 116.57, 105.95, 78.34, 28.05, 27.45 ppm; IR (KBr) 1670, 1618, 1539, 1385, 1355, 1273 cm^{-1} ; MS 363 (30, M), 348 (100), 269 (44).

4-(1,2-Dihydro-2-oxo-1-pyridyl)-6-(2-furoyl)-2,2-dimethyl-2H-1-benzopyran (20). ^1H NMR (DMSO-d_6) δ 1.53 (s, 3H), 1.57 (s, 3H), 6.13 (s, 1H), 6.38 (m, 1H), 6.52 (d, $J = 9$ Hz, 1H), 6.75 (m, 1H), 7.03 (d, $J = 8.5$ Hz, 1H), 7.13 (d, $J = 2.1$ Hz, 1H), 7.26 (d, $J = 3.8$ Hz, 1H), 7.60 (m, 2H), 7.85 (dd, $J = 8.5$ and 2.1 Hz, 1H), 8.05 (d, $J = 1.4$ Hz, 1H) ppm; ^{13}C NMR (DMSO-d_6) δ 184.96, 160.74, 156.47, 151.13, 148.02, 141.33, 139.33, 133.44, 131.64, 129.22, 129.11, 123.66, 120.37, 120.07, 117.79, 116.51, 112.48, 105.98, 78.37, 28.01, 27.46 ppm; IR (KBr) 1666, 1632, 1591, 1275 cm^{-1} ; MS 347 (8, M), 332 (30), 253 (19), 95 (100).

4-(1,2-Dihydro-2-oxo-1-pyridyl)-6-(4-hydroxybenzoyl)-2,2-dimethyl-2H-1-benzopyran (21). ^1H NMR (CF_3COOD) δ 1.74 (s, 3H), 1.77 (s, 3H), 6.20 (s, 1H), 7.12 (m, 4H), 7.48 (m, 1H), 7.61 (d, $J = 8.7$ Hz, 1H), 7.81 (m, 3H), 8.10 (m, 1H), 8.40 (m, 1H) ppm; IR (KBr) 1653, 1604, 1565, 1534, 1278 cm^{-1} ; MS 373 (8, M), 358 (29), 279 (18), 121 (100).

4-(1,2-Dihydro-2-oxo-1-pyridyl)-2,2-dimethyl-6-(4-nitrobenzoyl)-2H-1-benzopyran (22). ^1H NMR (DMSO-d_6) δ 1.53 (s, 3H), 1.57 (s, 3H), 6.17 (s, 1H), 6.36 (m, 1H), 6.50 (d, $J = 9.1$ Hz, 1H), 7.03 (d, $J = 8.5$ Hz, 1H), 7.07 (d, $J = 2.0$ Hz, 1H), 7.57 (m, 3H), 7.85 (d, $J = 8.6$ Hz, 2H), 8.33 (d, $J = 8.6$ Hz, 2H) ppm; ^{13}C NMR (DMSO-d_6) δ 191.03, 160.58, 157.48, 146.05, 141.20, 139.22, 134.84, 134.66, 133.03, 132.60, 131.07, 129.63, 128.70, 128.19, 124.51, 122.76, 120.07, 118.27, 116.65, 105.86, 78.79, 28.10, 27.68 ppm; IR (KBr) 1666, 1597, 1276 cm^{-1} ; MS 402 (5, M), 387 (19), 308 (15), 78 (100).

4-(1,2-Dihydro-2-oxo-1-pyridyl)-6-(2-fluorobenzoyl)-2,2-dimethyl-2H-1-benzopyran (23). ^1H NMR (DMSO-d_6) δ 1.53 (s, 3H), 1.56 (s, 3H), 6.14 (s, 1H), 6.35 (m, 1H), 6.48 (d, $J = 8.9$ Hz, 1H), 7.00 (d, $J = 8.5$ Hz, 1H), 7.06 (d, $J = 2.0$ Hz, 1H), 7.32 (m, 2H), 7.44 (dd, $J = 7.1$ and 1.5 Hz, 1H), 7.56 (m, 4H) ppm; IR (KBr) 1666, 1597, 1277 cm^{-1} ; MS 375 (11, M), 360 (48), 281 (34), 123 (100).

4-(1,2-Dihydro-2-oxo-1-pyridyl)-2,2-dimethyl-6-(2-nitrobenzoyl)-2H-1-benzopyran (24). ^1H NMR (DMSO-d_6) δ 1.53 (s, 3H), 1.55 (s, 3H), 6.15 (s, 1H), 6.36 (m, 1H), 6.47 (d, $J = 8.8$ Hz, 1H), 7.00 (d, $J = 8.5$ Hz, 1H), 7.03 (d, $J = 2.1$ Hz, 1H), 7.40 (dd, $J = 8.5$ and 2.1 Hz, 1H), 7.57 (m, 3H), 7.86 (m, 2H), 8.24 (dd, $J = 7.8$ and 1.0 Hz, 1H) ppm; IR (KBr) 1667, 1613, 1288 cm^{-1} ; MS 402 (1, M), 387 (31), 150 (100).

4-(1,2-Dihydro-2-oxo-1-pyridyl)-2,2-dimethyl-6-(2-methylbenzoyl)-2H-1-benzopyran (25). ^1H NMR (DMSO- d_6) δ 1.51 (s, 3H), 1.56 (s, 3H), 2.15 (s, 3H), 6.12 (s, 1H), 6.34 (m, 1H), 6.47 (dd, $J = 9.0$ and 1.1 Hz, 1H), 6.98 (d, $J = 8.4$ Hz, 1H), 7.03 (d, $J = 2.1$ Hz, 1H), 7.38 (m, 7H) ppm; ^{13}C NMR (DMSO- d_6) δ 195.57, 160.60, 157.10, 141.13, 139.20, 138.14, 135.17, 133.29, 132.84, 130.57, 129.81, 129.39, 129.32, 127.33, 125.21, 123.82, 120.08, 118.05, 116.51, 105.83, 78.56, 28.05, 27.54, 19.71 ppm; IR (KBr) 1670, 1640, 1595, 1247 cm^{-1} ; MS 371 (30, M), 356 (100), 277 (40), 119 (26).

4-(1,2-Dihydro-2-oxo-1-pyridyl)-2,2-dimethyl-6-(2-trifluoromethylbenzoyl)-2H-1-benzopyran (26). ^1H NMR (DMSO- d_6) δ 1.46 (s, 3H), 1.48 (s, 3H), 6.14 (s, 1H), 6.34 (m, 1H), 6.46 (d, $J = 9.1$ Hz, 1H), 6.97 (d, $J = 8.4$ Hz, 1H), 7.03 (d, $J = 2.1$ Hz, 1H), 7.37 (dd, $J = 8.5$ and 2.1 Hz, 1H), 7.57 (m, 4H), 7.87 (m, 2H) ppm; IR (KBr) 1668, 1640, 1595, 1245 cm^{-1} ; MS 425 (20, M), 410 (100), 331 (45), 173 (31).

6-(2,6-Difluorobenzoyl)-4-(1,2-dihydro-2-oxo-1-pyridyl)-2,2-dimethyl-2H-1-benzopyran (27). ^1H NMR (DMSO- d_6) δ 1.52 (s, 3H), 1.55 (s, 3H), 6.15 (s, 1H), 6.34 (t, $J = 7$ Hz, 1H), 6.46 (d, $J = 9$ Hz, 1H), 7.0 (m, 2H), 7.24 (m, 2H), 7.6 (m, 4H), ppm; IR (KBr) 1667, 1597, 1234 cm^{-1} ; MS 393 (3, M), 378 (15), 299 (13), 141 (100).

(1,2-Dihydro-2-oxo-1-pyridyl)-2,2-dimethyl-6-phenylcarbamoyloxy-2H-1-benzopyran (38). ^1H NMR (CDCl_3) δ 1.51 (s, 3H), 1.54 (s, 3H), 5.72 (s, 1H), 6.23 (dt, $J = 6.9$ Hz and 1.5 Hz, 1H), 6.45 (d, $J = 2.5$ Hz, 1H), 6.64 (d, $J = 9.0$ Hz, 1H), 6.80 (d, $J = 8.7$ Hz, 1H), 6.88 (dd, $J = 8.7$ Hz and 2.5 Hz, 1H), 7.03 (m, 1H), 7.15 (dd, $J = 6.9$ and 2.0 Hz, 1H), 7.26 (m, 2H), 7.42 (m, 3H), 7.82 (s, NH).ppm; IR (KBr) 2932, 1734, 1665, 1587, 1533, 1192, 1152, 757 cm^{-1} ; MS 269 (10), 254 (28), 175 (8), 119 (85), 91 (92), 39 (100).

(1,2-Dihydro-2-oxo-1-pyridyl)-6-(2-fluorophenylcarbamoyloxy)-2,2-dimethyl-2H-1-benzopyran (39). ^1H NMR (CDCl_3) δ 1.54 (s, 3H), 1.60 (s, 3H), 5.75 (s, 1H), 6.22 (dt, $J = 6.9$ Hz and 1.5 Hz, 1H), 6.51 (d, $J = 2.7$ Hz, 1H), 6.63 (d, $J = 9.0$ Hz, 1H), 6.87 (d, $J = 8.7$ Hz, 1H), 7.10 (m, 6H), 7.42 (m, 1H), 8.05 (s, NH).ppm; IR (KBr) 2979, 1736, 1666, 1534, 1483, 1187 cm^{-1} ; MS 269 (6), 254 (20), 175 (6), 137 (100), 109 (63), 82 (41).

(1,2-Dihydro-2-oxo-1-pyridyl)-6-(4-fluorophenylcarbamoyloxy)-2,2-dimethyl-2H-1-benzopyran (40). ^1H NMR (CDCl_3) δ 1.52 (s, 3H), 1.54 (s, 3H), 5.73 (s, 1H), 6.27 (dt, $J = 6.8$ Hz and 1.5 Hz, 1H), 6.45 (d, $J = 2.4$ Hz, 1H), 6.64 (d, $J = 8.9$ Hz, 1H), 6.80 (d, $J = 8.7$ Hz, 1H), 6.87 (dd, $J = 8.7$ Hz and 2.4 Hz, 1H), 6.97 (m, 2H), 7.18 (dd, $J = 6.9$ Hz and 1.9 Hz, 1H), 7.41 (m, 3H), 7.78 (s, NH).ppm; IR (KBr) 3255, 1734, 1665, 1601, 1585, 1209, 757 cm^{-1} ; MS 406 (1, M), 391 (1), 312 (1), 269 (30), 254 (100), 175 (39), 137 (69), 109 (52).

(1,2-Dihydro-2-oxo-1-pyridyl)-2,2-dimethyl-6-(2-trifluoromethylphenylcarbamoyloxy)-2H-1-benzopyran (41). ^1H NMR (CDCl_3) δ 1.5 Hz, 1H), 6.53 (d, $J = 2.7$ Hz, 1H), 6.63 (d, $J = 8.9$ Hz, 1H), 6.87 (d, $J = 8.7$ Hz, 1H), 7.03 (dd, $J = 8.7$ Hz and 2.7 Hz, 1H), 7.21 (m, 3H), 7.42 (m, 1H), 7.56 (m, 2H), 8.11 (d, $J = 8.3$ Hz, NH) ppm; IR (KBr) 3157, 2973, 1744, 1663, 1589, 1192 cm^{-1} ; MS 269 (26), 254 (100), 187 (7), 175 (44), 168 (3), 131 (16), 96 (41).

(1,2-Dihydro-2-oxo-1-pyridyl)-2,2-dimethyl-6-(4-trifluoromethylphenylcarbamoyloxy)-2H-1-benzopyran (42). ^1H NMR (CDCl_3) δ 1.51 (s, 6H), 5.74 (s, 1H), 6.28 (dt, $J = 6.8$ Hz and 1.5 Hz, 1H), 6.44 (t, $J = 1.5$ Hz, 1H), 6.66 (d, $J = 8.9$ Hz, 1H), 6.79 (m, 2H), 7.19 (m, 1H), 7.50 (m, 5H), 8.52 (s, NH) ppm; IR (KBr) 3250, 1750, 1734, 1662, 1534, 1485, 1185 cm^{-1} ; MS 269 (3), 254 (37), 187 (79), 175 (15), 168 (50), 139 (19), 90 (16), 39 (100).