

Direct N- and C-vinylation with trimethoxyvinylsilane

Pavel Arsenyan,* Alla Petrenko, Edgars Paegle and Sergey Belyakov

The structures of all the products were confirmed by ^1H (400 MHz, DMSO- d_6) and ^{13}C (100.6 MHz, DMSO- d_6) NMR data.

1,3-Divinylthymine 11, mp 77–78 °C. ^1H NMR, δ : 1.94 (3H, s), 4.87 (1H, dd, J 2.0 Hz, J 8.8 Hz), 5.00 (1H, dd, J 2.0 Hz, J 16.0 Hz), 5.29 (1H, d, J 9.6 Hz), 5.90 (1H, dd, J 16.4 Hz), 6.82 (1H, dd, J 9.6 Hz, J 16.4 Hz), 7.20 (1H, dd, J 8.8 Hz, J 16.0 Hz). ^{13}C NMR, δ : 13.3, 100.9, 111.3, 112.5, 126.9, 130.5, 132.7, 149.1, 162.4. Found (%): C, 60.61; H, 5.71; N, 15.64. Calc. for $\text{C}_9\text{H}_{10}\text{N}_2\text{O}_2$ (%): C, 60.66; H, 5.66; N, 15.72.

3-Vinylftorafur 12, mp 95–96 °C. ^1H NMR, δ : 1.87–1.95 (1H, m), 2.01–2.12 (2H, m), 2.37–2.47 (1H, m), 3.97–4.03 (1H, m), 4.20–4.25 (1H, m), 5.37 (1H, d, J 9.6 Hz), 5.97–6.00 (1H, m), 6.00 (1H, d, J 16.0 Hz), 6.84 (1H, dd, J 9.6 Hz, J 16.0 Hz), 7.40 (1H, d, $J_{\text{H-F}}$ 5.6 Hz); ^{13}C NMR, δ : 23.7, 33.0, 70.4, 88.3, 112.8, 121.2, 121.5, 126.3, 138.4, 140.7, 148.1, 156.4. Found (%): C, 53.04; H, 4.92; N, 12.33. Calc. for $\text{C}_{10}\text{H}_{11}\text{FN}_2\text{O}_3$ (%): C, 53.10; H, 4.90; N, 12.38.

3-Vinyluridine 13, mp 156–158 °C. ^1H NMR, δ : δ 3.54–3.60 (1H, m), 3.64–3.69 (1H, m), 3.85–3.89 (1H, m), 3.96–3.99 (1H, m), 4.03–4.06 (1H, m), 5.09 (1H, d, J 5.6 Hz), 5.14–5.16 (1H, m), 5.26 (1H, d, J 10.0 Hz), 5.43 (1H, d, J 5.6 Hz), 5.79 (1H, d, J 12.8 Hz), 5.80 (1H, s), 5.85 (1H, d, J 16.4 Hz), 6.82 (1H, dd, J 10.0 Hz, J 16.4 Hz), 8.00 (1H, d, J 8.4 Hz). ^{13}C NMR, δ : 60.3, 69.4, 73.8, 84.7, 89.0, 100.7, 110.9, 127.1, 139.1, 149.8, 161.2.

3-Vinylthymidine 14, mp 57–59 °C. ^1H NMR, δ : 1.83 (3H, s), 2.11–2.13 (2H, m), 3.56–3.62 (2H, m), 3.76–3.81 (1H, m), 4.24 (1H, br t, J 4.0 Hz), 5.08 (1H, br t, J 5.2 Hz), 5.23 (1H, d, J 9.6 Hz), 5.24–5.26 (1H, m), 5.85 (1H, d, J 16.4 Hz), 6.16–6.21 (1H, m), 6.82 (1H, dd, J 9.6 Hz, J 16.4 Hz), 7.81 (1H, d, J 1.2 Hz). ^{13}C NMR, δ : 12.9, 61.0, 70.0, 84.9, 87.4, 108.3, 110.9, 127.4, 134.7, 149.5, 162.0. Found (%): C, 53.64; H, 5.92; N, 10.31. Calc. for $\text{C}_{12}\text{H}_{16}\text{N}_2\text{O}_5$ (%): C, 53.73; H, 6.01; N, 10.44.