

Synthesis of donor--acceptor systems based on the derivatives of chlorophyll *a* and [60]fullerene

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Experimental

The electronic spectra were recorded on a Jasco 7800 spectrophotometer in a range of 400–800 nm in CHCl₃. The ¹H NMR spectra were measured on a Bruker AMX 300 spectrometer in CDCl₃. The fluorescence spectra were measured on a Jasco FP-777 spectrofluorometer in CHCl₃. The mass spectra were measured on an Ultraflex MALDI TOF/TOF instrument using a matrix of 2,5-dihydroxybenzoic acid.

3-Hydroxyiminomethyl-3-devinylpurpurin 18 methyl ester 4: Electronic spectrum, λ_{\max} , nm (relative intensities): 412, 482, 512, 551, 655, 715 (1:0.03:0.04:0.20:0.05:0.40). ¹H NMR (δ , ppm): 9.41 s (1H, s, 5-H), 9.32 (1H, s, 10-H), 9.29 (1H, s, CH=N), 8.67 (1H, s, N-OH), 8.52 (1H, s, 20-H), 5.16 (1H, m, 17-H), 4.44 (1H, q, *J* 7 Hz, 18-H), 3.78 (3H, s, 12-Me), 3.69 (3H, s, CO₂Me), 3.37 (2H, q, *J* 7 Hz, 8¹-CH₂), 3.36 (3H, s, 2-Me), 2.89 (1H, m, 17²-CH₂), 2.78 (3H, s, 7-Me), 2.64 (1H, m, 17²-CH₂), 2.62 (1H, m, 17¹-CH₂), 2.19 (1H, m, 17¹-CH₂), 1.71 (3H, d, *J* 7 Hz, 18-Me), 1.49 (3H, t, *J* 7 Hz, 8²-Me), -0.36 (1H, s, NH), -0.72 (1H, s, NH). MS, *m/z*: 596.4 [*M*⁺+H]. Fluorescence spectrum, λ_{fl} , nm: 729.

3-Formyl-3-devinyl-13,15-N-methoxycycloimide of chlorin p₆ methyl ester 5: Electronic spectrum, λ_{\max} , nm (relative intensities): 424, 522, 562, 674, 745 (1:0.07:0.28:0.12:0.60). ¹H NMR (δ , ppm): 11.40 (1H, s, 3-CHO), 10.20 (1H, s, 5-H), 9.69 (1H, s, 10-H), 8.76 (1H, s, 20-H), 5.24 (1H, m, 17-H), 4.68 (3H, s, N-OMe), 4.45 (1H, q, *J* 7 Hz, 18-H), 3.83 (3H, s, 12-Me), 3.68 (3H, s, CO₂Me), 3.66 (2H, q, *J* 7 Hz, 8¹-CH₂), 3.59 (3H, s, 2-Me), 3.23 (3H, s, 7-Me), 2.76 (1H, m, 17¹-CH₂), 2.49 (2H, m, 17²-CH₂), 2.00 (1H, m, 17¹-CH₂), 1.77 (3H, d, *J* 7 Hz, 18-Me), 1.69 (3H, t, *J* 7 Hz, 8²-Me), 0.86 (2H, s, NH). MS, *m/z*: 580.4 [(*M*⁺-OMe)+H], 610.4 [*M*⁺+H].