

Supplementary Material

Analysing the carotenoid composition of Melilot (*Melilotus officinalis* (L.) Pall.) extracts and the effects of isolated (all-*E*)-lutein-5,6-epoxide on primary sensory neurons and macrophages

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Figure S1. Mass spectrum of (all-*E*)-lutein

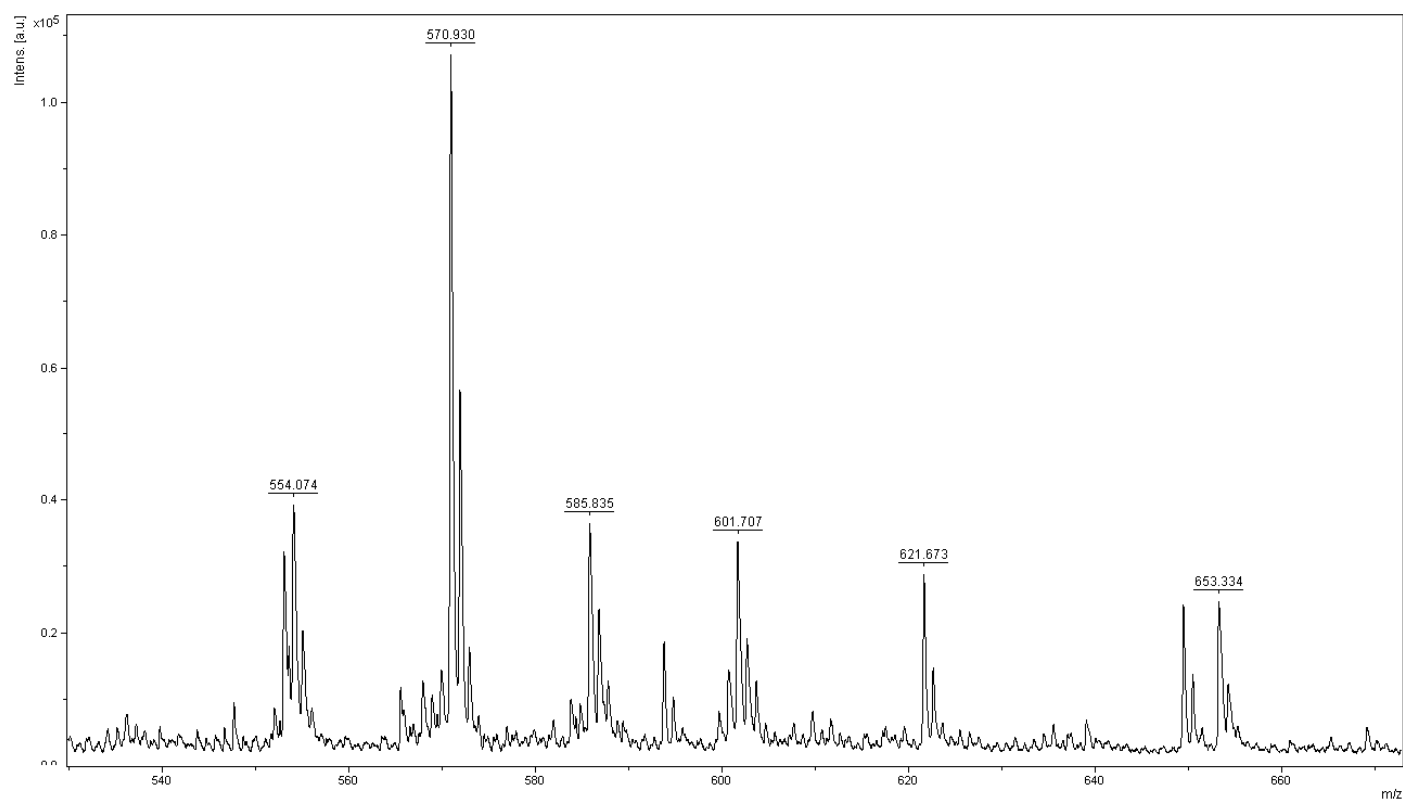


Figure S2. Mass spectrum of (all-*E*)-lutein-5,6-epoxide

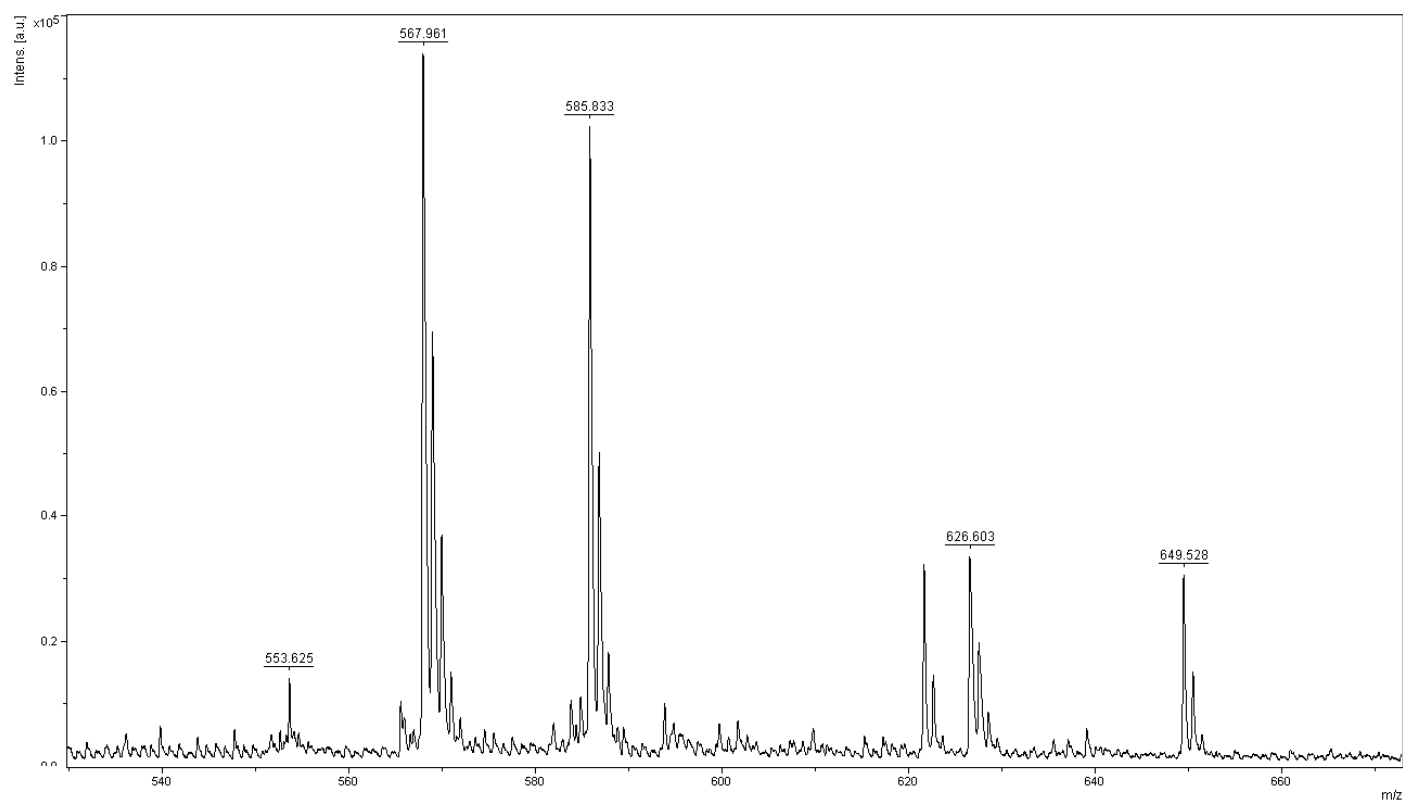


Figure S3. Mass spectrum of (all-*E*)-violaxanthin

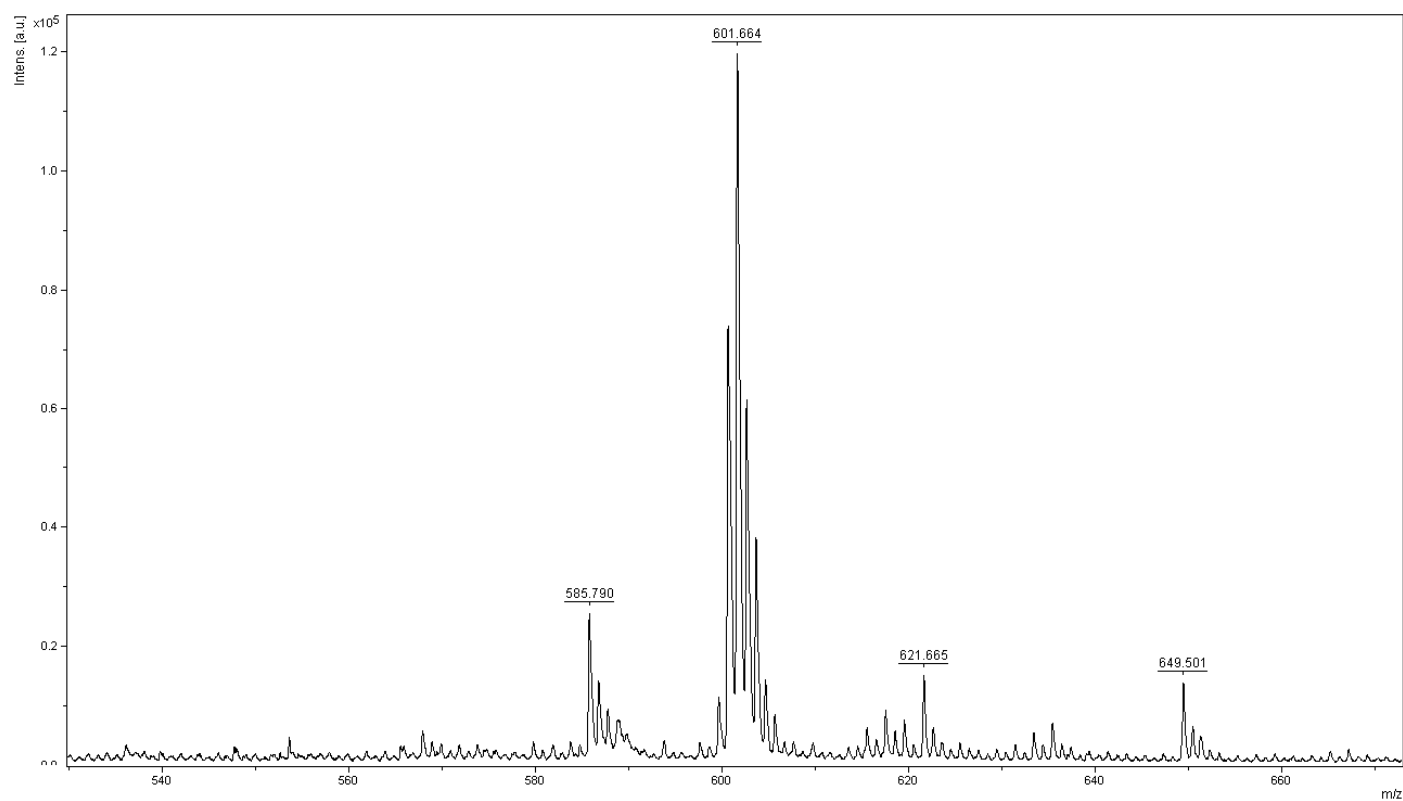
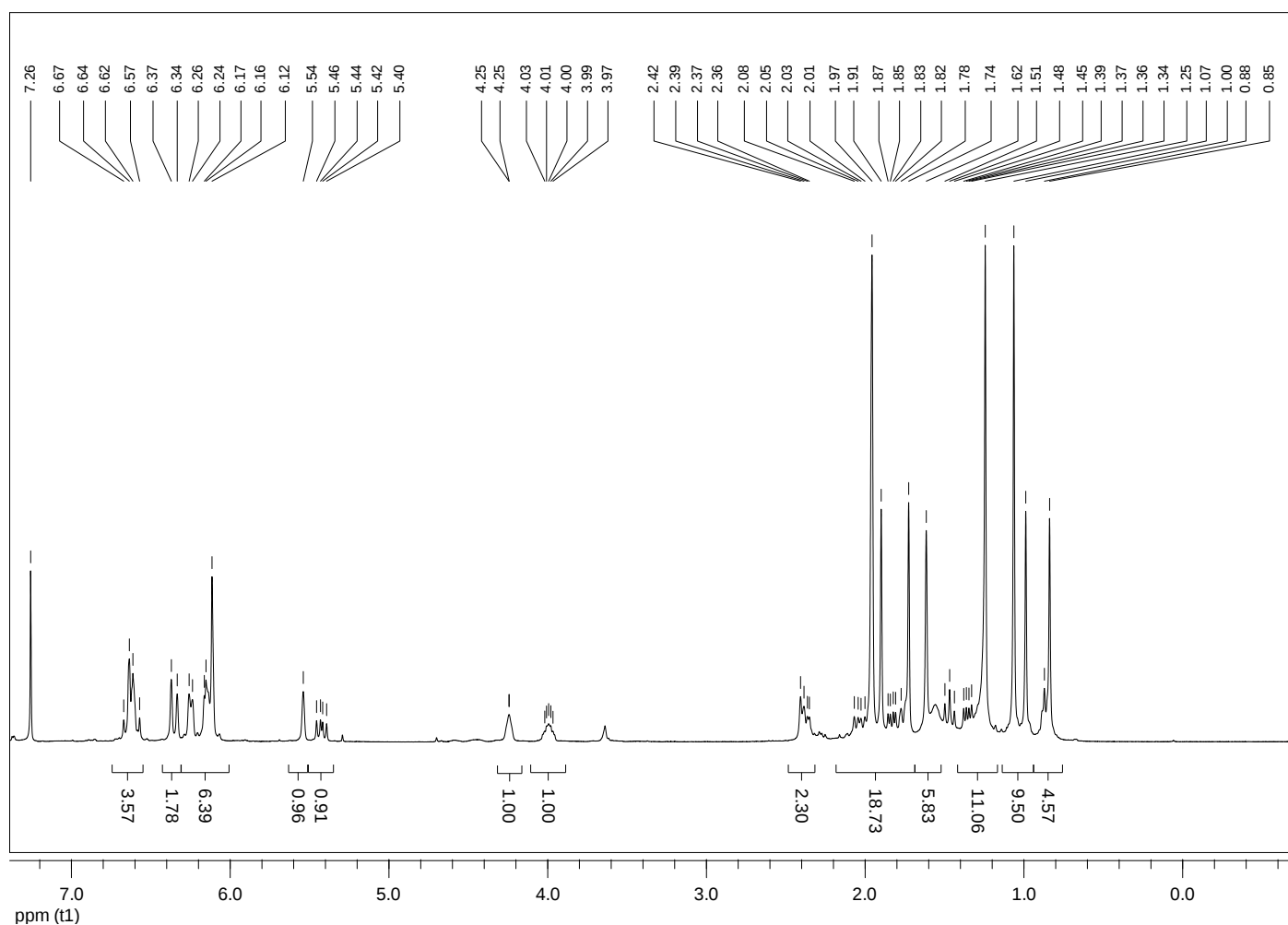
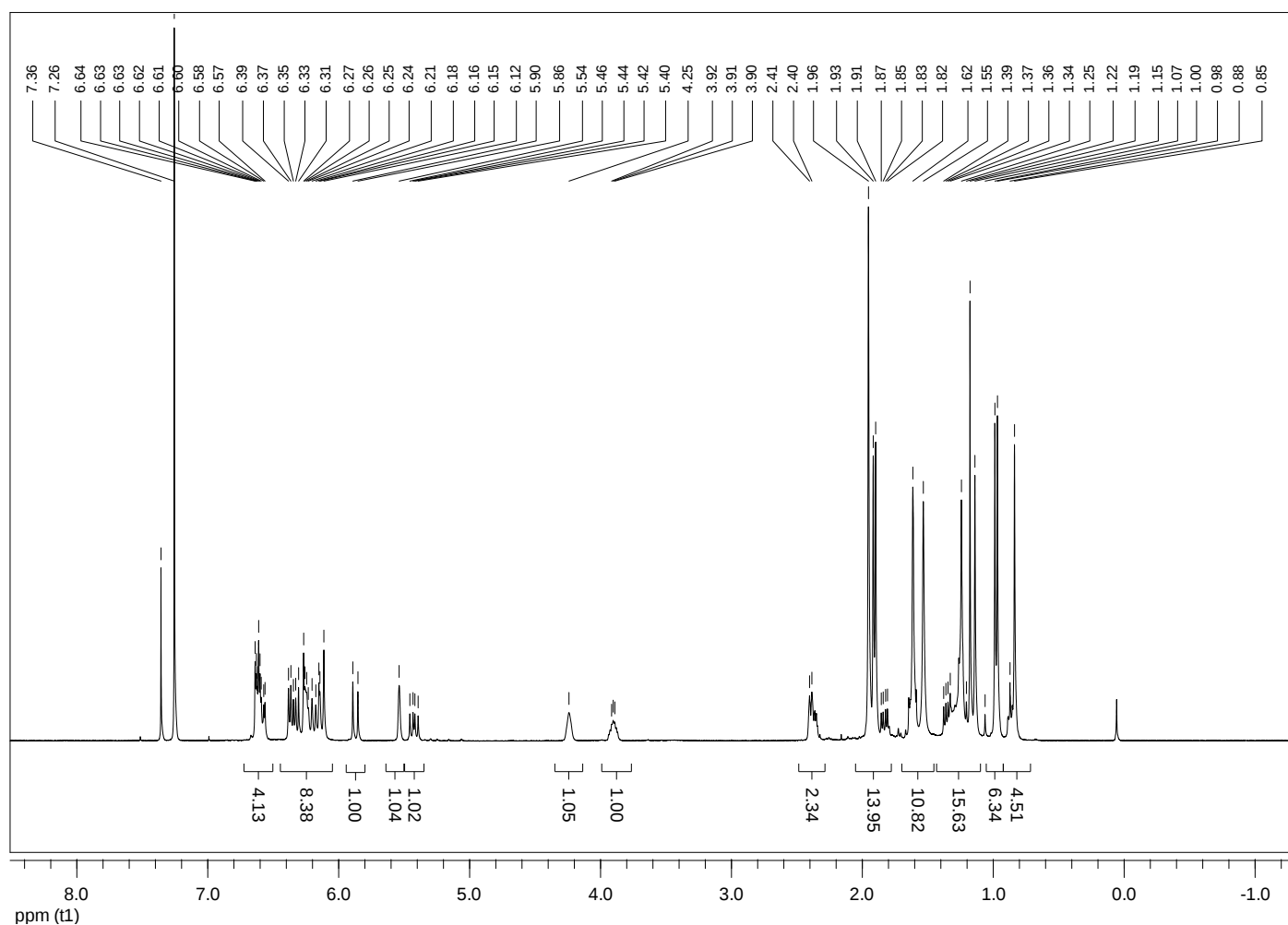


Figure S4. ^1H -NMR spectrum of the isolated (all-*E*)-lutein



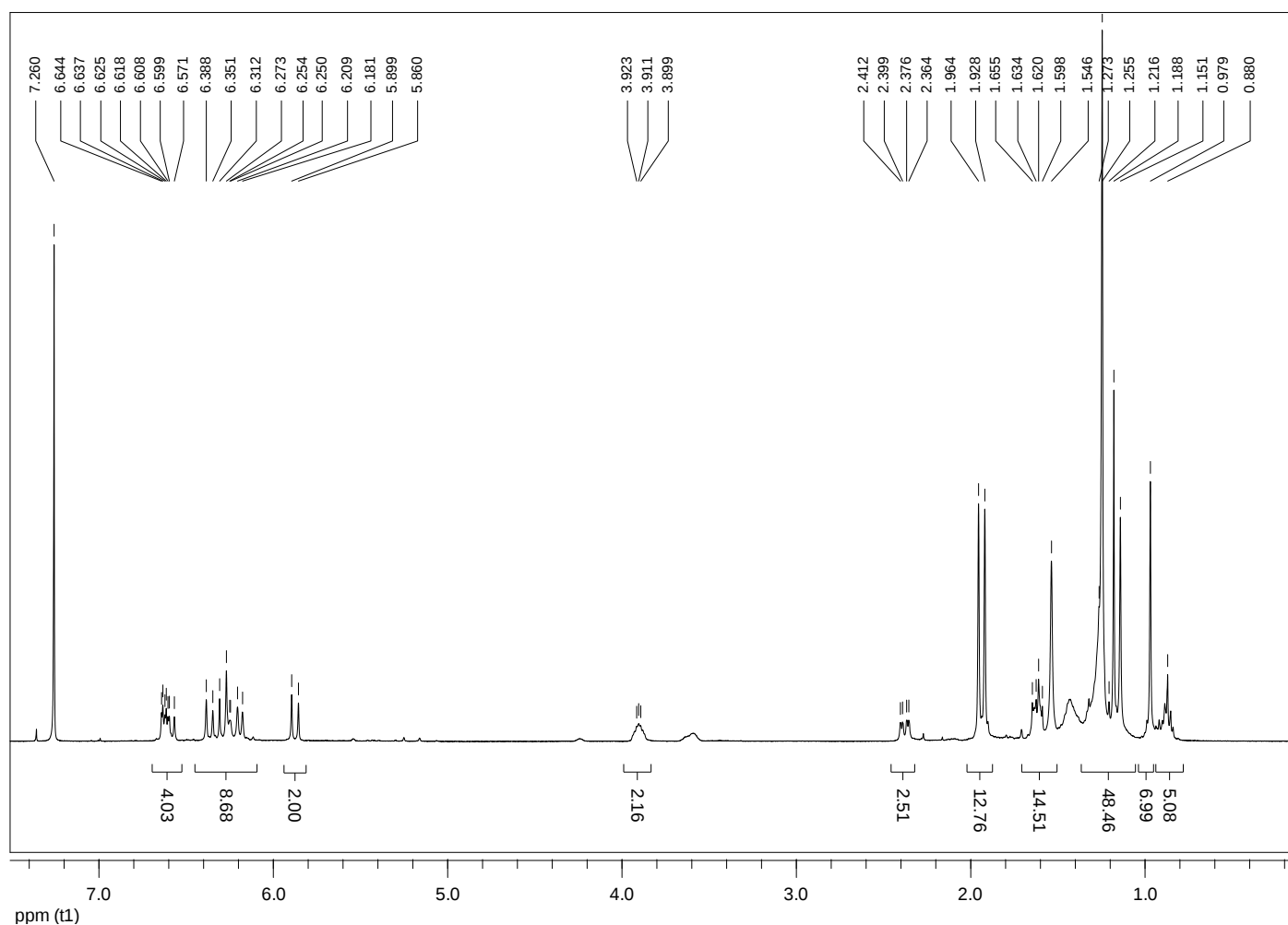
^1H -NMR (500 MHz, CDCl_3) δ 6.69 - 6.56 (4H, br m, H-11, H-15, H-11', H-15'), 6.35 (2H, d, J = 14.8 Hz, H-12, H-12'), 6.28 - 6.22 (2H, br m, H-14, H-14'), 6.18 - 6.13 (3H, br m, H-14, H-8', H-14'), 6.12 (2H, m, H-7, H-8), 5.54 (1H, s, H-4'), 5.43 (1H, dd, J = 15.3, 9.8 Hz, H-7'), 4.25 (1H, s, H-3'), 4.05 - 3.95 (1H, br m, H-3), 2.44 - 2.34 (2H, br m, H-4, H-6'), 2.04 (1H, dd, J = 17.0, 9.6 Hz, H-4), 1.97 (12H, s, H-19, H-20, H-19', H-20'), 1.84 (1H, dd, J = 13.1, 5.8 Hz, H-2), 1.83 - 1.76 (1H, br m, H-2), 1.74 (3H, s, H-18), 1.62 (3H, s, H-18'), 1.48 (1H, t, J = 11.9 Hz, H-2), 1.36 (1H, dd, J = 13.1, 6.8 Hz, H-2'), 1.07 (6H, s, H-16, H-17), 0.85 (6H, s, H-16', H-17').

Figure S5. ^1H -NMR spectrum of the isolated (all-*E*)-lutein 5,6-epoxide



^1H -NMR (500 MHz, CDCl_3) δ 6.66 – 6.55 (4H, br m, H-11, H-15, H-11', H-15'), 6.37 (1H, d, J = 14.9 Hz, H-12), 6.35 (1H, d, J = 14.9 Hz, H-12'), 6.29 – 6.22 (3H, br m, H-8, H-14, H-14'), 6.20 (2H, d, J = 15.5 Hz, H-10, H-10'), 6.17 – 6.09 (1H, br m, H-8'), 5.88 (1H, d, J = 15.5 Hz, H-7), 5.55 (1H, s, H-4'), 5.43 (1H, dd, J = 15.4, 9.8 Hz, H-7'), 4.25 (1H, s, H-3'), 3.96 – 3.86 (1H, br m, H-3), 2.43 – 2.34 (2H, br m, H-4, H-6'), 1.96 (6H, s, H-20, H-20'), 1.84 (1H, dd, J = 13.2, 5.9 Hz, H-2'), 1.83 (3H, s, H-19), 1.82 (3H, s, H-19'), 1.66 – 1.59 (5H, br m, H-2, H-4, H-18'), 1.36 (1H, dd, J = 13.2, 6.8 Hz, H-2'), 1.31 – 1.21 (1H, br m, H-2), 1.19 (3H, s, H-18), 1.15 (3H, s, H-17), 1.00 (3H, s, H-17'), 0.98 (3H, s, H-16), 0.85 (3H, s, H-16').

Figure S6. ^1H -NMR spectrum of the isolated (all-*E*)-violaxanthin



^1H -NMR (500 MHz, CDCl_3) δ 6.65 – 6.62 (2H, m, H-15, H-15'), 6.61 (2H, dd, J = 14.5, 10.7 Hz, H-11, H-11'), 6.37 (2H, d, J = 14.9 Hz, H-12, H-12'), 6.29 (2H, d, J = 15.5 Hz, H-8, H-8'), 6.25 (2H, m, H-14, H-14'), 6.20 (2H, d, J = 15.5 Hz, H-10, H-10'), 5.88 (2H, d, J = 15.5 Hz, H-7, H-7'), 3.95 – 3.86 (2H, br m, H-3, H-3'), 2.39 (2H, ddd, J = 14.5, 4.9, 1.3 Hz, H-4, H-4'), 1.96 (6H, s, H-20, H-20'), 1.93 (6H, s, H-19, H-19'), 1.63 – 1.57 (6H, br m, H-2, H-4, H-2', H-4'), 1.19 (6H, s, H-18, H-18'), 1.15 (6H, s, H-17, H-17'), 0.98 (6H, s, H-16, H-16').