

Supplementary materials

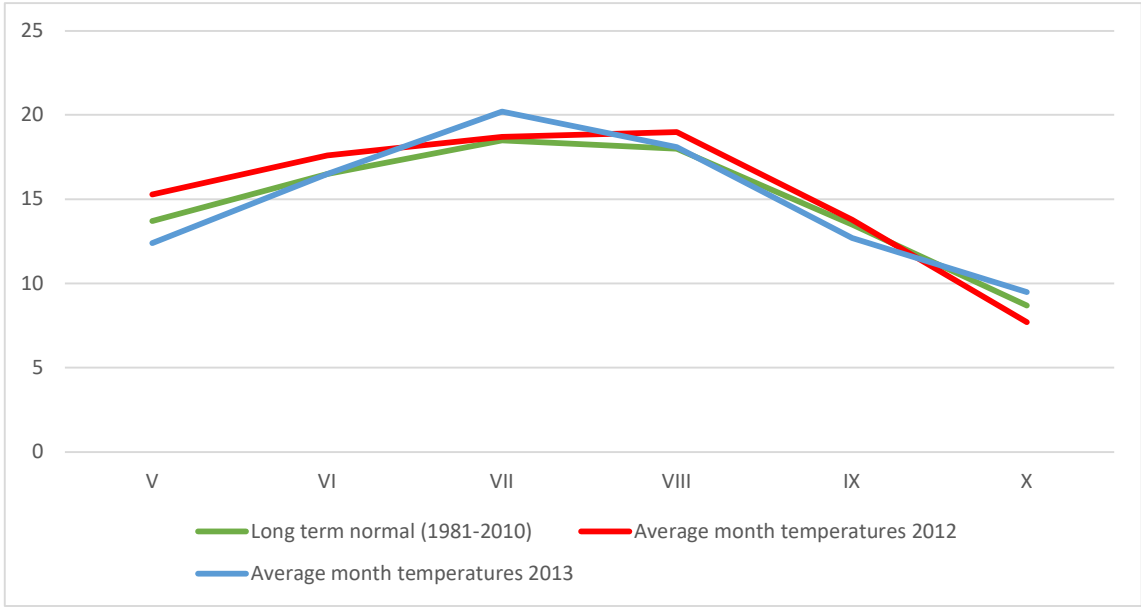


Figure S1. Average temperature profile (°C) at the trial station Troja during the vegetation. period 2012 (**red**) and 2013 (**blue**) compared to the 30-year average (**green**).

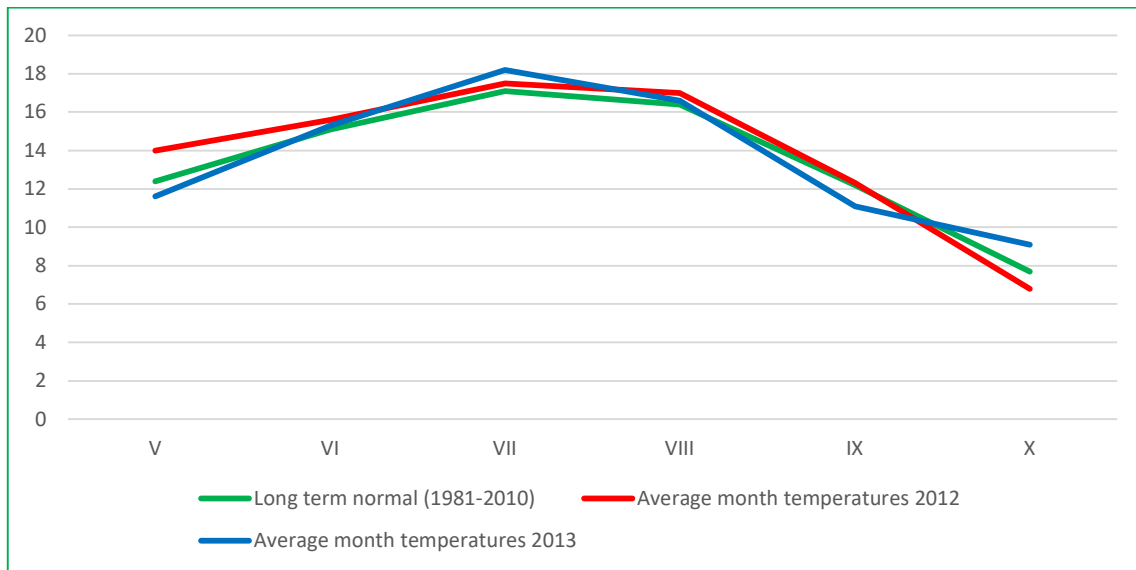


Figure S2. Average temperature profile (°C) at the trial station Svijanský Újezd during the. vegetation period 2012 (**red**) and 2013 (**blue**) compared to the 30-year average (**green**).

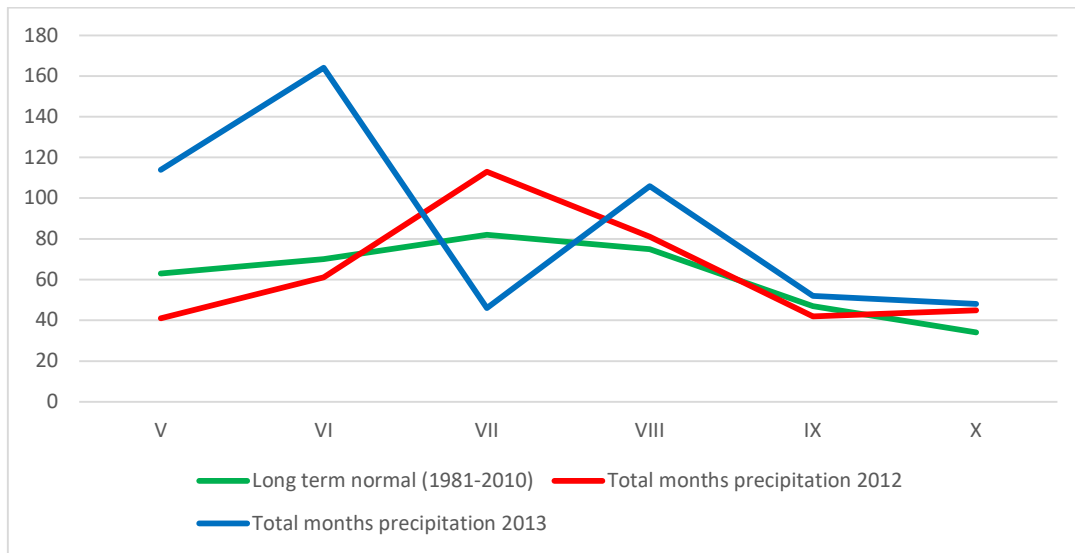


Figure S3. Average precipitation profile (mm) at the trial station Troja during the vegetation period 2012 (**red**) and 2013 (**blue**) compared to the 30-year average (**green**).

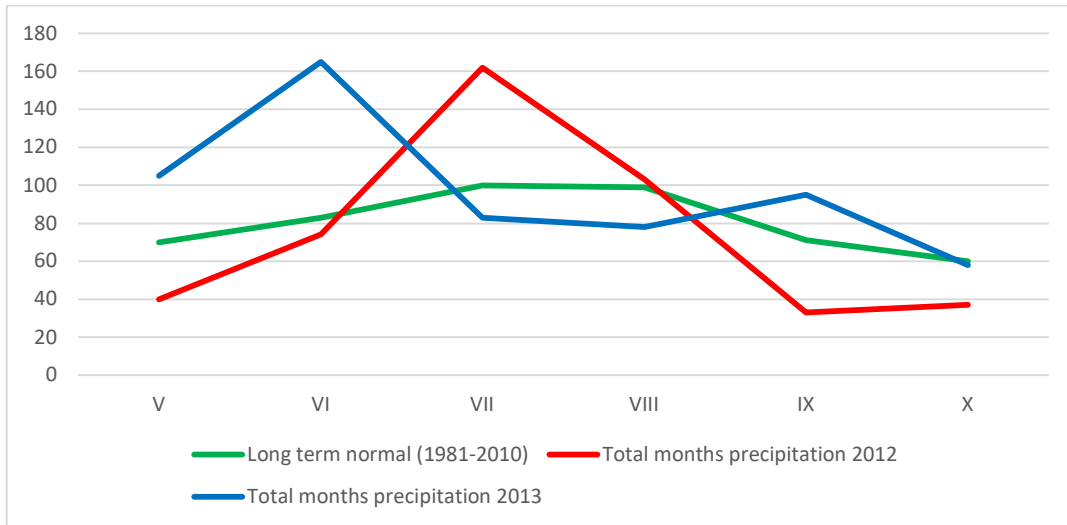


Figure S4. Average precipitation profile (mm) at the trial station Svijanský Újezd during the vegetation period 2012 (**red**) and 2013 (**blue**) compared to the 30-year average (**green**).

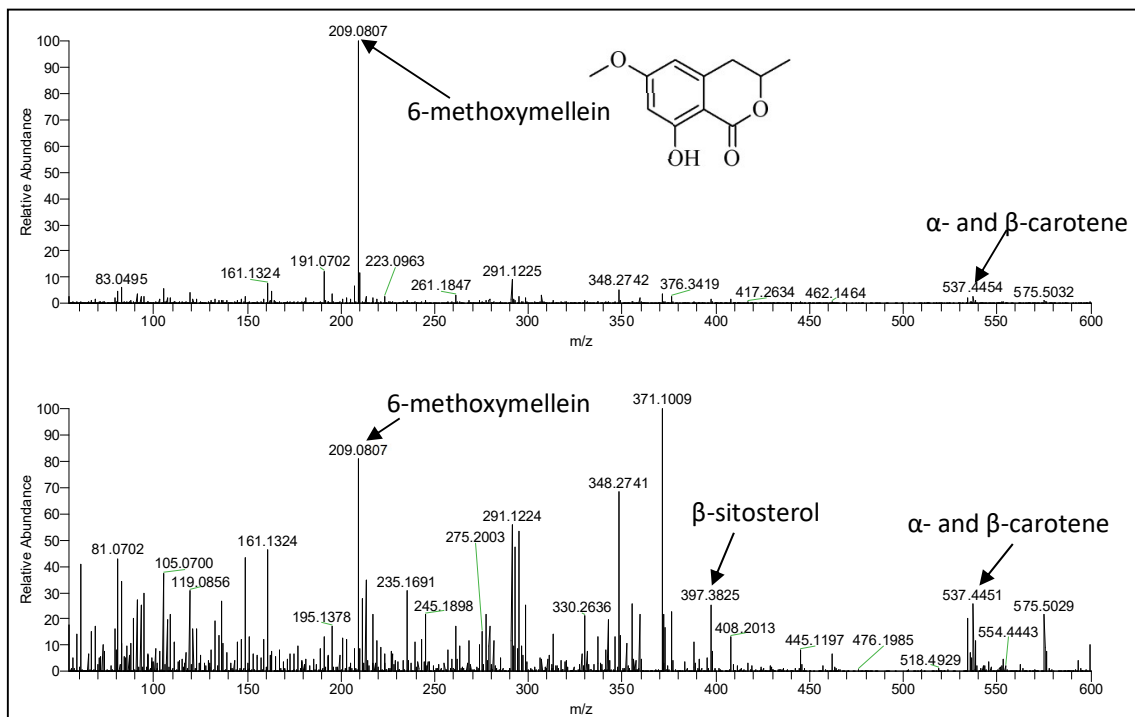


Figure S5. DART-Orbitrap-MS spectra of ethylacetate extracts of Cortina carrot cv. measured in positive ionization mode. Carrot grown in: organic farming system (top), conventional farming system (bottom).

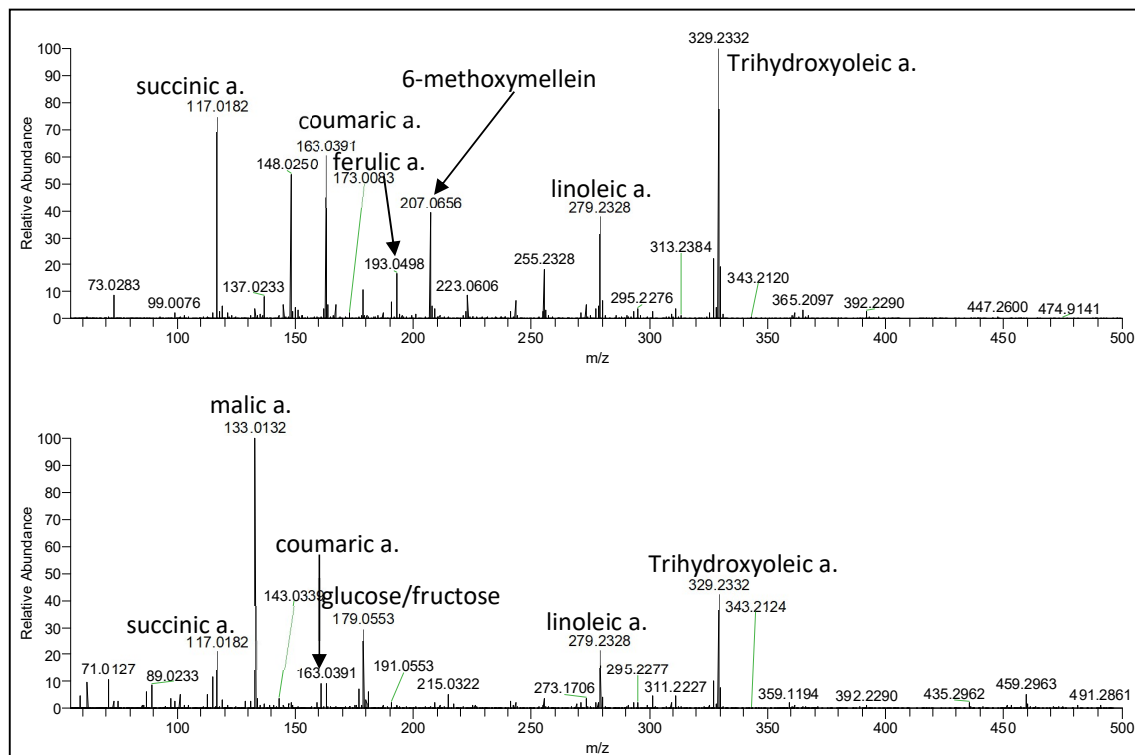


Figure S6. DART-Orbitrap-MS spectra of ethylacetate extracts of Cortina carrot cv. measured in negative ionization mode. Carrot grown in: organic farming system (top), conventional farming system (bottom).

Table 1. Summary of tentatively identified compounds found in carrot extracts.

Identified compound	Molecular formula*	Positive ion mode		Negative ion mode	
		Measured ion	Exact mass	Measured ion	Exact mass
Fumaric acid	C ₄ H ₄ O ₄	-	-	[M-H] ⁻	115.0025
Succinic acid	C ₄ H ₆ O ₄	-	-	[M-H] ⁻	117.0182
Malic acid	C ₄ H ₆ O ₅	-	-	[M-H] ⁻	133.0137
Hydroxybenzoic acid	C ₇ H ₆ O ₃	-	-	[M-H] ⁻	137.0233
Coumaric acid	C ₇ H ₆ O ₂	-	-	[M-H] ⁻	163.0391
Caffeic acid	C ₉ H ₈ O ₄	-	-	[M-H] ⁻	179.0340
Citric acid	C ₆ H ₈ O ₇	-	-	[M-H] ⁻	191.0192
6-Hydroxymellein/ ferulic acid	C ₁₀ H ₁₀ O ₄	[M+H] ⁺	195.0651	[M-H] ⁻	193.0498
Eugenin	C ₁₁ H ₁₀ O ₄	[M+H] ⁺	207.0651	-	-
6-Methoxymellein	C ₁₁ H ₁₂ O ₄	[M+H] ⁺ [M-H ₂ O+H] ⁺	209.0807 191.0701	[M-H] ⁻	207.0656
Falcarindiol	C ₁₇ H ₂₄ O ₂	[M+H] ⁺	261.1847	-	-
Linoleic acid	C ₁₈ H ₃₀ O ₂	-	-	[M-H] ⁻	279.2328
Trihydroxy-octadecenoic acid	C ₁₈ H ₃₄ O ₅	[M+NH ₄] ⁺	348.2742	[M-H] ⁻	329.2332
α/β-Carotene	C ₄₀ H ₅₆	[M+H] ⁺	537.4460	-	-

* Molecular formula was calculated based on the measured exact mass (with the mass error <3 ppm) and isotopic profile.

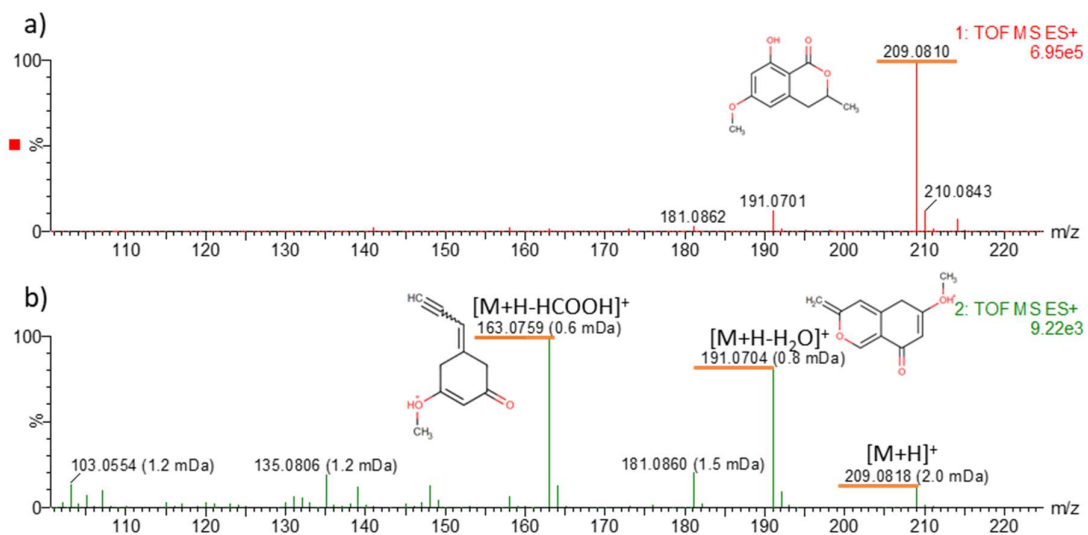


Figure S7. (a) LC-HRMS spectrum of 6-methoxymellein ($m/z = 209.081$) and (b) fragmentation spectrum of the parent ion 209.081 (methanolic extract of carrot, positive mode of ionization).