Supplementary Table S1. Cuticular wax constituents (% over total wax) identified in fruit cuticles isolated during ripening of irrigated (**A**) and non-irrigated (**B**) 'Arbequina' olives.

A. Irrigated

Sampling date	Sept 18	Oct 2	Oct 16	Oct 30	Nov 13	Nov 28	Dec 11	Jan 15
Fatty acids								
C20:0	1.25 ± 0.20	2.11 ± 0.27	2.75 ± 0.43	2.04 ± 0.30	2.09 ± 0.10	1.43 ± 0.06	1.40 ± 0.32	1.75 ± 0.25
C20:1 (c13)	1.83 ± 0.22	1.83 ± 0.23	2.30 ± 0.33	1.87 ± 0.24	2.25 ± 0.06	1.48 ± 0.06	1.50 ± 0.32	1.80 ± 0.24
C22:0	0.57 ± 0.08	0.91 ± 0.09	1.05 ± 0.18	1.19 ± 0.21	1.20 ± 0.06	1.12 ± 0.08	1.38 ± 0.35	1.19 ± 0.18
C24:0	0.73 ± 0.02	1.19 ± 0.11	1.10 ± 0.17	1.70 ± 0.44	1.47 ± 0.09	1.25 ± 0.17	1.93 ± 0.50	1.85 ± 0.34
C26:0	2.03 ± 0.13	2.49 ± 0.37	2.14 ± 0.36	3.31 ± 0.44	2.90 ± 0.10	2.29 ± 0.29	2.90 ± 0.65	2.88 ± 0.39
C28:0	1.03 ± 0.06	1.03 ± 0.18	0.91 ± 0.09	1.37 ± 0.08	1.33 ± 0.04	1.13 ± 0.18	1.13 ± 0.22	1.15 ± 0.09
***n*-Alkanes**								
C25	0.65 ± 0.06	0.64 ± 0.07	0.68 ± 0.17	0.53 ± 0.11	0.38 ± 0.01	0.43 ± 0.06	0.52 ± 0.05	0.26 ± 0.02
C27	0.37 ± 0.02	0.31 ± 0.05	0.37 ± 0.07	0.59 ± 0.11	0.66 ± 0.02	0.62 ± 0.05	0.61 ± 0.07	0.36 ± 0.04
C34	nd	nd	0.74 ± 0.15	nd	nd	nd	0.26 ± 0.13	0.23 ± 0.04
Fatty alcohols								
C22	0.36 ± 0.06	0.29 ± 0.04	0.35 ± 0.07	0.36 ± 0.05	0.37 ± 0.03	0.85 ± 0.06	0.65 ± 0.14	0.63 ± 0.11
C24	0.56 ± 0.07	0.79 ± 0.10	1.15 ± 0.23	1.64 ± 0.29	1.67 ± 0.06	2.58 ± 0.29	2.06 ± 0.42	1.38 ± 0.22
C26	1.78 ± 0.29	1.69 ± 0.28	1.68 ± 0.29	2.96 ± 0.56	2.39 ± 0.02	2.81 ± 0.51	2.24 ± 0.40	1.82 ± 0.26
C28	1.00 ± 0.13	0.82 ± 0.19	0.77 ± 0.13	1.17 ± 0.11	0.98 ± 0.02	1.13 ± 0.22	0.82 ± 0.18	0.69 ± 0.08
Sterols								
Squalene	0.26 ± 0.03	0.14 ± 0.01	0.15 ± 0.02	0.13 ± 0.01	0.18 ± 0.04	0.15 ± 0.02	0.11 ± 0.01	0.08 ± 0.02
β-sitosterol	0.63 ± 0.15	0.63 ± 0.16	1.00 ± 0.33	0.71 ± 0.09	0.58 ± 0.15	0.48 ± 0.13	0.54 ± 0.22	0.68 ± 0.02
Triterpenes								
Oleanolic acid	21.01 ± 1.73	20.04 ± 0.74	20.17 ± 2.94	19.58 ± 0.66	18.06 ± 1.30	20.78 ± 1.47	23.25 ± 3.83	21.14 ± 0.50
Ursolic acid	nd	0.70 ± 0.30	nd	nd	nd	nd	nd	0.38 ± 0.07
Maslinic acid	50.66 ± 4.63	48.26 ± 3.10	45.01 ± 8.76	46.21 ± 3.81	48.54 ± 0.42	49.63 ± 5.00	44.15 ± 8.15	48.91 ± 3.54
Unidentified	15.28 ± 1.51	16.13 ± 1.06	17.70 ± 3.11	14.62 ± 1.03	14.96 ± 0.74	11.83 ± 2.22	14.14 ± 1.62	12.82 ± 0.93

Values represent means of three replicates ± standard deviation (nd, non-detectable).

Supplementary Table S1 – Continued

B. Rain-fed

Sampling date	Sept 18	Oct 2	Oct 16	Oct 30	Nov 13	Nov 28	Dec 11	Jan 15
Fatty acids								
C20:0	1.35 ± 0.14	1.73 ± 0.14	1.54 ± 0.28	1.84 ± 0.22	2.31 ± 0.18	1.06 ± 0.13	1.19 ± 0.16	1.32 ± 0.13
C20:1 (c13)	1.27 ± 0.10	1.39 ± 0.12	1.23 ± 0.21	1.54 ± 0.17	2.20 ± 0.28	1.10 ± 0.15	1.73 ± 0.82	1.64 ± 0.12
C22:0	0.69 ± 0.05	1.03 ± 0.07	0.92 ± 0.15	1.36 ± 0.18	1.23 ± 0.18	0.93 ± 0.11	1.05 ± 0.17	1.17 ± 0.12
C24:0	0.95 ± 0.08	1.59 ± 0.10	1.39 ± 0.26	1.93 ± 0.20	1.36 ± 0.24	1.19 ± 0.27	1.37 ± 0.27	1.88 ± 0.09
C26:0	2.02 ± 0.15	3.20 ± 0.37	2.25 ± 0.31	2.21 ± 0.16	1.93 ± 0.38	1.59 ± 0.36	1.84 ± 0.29	2.81 ± 0.08
C28:0	0.82 ± 0.02	1.14 ± 0.16	0.78 ± 0.11	0.78 ± 0.06	0.76 ± 0.12	0.70 ± 0.13	0.77 ± 0.12	1.15 ± 0.07
***n*-Alkanes**								
C25	0.90 ± 0.33	0.66 ± 0.04	0.40 ± 0.06	0.41 ± 0.05	0.47 ± 0.13	0.32 ± 0.03	0.43 ± 0.10	0.35 ± 0.13
C27	0.46 ± 0.36	0.41 ± 0.04	nd	nd	nd	nd	nd	nd
C34	nd	1.32 ± 0.12	nd	nd	nd	nd	0.25 ± 0.02	nd
Fatty alcohols								
C22	0.34 ± 0.03	0.43 ± 0.06	0.23 ± 0.01	0.48 ± 0.14	0.38 ± 0.11	0.61 ± 0.14	0.37 ± 0.22	0.84 ± 0.11
C24	0.56 ± 0.01	0.89 ± 0.10	0.90 ± 0.18	1.48 ± 0.09	0.86 ± 0.18	1.73 ± 0.38	1.70 ± 0.18	1.98 ± 0.13
C26	2.03 ± 0.10	3.78 ± 0.62	2.16 ± 0.21	2.33 ± 0.12	1.78 ± 0.66	2.00 ± 0.53	1.61 ± 0.26	2.45 ± 0.18
C28	0.88 ± 0.01	1.52 ± 0.23	0.85 ± 0.03	0.75 ± 0.07	0.64 ± 0.20	0.73 ± 0.17	0.56 ± 0.10	0.87 ± 0.06
Sterols								
Squalene	0.31 ± 0.10	0.15 ± 0.01	0.13 ± 0.01	0.19 ± 0.01	0.19 ± 0.05	0.17 ± 0.03	0.10 ± 0.02	0.10 ± 0.02
β-sitosterol	0.61 ± 0.11	0.59 ± 0.22	0.51 ± 0.25	0.74 ± 0.07	0.57 ± 0.18	0.69 ± 0.09	0.66 ± 0.10	0.53 ± 0.08
Triterpenes								
Oleanolic acid	22.84 ± 1.13	23.60 ± 0.76	22.53 ± 0.70	22.77 ± 2.04	21.08 ± 1.70	24.08 ± 1.39	22.77 ± 1.55	22.24 ± 0.81
Ursolic acid	nd	nd	nd	nd	1.52 ± 0.61	nd	nd	0.37 ± 0.04
Maslinic acid	47.00 ± 4.00	38.81 ± 4.31	49.49 ± 1.39	47.25 ± 3.95	48.05 ± 6.31	52.85 ± 4.58	49.49 ± 3.25	46.48 ± 4.01
Unidentified	16.97 ± 2.40	18.83 ± 1.71	14.69 ± 0.60	13.94 ± 0.62	14.69 ± 2.77	10.25 ± 1.07	13.72 ± 0.82	13.57 ± 3.17

Values represent means of three replicates ± standard deviation (nd, non-detectable).

Supplementary Table S2. Cutin monomers (% over total cutin) identified in fruit cuticles isolated during ripening of irrigated (**A**) and non-irrigated (**B**) 'Arbequina' olives.

A. Irrigated

Sampling date	Sept 18	Oct 2	Oct 16	Oct 30	Nov 13	Nov 28	Dec 11	Jan 15
Monocarboxylic fatty acids								
C16:0	5.05 ± 0.02	4.70 ± 1.24	5.68 ± 0.74	4.68 ± 0.93	3.38 ± 0.32	2.59 ± 1.04	2.14 ± 0.25	2.77 ± 0.22
C16:1 (c9)	0.32 ± 1.63	0.36 ± 0.04	0.44 ± 0.09	0.44 ± 0.02	0.30 ± 0.02	0.24 ± 0.07	0.21 ± 0.03	0.29 ± 0.03
C18:0	2.12 ± 0.60	1.54 ± 0.64	2.12 ± 0.87	1.53 ± 0.82	1.11 ± 0.33	0.91 ± 0.45	0.69 ± 0.09	0.59 ± 0.05
C18:1 (c9)	10.02 ± 3.01	11.37 ± 1.98	14.48 ± 4.35	11.96 ± 1.30	9.45 ± 1.05	6.99 ± 2.51	6.68 ± 0.99	10.96 ± 1.03
C18:1 (t9)	0.54 ± 0.16	0.60 ± 0.11	0.72 ± 0.17	0.71 ± 0.05	0.51 ± 0.05	0.39 ± 0.13	0.34 ± 0.05	0.51 ± 0.05
C18:2 (c9,c12)	1.46 ± 0.76	1.66 ± 0.34	2.44 ± 0.62	2.49 ± 0.03	2.05 ± 0.17	1.62 ± 0.50	1.45 ± 0.18	2.36 ± 0.22
C20:0	nd	nd	nd	nd	nd	nd	nd	nd
C20:1 (c13)	nd	nd	nd	nd	nd	nd	nd	nd
C22:0	1.16 ± 0.05	1.34 ± 0.55	1.15 ± 0.37	1.40 ± 0.38	0.37 ± 0.02	0.31 ± 0.08	1.43 ± 0.40	1.58 ± 1.13
C24:0	0.69 ± 0.13	0.31 ± 0.09	0.28 ± 0.03	0.28 ± 0.04	0.41 ± 0.21	0.37 ± 0.12	0.26 ± 0.04	0.22 ± 0.00
C26:0	nd	nd	nd	nd	nd	nd	0.25 ± 0.05	0.29 ± 0.03
α,ω-Dicarboxylic fatty acids								
C16:0	0.94 ± 0.24	1.11 ± 0.11	0.73 ± 0.13	1.01 ± 0.16	0.94 ± 0.21	0.86 ± 0.09	0.76 ± 0.01	0.85 ± 0.07
C18:1 (c9)	3.45 ± 0.30	8.23 ± 1.79	7.79 ± 1.05	9.72 ± 0.93	10.02 ± 0.15	10.29 ± 0.30	11.28 ± 0.27	11.37 ± 0.38
α,ω-Dicarboxylic fatty acids with mid-chain-hydroxy group								
C18:0 (9,10-diOH)	1.97 ± 0.32	1.14 ± 0.28	1.17 ± 0.35	0.99 ± 0.14	1.01 ± 0.28	1.93 ± 0.72	1.78 ± 0.23	1.20 ± 0.32
ω-Hydroxy fatty acids								
C16:0	7.06 ± 0.50	7.97 ± 0.78	6.97 ± 0.61	7.68 ± 0.56	7.75 ± 0.61	7.42 ± 0.19	7.06 ± 0.17	7.22 ± 0.40
C18:0	2.00 ± 2.13	1.63 ± 1.50	3.33 ± 0.18	2.78 ± 1.57	3.05 ± 1.05	3.51 ± 1.49	3.43 ± 0.61	2.24 ± 1.27
C18:1 (c9)	11.16 ± 0.43	15.33 ± 1.73	13.80 ± 1.05	15.51 ± 1.34	15.94 ± 0.25	14.52 ± 0.11	16.51 ± 0.36	17.08 ± 0.41
C18:2 (c9,c12)	2.73 ± 0.16	2.37 ± 0.24	2.02 ± 0.09	2.29 ± 0.53	2.33 ± 0.26	2.23 ± 0.22	1.99 ± 0.22	1.81 ± 0.08
C20:0	0.53 ± 0.22	0.45 ± 0.09	0.35 ± 0.07	0.37 ± 0.03	0.44 ± 0.03	0.32 ± 0.03	0.39 ± 0.03	nd
ω-Hydroxy fatty acids with mid-chain-hydroxy group								
C16:0 (9/10,16-diOH)	17.24 ± 3.02	10.78 ± 0.21	10.54 ± 0.61	8.40 ± 1.26	10.40 ± 1.57	16.20 ± 0.83	13.15 ± 1.25	10.16 ± 2.30
C18:0 (9,10,18-triOH)	2.15 ± 0.54	1.70 ± 0.21	1.59 ± 0.13	1.88 ± 0.10	1.44 ± 0.63	1.98 ± 0.33	1.82 ± 0.03	1.44 ± 0.14
α-Hydroxy fatty acids								
C22:0 (2-OH)	1.25 ± 0.63	0.63 ± 0.32	0.82 ± 0.18	0.80 ± 0.09	0.88 ± 0.22	1.73 ± 0.92	1.23 ± 0.65	1.19 ± 0.81

Other hydroxy fatty acids								
C18:1 (c9, 17-OH)	nd	nd	nd	nd	nd	nd	nd	nd
Fatty alcohols								
C24	0.77 ± 0.27	0.53 ± 0.13	0.64 ± 0.14	0.66 ± 0.00	0.79 ± 0.09	1.07 ± 0.27	0.93 ± 0.15	0.98 ± 0.16
C26	0.73 ± 0.08	0.81 ± 0.04	0.80 ± 0.06	0.94 ± 0.08	0.83 ± 0.11	0.87 ± 0.09	0.97 ± 0.09	1.09 ± 0.05
C28	0.32 ± 0.05	0.29 ± 0.01	0.25 ± 0.02	0.31 ± 0.01	0.43 ± 0.30	0.29 ± 0.04	0.28 ± 0.00	0.32 ± 0.03
Unidentified	26.34 ± 0.53	25.14 ± 1.14	21.86 ± 1.53	23.18 ± 0.70	26.17 ± 1.40	23.36 ± 0.70	24.98 ± 0.67	23.48 ± 0.60

Values represent means of three replicates ± standard deviation (nd, non-detectable).

Supplementary Table S2 – Continued

B. Rain-fed

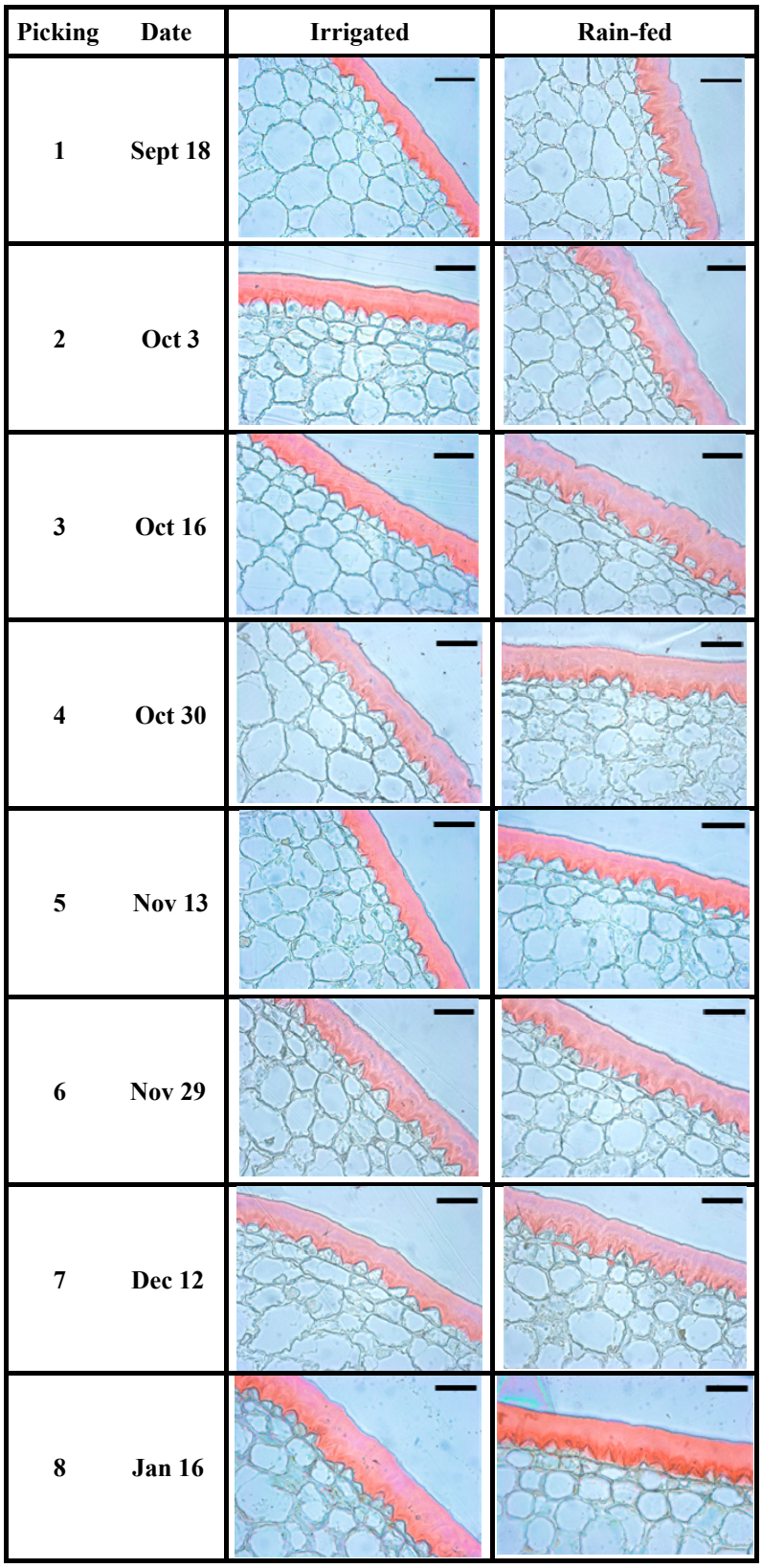
Sampling date	Sept 18	Oct 2	Oct 16	Oct 30	Nov 13	Nov 28	Dec 11	Jan 15
Monocarboxylic fatty acids								
C16:0	2.95 ± 0.96	3.80 ± 1.41	4.86 ± 0.70	4.05 ± 1.79	3.14 ± 0.51	2.18 ± 0.49	2.12 ± 0.32	2.08 ± 0.32
C16:1 (c9)	0.27 ± 0.01	0.25 ± 0.04	0.25 ± 0.02	0.22 ± 0.02	0.26 ± 0.03	0.20 ± 0.02	0.23 ± 0.04	0.24 ± 0.02
C18:0	1.40 ± 0.98	1.43 ± 0.93	2.55 ± 0.73	2.07 ± 1.30	1.22 ± 0.29	1.06 ± 0.39	0.56 ± 0.07	0.47 ± 0.21
C18:1 (c9)	6.08 ± 0.39	7.77 ± 1.37	9.24 ± 0.04	6.43 ± 0.67	8.42 ± 0.93	4.79 ± 0.49	6.79 ± 1.11	8.53 ± 0.70
C18:1 (t9)	0.29 ± 0.02	0.38 ± 0.09	0.41 ± 0.01	0.32 ± 0.03	0.45 ± 0.07	0.25 ± 0.02	0.36 ± 0.07	0.40 ± 0.02
C18:2 (c9,c12)	0.85 ± 0.08	1.32 ± 0.15	1.69 ± 0.10	1.56 ± 0.13	1.77 ± 0.17	1.40 ± 0.11	1.70 ± 0.35	1.88 ± 0.18
C20:0	nd	nd	nd	nd	nd	nd	nd	nd
C20:1 (c13)	nd	nd	nd	nd	nd	nd	nd	nd
C22:0	1.06 ± 0.05	1.19 ± 0.34	0.70 ± 0.33	1.38 ± 0.40	0.77 ± 0.44	1.33 ± 0.48	1.10 ± 0.61	1.56 ± 1.11
C24:0	0.54 ± 0.17	0.29 ± 0.01	0.25 ± 0.08	0.24 ± 0.02	0.36 ± 0.03	0.31 ± 0.09	0.22 ± 0.08	0.24 ± 0.05
C26:0	nd	nd	nd	nd	0.23 ± 0.05	0.24 ± 0.04	0.22 ± 0.07	0.29 ± 0.02
α,ω-Dicarboxylic fatty acids								
C16:0	0.78 ± 0.10	0.87 ± 0.04	0.70 ± 0.08	0.61 ± 0.05	0.72 ± 0.14	0.85 ± 0.10	0.67 ± 0.09	0.75 ± 0.16
C18:1 (c9)	6.59 ± 0.93	9.56 ± 0.18	9.97 ± 1.09	9.22 ± 0.51	8.74 ± 0.32	10.82 ± 1.46	8.45 ± 0.67	10.25 ± 1.71
α,ω-Dicarboxylic fatty acids with mid-chain-hydroxy group								
C18:0 (9,10-diOH)	2.00 ± 0.55	1.68 ± 0.14	1.66 ± 0.06	2.05 ± 0.10	1.51 ± 0.16	1.68 ± 0.92	1.90 ± 0.13	1.42 ± 0.45
ω-Hydroxy fatty acids								
C16:0	7.05 ± 1.16	7.27 ± 0.70	6.68 ± 0.28	5.80 ± 0.12	6.81 ± 0.47	7.77 ± 0.61	6.74 ± 0.77	6.38 ± 0.74
C18:0	3.50 ± 0.06	2.10 ± 1.00	2.50 ± 1.51	2.94 ± 1.16	3.96 ± 0.12	2.32 ± 2.64	3.25 ± 0.87	2.22 ± 1.11
C18:1 (c9)	13.88 ± 2.21	16.45 ± 0.07	15.68 ± 1.36	15.45 ± 0.98	14.57 ± 0.76	17.07 ± 2.65	13.24 ± 1.27	16.30 ± 2.13
C18:2 (c9,c12)	2.05 ± 0.07	2.03 ± 0.05	2.19 ± 0.05	2.06 ± 0.40	2.11 ± 0.28	2.30 ± 0.47	2.28 ± 0.35	1.94 ± 0.09
C20:0	0.58 ± 0.03	0.41 ± 0.03	0.44 ± 0.03	0.41 ± 0.10	0.37 ± 0.10	0.28 ± 0.04	0.37 ± 0.07	
ω-Hydroxy fatty acids with mid-chain-hydroxy group								
C16:0 (9/10,16-diOH)	14.63 ± 3.15	12.43 ± 1.67	8.98 ± 0.41	11.01 ± 1.37	13.36 ± 1.74	13.20 ± 4.48	18.37 ± 2.20	13.07 ± 3.91
C18:0 (9,10,18-triOH)	2.34 ± 0.27	1.78 ± 0.17	1.77 ± 0.14	2.68 ± 0.23	1.97 ± 0.05	1.60 ± 0.20	1.93 ± 0.13	1.82 ± 0.22
α-Hydroxy fatty acids								
C22:0 (2-OH)	1.48 ± 0.13	0.75 ± 0.30	0.88 ± 0.49	1.39 ± 0.13	1.66 ± 0.14	1.12 ± 0.18	1.27 ± 0.40	1.26 ± 0.69
Other hydroxy fatty acids								
C18:1 (c9, 17-OH)	nd	nd	nd	nd	nd	nd	nd	nd

Fatty alcohols								
C24	1.05 ± 0.05	0.60 ± 0.06	0.71 ± 0.04	0.90 ± 0.19	0.99 ± 0.13	1.03 ± 0.00	1.01 ± 0.15	1.11 ± 0.22
C26	0.80 ± 0.11	0.86 ± 0.05	0.88 ± 0.14	0.99 ± 0.08	0.93 ± 0.11	0.87 ± 0.04	0.89 ± 0.15	0.91 ± 0.09
C28	0.23 ± 0.01	0.27 ± 0.03	0.25 ± 0.03	0.27 ± 0.01	0.28 ± 0.04	0.26 ± 0.02	0.26 ± 0.03	0.27 ± 0.05
Unidentified	29.58 ± 2.12	26.52 ± 0.79	26.76 ± 1.80	27.97 ± 0.62	25.41 ± 0.86	27.03 ± 1.34	26.08 ± 0.47	26.62 ± 1.28

Values represent means of three replicates ± standard deviation (nd, non-detectable).

Picking	Date	Irrigated	Rain-fed
1	Sept 18		
2	Oct 3		
3	Oct 16		
4	Oct 30		
5	Nov 13		

Supplementary Figure S1. Toluidine Blue (TB) staining during ripening of irrigated and non-irrigated 'Arbequina' olives.



Supplementary Figure S2. Sudan IV-stained pericarp cross-sections observed under bright-field microscopy during ripening of irrigated and non-irrigated 'Arbequina' olives. Scale bars indicate 60 µm.