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Fig. S1. Map with marked locations of the orchards of berry fruits

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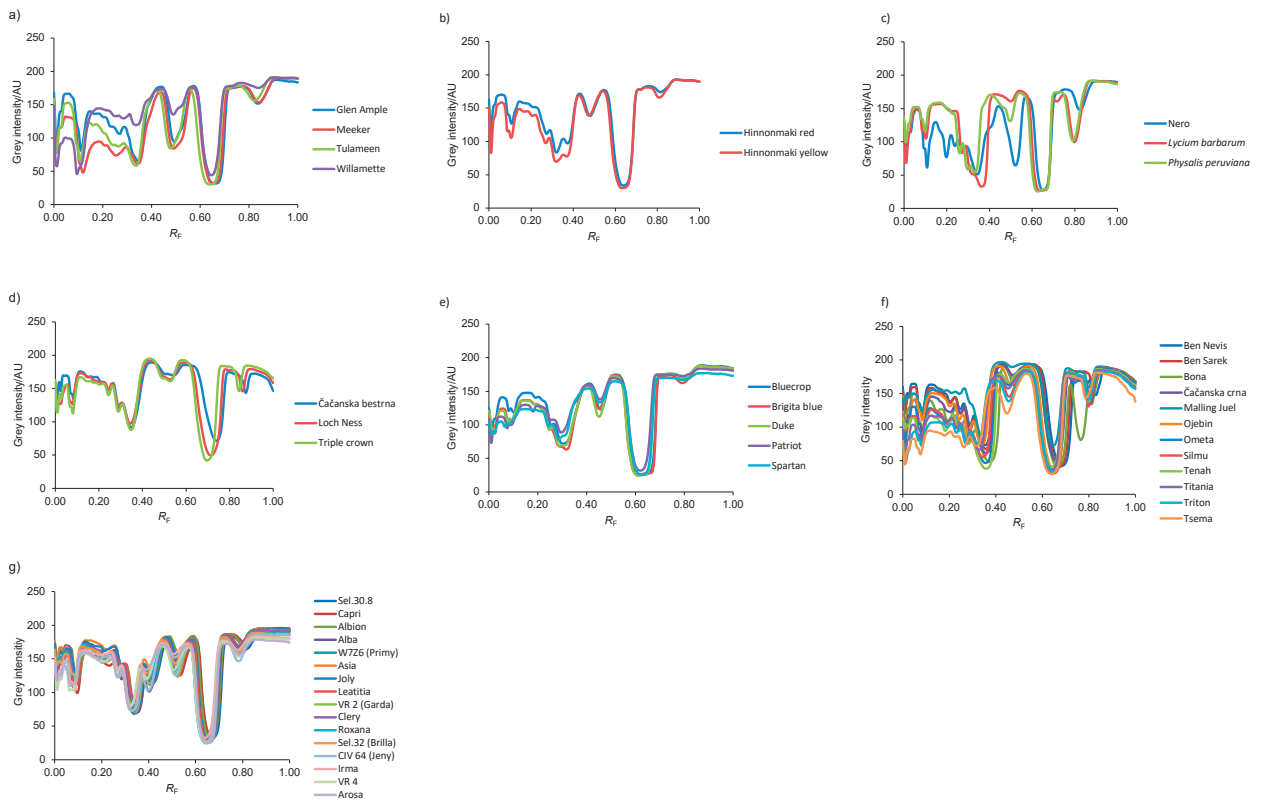


Fig. S2. Chromatograms adjusted to gray scale for: a) raspberry, b) gooseberry, c) chokeberry, goji berry and cape gooseberry, d) blackberry, e) blueberry, f) black currant, and g) strawberry

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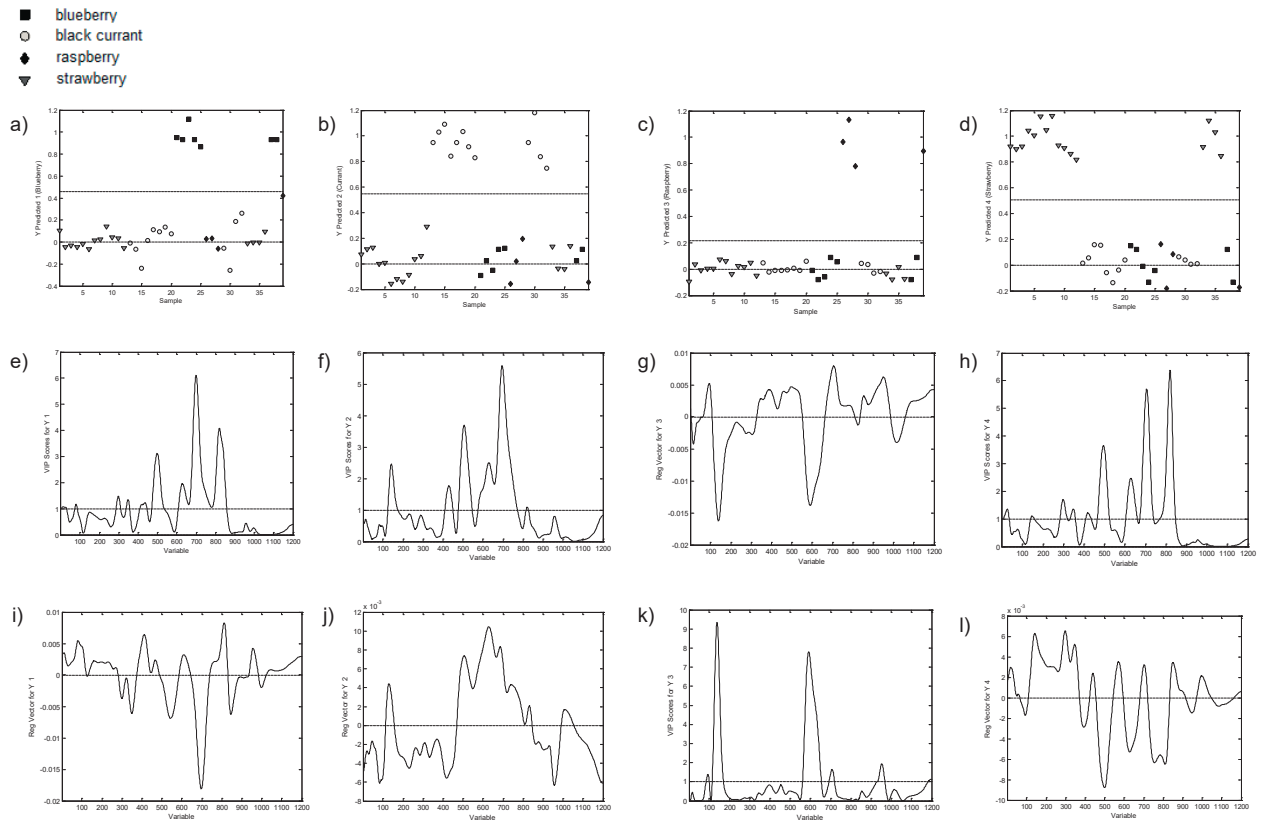


Fig. S3. Partial least square-discriminant analysis of lipid profiles of berry seeds: a–d) score plots of data, e–h) plots of the variables (intensity of pixels) versus variable importance in the projection scores, i–l) plot of the coefficients of parameters

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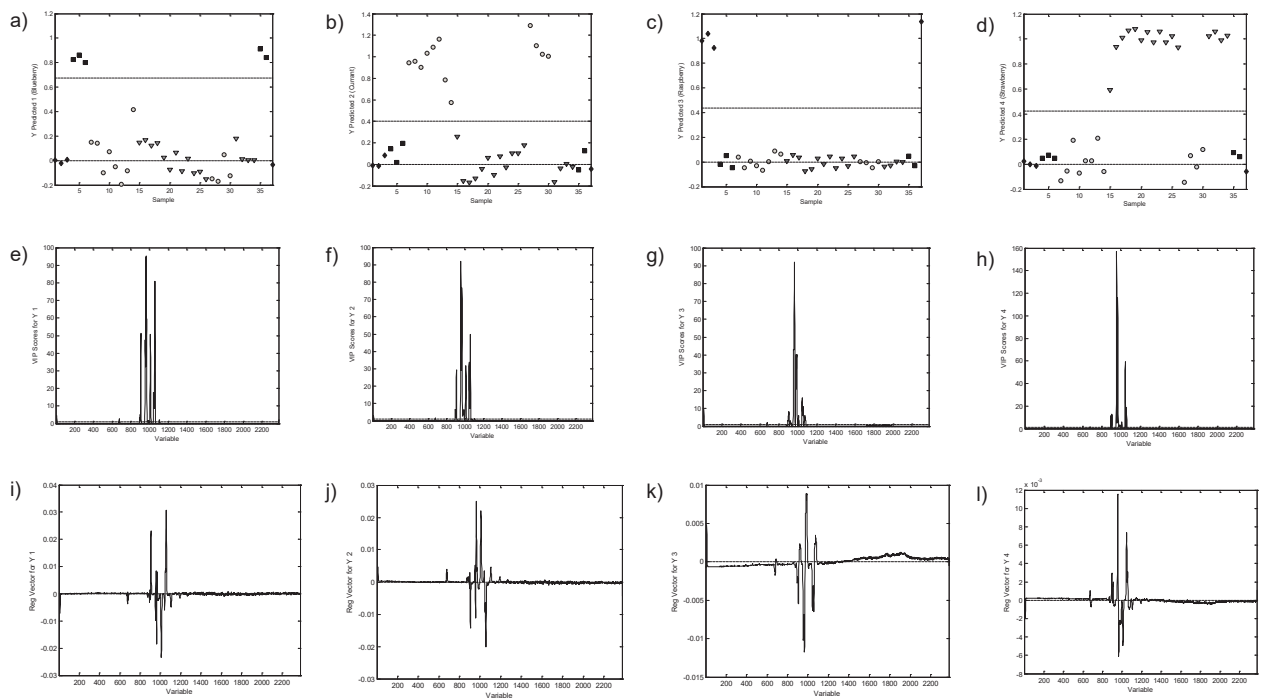


Fig. S4. Partial least square-discriminant analysis of fatty acid profiles of berry seeds: a–d) score plots of data, e–h) plots of the variables (intensities of analytical signals) versus variable importance in the projection scores, i–l) plot of the coefficients of parameters

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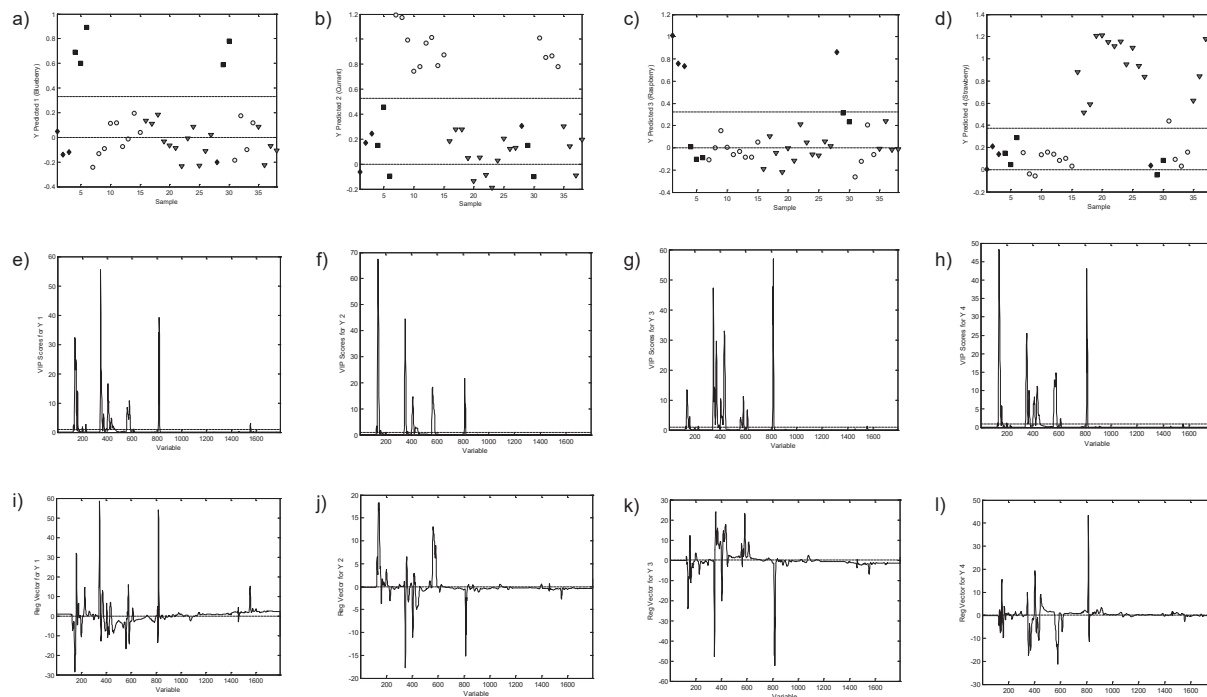


Fig. S5. Partial least square-discriminant analysis of sugar profiles of berry seeds: a–d) score plots of data, e–h) plots of the variables (intensities of analytical signals) versus variable importance in the projection scores, i–l) plot of the coefficients of parameters

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Table S1. Relative content of fatty acid methyl esters (FAMES) detected in the berry seed samples and their retention times (t_R)

t_R /min	FAME carbon number	Systematic name	Common name	$(A_{seed}/A_{total})/\%$								
				Straw-berry	Black-berry	Black-currant	Rasp-berry	Goose-berry	Choke-berry	Goji berry	Cape goose-berry	Blue-berry
9.30	C16:0	methyl hexadecanoate	methyl palmitate	3.17	3.33	5.18	3.07	8.56	3.87	4.43	4.86	3.83
9.53	C16:1	methyl <i>cis</i> -9-hexadecanoate	methyl palmitoleate	0.22	–	0.41	–	–	–	0.28	0.16	0.11
11.23	C18:0	methyl octadecanoate	methyl stearate	1.14	2.28	1.73	1.17	2.95	1.68	2.46	1.65	11.47
11.48	C18:1 (c+t)	methyl <i>cis</i> - and <i>trans</i> -9-octadecanoate	methyl oleate and methyl elaidate	13.33	22.93	13.63	15.64	26.38	22.78	15.52	12.71	21.81
12.07	C18:2 n-6 (c+t)	methyl <i>cis</i> - and <i>trans</i> -9,12-octadecadienoate	methyl linoleate and methyl linolelaidate	49.57	61.35	47.23	57.17	48.65	70.26	74.86	80.09	44.36
12.46	C18:3 n-6	methyl <i>cis,cis,cis</i> -6,9,12-octadecadienoate	methyl γ -linolenate	0.05	–	14.63	0.41	12.26	–	0.40	–	–
12.90	C18:3 n-3	methyl <i>cis,cis,cis</i> -9,12,15-octadecatrienoate	methyl α -linolenate	31.42	9.28	14.61	22.54	1.11	1.41	0.95	0.53	28.42
13.86	C20:0	methyl eicosanoate	methyl arachidate	0.77	0.62	0.12	–	–	–	0.50	–	< 0.01
14.19	C20:1	methyl <i>cis</i> -11-eicosenoate	methyl gondoate	0.33	0.21	2.46	–	–	–	–	–	< 0.01
14.94	C20:2 n-6	methyl <i>cis,cis</i> -11,14-eicosadienoate	none	–	–	–	–	–	–	0.62	–	–

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Table S2. Average mass fractions of sugars present in berry seed samples and their retention times (t_R)

t_R /min	Sugars and polyols	w(sugar)/(mg/kg)								
		Straw-berry	Black-berry	Black-currant	Rasp-berry	Goose-berry	Choke-berry	Goji berry	Cape goose-berry	Blue-berry
2.21	Erythritol	2.93	1.50	4.19	0.98	2.54	1.71	3.76	2.48	1.36
2.36	Glycerol	12.45	17.45	26.21	11.80	14.72	16.53	29.48	12.78	9.03
2.60	Arabinitol	0.58	3.93	4.23	0.87	0.99	1.30	0.90	0.63	0.65
2.72	Sorbitol	0.95	3.22	1.42	2.01	1.46	9.01	1.69	0.82	2.53
3.05	Galactitol	0.54	1.00	1.17	0.45	0.13	0.45	0.24	0.29	0.52
3.38	Mannitol	0.53	3.47	1.48	1.75	0.87	0.39	0.82	0.48	0.39
3.68	Trehalose	3.58	18.12	13.15	0.24	2.53	16.02	2.16	2.18	6.85
4.21	Ramnose	0.25	0.52	0.60	0.27	0.57	0.71	0.11	0.36	0.22
5.04	Arabinose	2.26	4.47	2.41	1.80	3.46	7.13	3.92	1.86	2.21
5.36	Xylose	8.65	2.66	0.67	0.63	0.99	1.79	0.22	0.09	0.28
5.90	Glucose	75.58	148.60	61.67	88.02	61.99	133.66	76.88	67.69	70.21
6.88	Fructose	116.04	173.21	67.17	130.40	105.82	84.46	77.56	68.96	79.38
7.90	Melibiose	1.89	4.71	4.04	10.67	5.50	2.66	4.82	1.51	25.92
8.39	Isomaltose	5.47	0.45	1.13	1.30	0.67	0.14	0.15	0.93	0.74
9.70	Sucrose	126.84	111.42	129.76	144.45	155.79	97.80	162.16	121.23	91.17
10.72	Celibiose	1.63	0.62	3.26	0.86	2.26	0.75	1.29	2.16	0.84
13.74	Melesitose	4.09	0.87	3.52	0.39	1.04	1.84	3.74	7.77	1.72
14.01	Gentiobiose	2.89	0.41	3.04	0.20	0.49	0.69	2.45	2.62	1.34
14.35	Turanose	6.60	2.29	6.16	3.53	4.59	12.60	15.33	12.74	7.04
14.62	Raffinose	4.78	2.35	4.75	3.09	7.09	7.22	6.68	3.96	3.13
14.93	Isomaltotriose	0.82	0.73	1.91	0.32	1.43	0.60	0.73	0.76	0.54
15.82	Maltose	3.87	2.74	4.33	2.85	3.57	2.67	7.28	3.14	2.49
18.11	Panose	5.91	55.41	8.88	13.18	18.61	19.40	20.63	8.93	8.37
19.43	Maltotriose	0.41	0.44	1.87	0.18	0.49	0.53	0.21	0.31	0.47
24.38	Maltotetraose	3.00	1.39	7.88	1.32	2.25	1.76	1.61	2.20	3.98
24.68	Maltopentaose	2.70	1.31	7.08	1.11	2.09	1.44	1.06	1.90	3.64
25.03	Maltohexaose	3.99	1.89	9.82	1.62	3.05	2.32	1.30	2.72	4.93
25.39	Maltoheptaose	4.42	2.16	10.71	1.78	2.88	2.35	1.12	3.10	5.43