Impact of lipid sources on quality traits of medical cannabis based oil preparations

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Supplementary materials

Figure S1. Structural formula of investigated cannabinoids

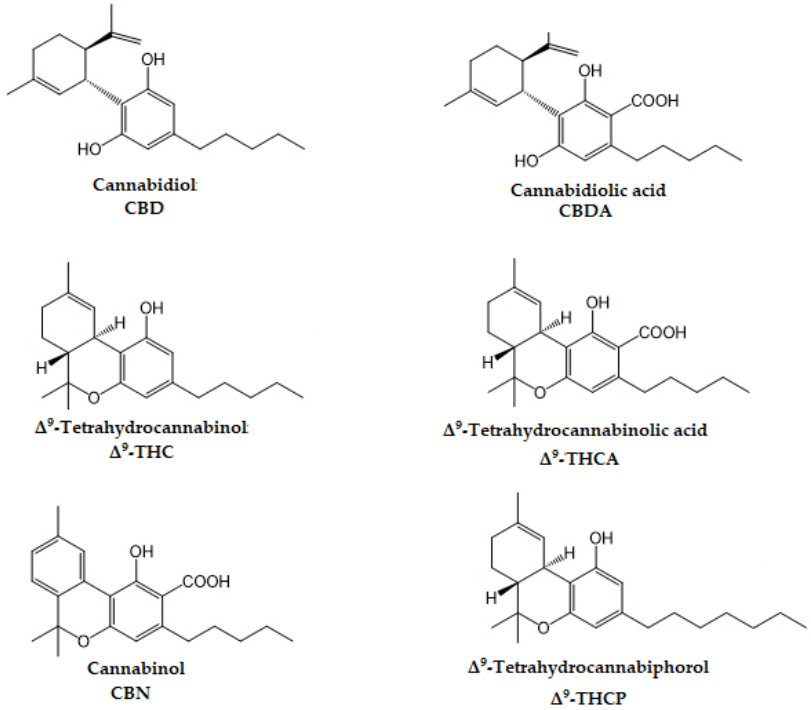

Table S1. Concentration of cannabinoids (ppm) in Bedrocan oils as a function of the storage times and lipid sources

	T 0		T 15		T 30		T 45		T 60		T 75		T 90	
PhEur grade olive oil (OOPH)	**mean (n=4)**	**s.d. (±)**	**mean (n=4)**	**s.d. (±)**	**mean (n=4)**	**s.d. (±)**	**mean (n=4)**	**s.d. (±)**	**mean (n=4)**	**s.d. (±)**	**mean (n=4)**	**s.d. (±)**	**mean (n=4)**	**s.d. (±)**
CBD	414.18	0.72	361.86	0.46	363.45	10.91	361.59	5.62	154.90	5.19	185.73	1.04	175.81	1.47
Δ⁹-THC	23123.96	1082.11	21551.89	293.36	23219.49	1700.18	21469.72	417.86	23160.49	201.16	20777.59	253.82	16425.32	424.88
CBN	99.86	10.76	76.79	13.91	157.87	5.82	142.27	12.15	208.94	8.66	276.89	9.21	255.91	2.69
CBDA	337.31	0.40	278.82	0.62	295.19	1.98	277.47	0.77	149.05	35.65	143.18	0.99	155.45	0.23
Δ⁹-THCA	413.39	0.76	322.85	21.01	358.83	9.39	367.42	2.44	230.84	12.36	266.16	2.42	208.99	39.03
	T 0		T 15		T 30		T 45		T 60		T 75		T 90	
Medium chain Triglyceride (MCT)	**mean (n=4)**	**s.d. (±)**	**mean (n=4)**	**s.d. (±)**	**mean (n=4)**	**s.d. (±)**	**mean (n=4)**	**s.d. (±)**	**mean (n=4)**	**s.d. (±)**	**mean (n=4)**	**s.d. (±)**	**mean (n=4)**	**s.d. (±)**
CBD	420.13	1.72	361.22	2.29	359.39	0.45	363.17	1.05	156.29	8.69	186.83	1.53	178.99	3.96
Δ⁹-THC	21520.15	831.87	22197.35	584.73	20241.89	343.09	21107.45	359.77	22504.11	96.84	20969.17	431.09	17190.08	67.89
CBN	88.42	9.78	135.38	8.25	132.12	3.88	128.96	9.69	210.95	5.47	274.80	2.54	250.03	1.36
CBDA	335.36	1.36	282.11	0.92	295.75	0.67	278.06	0.47	120.08	0.69	142.87	1.13	156.63	1.22
Δ⁹-THCA	379.49	34.07	360.00	9.06	359.09	9.04	385.77	1.59	232.39	6.25	275.69	6.35	245.46	0.78

Table S2. Concentration of cannabinoids (ppm) in Bediol oils as a function of the storage times and lipid sources

	T 0		T15		T 30		T45		T 60		T 75		T 90	
PhEur grade olive oil (OOPH)	**mean (n=4)**	**s.d. (±)**	**mean (n=4)**	**s.d. (±)**	**mean (n=4)**	**s.d. (±)**	**mean (n=4)**	**s.d. (±)**	**mean (n=4)**	**s.d. (±)**	**mean (n=4)**	**s.d. (±)**	**mean (n=4)**	**s.d. (±)**
CBD	8803.17	174.12	8917.29	263.70	8097.82	374.20	7723.68	242.49	8564.07	31.78	7549.44	122.45	5566.34	133.27
Δ⁹-THC	7469.21	187.75	7400.85	227.64	7280.60	398.47	6617.54	275.86	7347.22	21.52	6447.71	191.46	5138.76	132.80
CBN	59.84	4.11	67.85	2.39	66.94	16.86	65.86	2.26	147.73	1.73	210.70	6.57	200.63	2.04
CBDA	651.06	189.29	824.87	28.18	667.30	51.94	707.18	8.84	641.29	30.27	183.98	1.42	479.16	8.89
Δ⁹-THCA	344.71	34.94	255.91	4.05	258.97	1.78	431.52	6.91	159.62	1.27	185.87	1.43	182.11	1.18
	T 0		**T 15**		**T 30**		**T 45**		**T 60**		**T 75**		**T 90**	
Medium chain Triglyceride (MCT)	**mean (n=4)**	**s.d. (±)**	**mean (n=4)**	**s.d. (±)**	**mean (n=4)**	**s.d. (±)**	**mean (n=4)**	**s.d. (±)**	**mean (n=4)**	**s.d. (±)**	**mean (n=4)**	**s.d. (±)**	**mean (n=4)**	**s.d. (±)**
CBD	8446.55	65.63	8512.23	209.66	7675.90	560.55	8059.71	817.44	8690.26	34.28	7113.56	44.19	4919.21	76.26
Δ⁹-THC	8534.96	514.43	7545.96	229.91	7294.54	458.91	7628.01	952.03	7809.98	75.19	6362.37	25.09	4759.49	123.04
CBN	59.09	2.24	62.10	0.20	63.61	10.57	71.80	13.54	151.27	5.75	198.91	11.76	180.95	21.72
CBDA	1195.29	142.96	1370.94	90.16	1097.92	128.50	1195.39	141.57	1120.80	58.21	1054.90	12.10	759.87	25.65
Δ⁹-THCA	330.30	14.57	302.44	7.08	293.70	8.17	304.02	6.25	193.77	3.71	219.52	7.89	201.35	1.39

Table S3. Concentration of terpenes (ppm) in Bediol oils obtained using OOPH as a function of the storage time

RT	Compound	RI	Storage days													
			T 0		T 15		T 30		T 45		T 60		T 75		T 90	
			Mean	±SD	Mean	±SD	Mean	±SD	Mean	±SD[d]	Mean	±SD[d]	Mean	±SD[d]	Mean	±SD[d]
Aldehydes																
8.98	Hexanal	785	n.d.		n.d.		n.d.		n.d.		n.d.		1.32	0.13	0.72	0.01
	tot												***1.32***		***0.72***	
Alcohols																
20.01	1-Hexanol	831	5.13	0.36	5.43	1.63	3.28	0.31	3.52	0.97	2.54	3.12	3.21	0.24	2.10	0.03
	tot		***5.13***		***5.43***		***3.28***		***3.52***		***2.54***		***3.21***		***2.10***	
Esters																
21.66	Butanoic acid-hexyl ester	1183	5.57	0.63	6.32	1.17	2.37	0.78	2.14	0.24	3.08	3.89	3.15	1.07	1.94	0.09
26.02	Hexanoic acid-hexyl ester	1381	1.01	0.17	0.89	0.30	0.19	0.04	0.29	0.05	0.39	0.48	0.38	0.04	0.31	0.08
29.81	β-Phenethyl acetate	1410	0.68	0.16	0.68	0.11	0.15	0.08	0.21	0.01	0.43	0.50	0.28	0.09	0.14	0.00
	tot		***7.26***		***7.89***		***2.72***		***2.65***		***3.90***		***3.81***		***2.39***	
Organic acids																
22.23	Acetic acid	576	n.d.		n.d.		n.d.		2.40	0.20	0.57	0.47	0.31	0.08	0.26	0.03
26.17	Butanoic acid	775	n.d.		n.d.		n.d.		n.d.		n.d.		n.d.		n.d.	
30.32	Hexanoic acid	974	0.69	0.14	0.75	0.48	0.39	0.20	1.39	0.02	2.21	2.70	0.00	0.00	0.00	0.00
32.1	Heptanoic acid	1073	0.68	0.07	0.73	0.18	0.44	0.15	1.43	0.06	1.66	2.06	0.47	0.15	0.22	0.02
33.04	Octanoic acid	1173	0.21	0.07	0.33	0.02	0.11	0.05	0.08	0.00	0.13	0.16	0.04	0.01	0.03	0.00
34.11	Nonanoic acid	1272	0.24	0.08	0.58	0.56	0.31	0.11	0.09	0.01	0.45	0.58	0.13	0.01	0.07	0.03
	tot		***1.81***		***2.39***		***1.25***		***5.38***		***5.02***		***0.94***		***0.57***	
Monoterpenes																
9.88	β-Pinene	989	1.56	0.03	1.54	0.36	2.34	0.23	1.28	0.38	0.86	1.03	2.84	0.01	1.36	0.09
12.14	δ-3-Carene	1015	2.41	0.05	2.34	0.02	1.85	0.55	2.22	0.15	1.42	1.63	1.89	0.35	0.95	0.09
12.94	α-Phellandrene	1017	2.57	0.07	3.01	0.17	1.06	0.35	1.13	0.25	1.13	1.34	1.33	0.16	0.87	0.03
13.38	β-Myrcene	1023	115.57	0.70	112.95	2.02	62.15	3.40	38.92	3.77	37.65	42.39	68.51	4.74	54.43	3.17
13.64	α-Terpinene	1026	3.68	0.39	5.63	0.19	1.87	0.16	0.97	0.17	1.25	1.50	2.08	1.05	1.75	1.15
14.48	Limonene	1038	3.92	0.33	5.19	0.56	2.23	0.41	2.63	0.15	2.59	3.03	3.41	1.08	1.83	0.19

14.78	β-Sabinene	1044	7.39	0.13	8.99	1.01	5.20	0.85	4.86	0.61	4.26	4.86	7.86	1.65	4.79	0.54
16.43	γ-Terpinene	1066	4.23	0.25	6.11	0.26	1.93	1.25	1.72	0.20	2.05	2.51	2.32	0.78	2.03	0.48
16.9	β-Ocimene	1070	8.28	2.79	11.75	1.80	5.71	1.37	4.46	0.52	5.44	6.58	6.79	0.97	5.49	0.52
17.26	p-Cymene	1083	22.68	2.97	22.64	5.63	40.70	17.38	66.10	0.65	25.06	28.85	18.30	6.61	5.13	0.42
17.71	α-Terpinolene	1094	58.57	4.55	73.02	11.83	36.00	3.07	31.53	0.31	32.73	40.08	26.55	3.24	19.26	1.05
21.98	Cymenene	1120	13.34	0.32	15.82	4.98	15.78	6.29	18.55	3.57	15.11	18.07	8.37	1.15	4.66	0.75
22.63	4.8-Epoxy-p-menth-1-ene	1177	0.58	0.10	0.50	0.04	0.74	0.18	0.28	0.03	0.28	0.34	0.42	0.04	0.19	0.04
25.33	Fenchyl alcohol	1198	0.37	0.10	0.33	0.14	0.23	0.16	0.15	0.01	0.18	0.22	0.14	0.02	0.13	0.01
25.69	4-Terpineol	1209	n.d.		n.d.		n.d.		n.d.		n.d.		n.d.		n.d.	
27.4	1.8-Menthadien-4-ol	1217	1.86	0.30	1.57	0.32	0.92	0.31	2.00	0.07	1.83	2.25	1.44	0.61	0.66	0.04
27.6	α-Terpineol	1225	2.30	0.91	1.97	0.61	0.97	0.29	2.69	0.01	2.20	2.69	1.55	0.72	1.01	0.31
29.66	trans-2.3-Epoxycaren	1245	0.15	0.02	0.10	0.02	0.06	0.00	0.10	0.02	0.09	0.11	0.05	0.03	0.11	0.06
30.4	P-Cymenol	1293	0.89	0.33	0.77	0.07	0.36	0.01	0.77	0.08	0.59	0.71	0.60	0.17	0.35	0.02
	tot		***250.35***		***274.21***		***180.09***		***180.36***		***134.73***		***154.46***		***105.00***	
Sesquitepenes																
25.47	α-Bergamotene	1430	0.48	0.01	0.57	0.14	0.49	0.16	1.20	0.04	0.99	1.24	0.64	0.43	0.29	0.02
25.58	γ-Caryophyllene	1482	26.92	8.00	21.12	8.92	7.57	2.24	21.98	0.17	18.11	22.39	9.17	4.79	5.37	0.19
27.05	α-Humulene	1494	4.95	1.50	3.87	1.85	1.80	0.65	5.52	0.26	4.20	5.26	2.19	1.65	0.89	0.28
27.51	sesquiterpene	1485	n.d.		n.d.		n.d.		n.d.		n.d.		n.d.		n.d.	
28.03	δ-Guaiene	1490	6.56	1.32	4.72	2.17	2.24	0.58	5.23	0.10	4.48	5.53	2.68	1.64	1.01	0.07
28.14	β-Selinene	1507	1.89	0.34	1.36	0.64	0.67	0.22	1.48	0.49	1.51	1.91	0.91	0.59	0.28	0.01
28.33	α-Gurjunene	1519	0.57	0.20	0.59	0.16	0.19	0.09	1.11	0.00	1.30	1.64	0.58	0.17	1.03	0.15
29.19	Selina-3.7(11)-diene	1527	4.99	1.25	3.78	1.99	1.53	0.45	4.20	0.14	3.66	4.51	1.97	1.30	0.44	0.58
	tot		***46.36***		***36.00***		***14.49***		***40.72***		***34.25***		***18.14***		***9.31***	

RT: retention time (min); Mean: Mean value (n = 3); Data are expressed in ppm SD: Standard deviation (n = 3); RI^b: retention index calculated on a Rtx-Wax (30 m x 0.25 mm x 0.25 m f.t.)

Table S4. Concentration of terpenes (ppm) in Bediol oils obtained using MCT oil as a function of the storage time

RT	Compound	RI	Storage days													
			T0		T15		T30		T45		T60		T75		T90	
			Mean	±SD	Mean	±SD	Mean	±SD	Mean	±SD	Mean	±SD	Mean	±SD	Mean	±SD
Aldehydes																
8.98	Hexanal	785	n.d.		n.d.		n.d.		n.d.		n.d.		n.d.		n.d.	
	tot															
Alcohols																
20.01	1-Hexanol	831	8.51	1.08	4.24	4.69	6.38	2.50	10.70	4.33	8.80	1.70	12.73	0.09	6.39	1.17
	tot		***8.51***		***4.24***		***6.38***	***2.50***	***10.70***		***8.80***		***12.73***		***6.39***	
Esters																
21.66	Butanoic acid-hexyl ester	1183	7.86	0.33	4.13	4.68	3.27	0.53	6.82	1.04	7.89	1.01	5.83	0.81	3.64	1.00
26.02	Hexanoic acid-hexyl ester	1381	1.50	0.31	1.66	0.36	0.34	0.05	0.43	0.16	0.81	0.07	0.88	0.17	0.56	0.27
29.81	β-Phenethyl acetate	1410	0.56	0.06	0.55	0.02	0.12	0.04	0.07	0.04	0.11	0.02	n.d.		n.d.	
	tot		***9.93***		***6.34***		***3.73***		***7.31***		***8.82***		***6.72***		***4.20***	
Organic acids																
22.23	Acetic acid	576	n.d.		n.d.		n.d.		n.d.		n.d.		n.d.		n.d.	
26.17	Butanoic acid	775	2.19	0.14	2.24	0.38	0.31	0.11	6.78	0.06	4.87	1.44	0.39	0.03	0.29	0.00
30.32	Hexanoic acid	974	1.36	0.34	1.19	0.05	0.11	0.10	2.08	1.38	2.00	0.44	n.d.		n.d.	
32.1	Heptanoic acid	1073	0.99	0.02	1.04	0.04	0.40	0.08	0.39	0.36	1.64	0.47	0.39	0.07	0.32	0.13
33.04	Octanoic acid	1173	0.68	0.00	0.73	0.03	0.38	0.06	0.32	0.32	0.80	0.07	n.d.		n.d.	
34.11	Nonanoic acid	1272	n.d.		n.d.		n.d.		n.d.		n.d.		n.d.		n.d.	
	tot		***5.23***		***5.20***		***1.20***		***9.57***		***9.31***		***0.78***		***0.61***	
Monoterpenes																
9.88	β-Pinene	989	4.52	0.24	5.20	0.34	6.39	1.24	3.71	0.19	3.60	0.26	6.56	0.58	3.17	0.46
12.14	δ-3-Carene	1015	4.86	0.76	5.00	0.37	1.94	0.89	4.03	0.50	5.58	0.50	4.51	2.40	3.38	0.60
12.94	α-Phellandrene	1017	5.39	0.52	5.57	0.08	2.64	0.11	2.80	0.06	4.42	0.39	4.25	0.22	2.31	0.13
13.38	β-Myrcene	1023	186.70	0.42	193.47	16.51	205.80	5.63	114.69	7.62	155.18	25.72	148.95	11.52	132.79	8.57

13.64	α-Terpinene	1026	5.35	1.50	5.61	2.02	3.25	0.09	2.80	0.21	9.93	0.71	5.92	2.02	2.42	0.60
14.48	Limonene	1038	7.17	0.92	7.39	0.34	3.06	0.51	7.12	1.12	8.92	1.03	6.29	1.15	5.42	0.14
14.78	β-Sabinene	1044	15.62	1.36	16.24	2.76	9.55	1.32	11.20	3.76	14.69	0.97	15.00	5.40	12.77	3.98
16.43	γ-Terpinene	1066	6.99	0.52	39.92	46.31	2.88	0.51	4.84	0.76	8.80	0.67	7.05	0.47	5.19	1.49
16.9	β-Ocimene	1070	16.46	0.21	17.07	1.64	10.15	2.50	11.63	0.62	19.90	2.03	18.16	5.66	14.25	1.75
17.26	p-Cymene	1083	25.41	1.98	14.39	16.63	25.98	1.33	52.40	3.33	44.00	6.41	29.35	13.80	11.65	1.01
17.71	α-Terpinolene	1094	101.54	6.85	104.85	1.54	72.55	5.66	76.43	4.70	93.49	0.90	83.02	16.99	48.14	11.28
21.98	Cymenene	1120	17.09	2.64	18.49	0.01	14.67	4.39	38.81	0.64	29.97	3.44	15.93	2.05	6.95	0.59
22.63	4.8-Epoxy-p-menth-1-ene	1177	n.d.		n.d.		n.d.		n.d.		n.d.		n.d.		n.d.	
25.33	Fenchyl alcohol	1198	0.32	0.06	0.37	0.10	0.19	0.01	0.25	0.12	0.24	0.04	0.24	0.08	0.16	0.04
25.69	4-Terpineol	1209	1.43	0.04	1.57	0.04	0.77	0.31	0.84	0.25	0.85	0.09	0.80	0.37	0.69	0.30
27.4	1.8-Menthadien-4-ol	1217	2.57	0.05	2.76	0.13	1.17	0.47	2.60	0.57	3.16	0.25	1.85	0.81	1.41	0.41
27.6	α-Terpineol	1225	3.00	0.82	3.82	0.15	1.16	0.26	3.25	0.52	3.50	0.25	1.88	1.20	1.29	0.53
29.66	*trans*-2.3-Epoxycaren	1245	0.28	0.02	0.31	0.01	0.08	0.00	0.13	0.05	0.22	0.00	n.d.		n.d.	
30.4	P-Cymenol	1293	0.67	0.11	0.80	0.03	0.52	0.19	0.80	0.30	1.02	0.29	0.72	0.32	0.47	0.16
	tot		***405.36***		***442.83***		***362.75***		***338.33***		***407.46***		***350.47***		***252.47***	
Sesquitepenes																
25.47	α-Bergamotene	1430	2.78	0.29	3.04	0.32	1.03	0.24	2.00	0.63	2.38	0.62	1.35	0.70	0.69	0.10
25.58	γ-Caryophyllene	1482	39.38	0.56	45.85	3.20	23.62	2.04	35.77	9.44	39.32	6.55	23.16	16.07	16.10	5.50
27.05	α-Humulene	1494	7.90	0.49	9.45	0.58	3.57	1.10	8.55	2.31	9.70	0.91	4.52	3.09	2.69	0.96
27.51	sesquiterpene	1485	0.42	0.15	1.59	0.67	0.41	0.15	1.02	0.34	1.13	0.06	0.79	0.71	0.55	0.26
28.03	δ-Guaiene	1490	4.30	0.09	4.66	0.18	3.48	0.89	7.47	1.40	7.22	0.21	4.14	2.27	1.73	0.31
28.14	β-Selinene	1507	2.67	0.02	2.86	0.11	0.53	0.54	2.81	0.73	3.49	0.65	1.78	1.32	1.08	0.42
28.33	α-Gurjunene	1519	0.60	0.18	0.51	0.02	0.38	0.16	0.89	0.25	0.86	0.16	n.d.		n.d.	
29.19	Selina-3.7(11)-diene	1527	3.11	0.04	3.35	0.13	2.51	0.48	5.43	1.26	6.31	0.64	3.43	2.04	1.68	0.41
	tot		***61.17***		***71.30***		***35.53***		***63.93***		***70.42***		***39.18***		***24.51***	

RT: retention time (min); Mean: Mean value (n = 3); Data are expressed in ppm SD: Standard deviation (n = 3); RI^{b}: retention index calculated on a Rtx-Wax (30 m x 0.25 mm x 0.25 m f.t.)

Table S5. Concentration of terpenes (ppm) in Bedrocan oils obtained using OOPH as a function of the storage time

RT	Compound	RI	Storage days													
			T0		T15		T30		T45		T60		T75		T90	
			Mean	±SD[d]	Mean	±SD[d]	Mean	±SD[d]	Mean	±SD[d]	Mean	±SD[d]	Mean	±SD[d]	Mean	±SD
Aldehydes																
8.98	Hexanal	785	n.d.		n.d.		n.d.		0.40	0.08	0.60	0.03	1.72	0.17	0.78	0.13
	tot								***0.40***		***0.60***		***1.72***		***0.78***	
Alcohols																
20.02	1-Hexanol	831	n.d.		n.d.		n.d.		2.11	0.39	3.38	0.01	3.65	0.37	2.21	0.30
	tot								***2.11***		***3.38***		***3.65***		***2.21***	
Esters																
21.66	Butanoic acid-hexyl ester	1183	10.21	0.72	11.37	2.56	4.80	0.18	6.08	1.21	8.01	0.41	4.93	0.47	5.87	1.63
24.93	(-)-Menthyl acetate	1381	n.d.		n.d.		5.11	2.71	n.d.		1.51	0.00	n.d.		1.08	1.53
29.81	β-phenethyl acetate	1410	2.77	0.95	2.23	0.02	0.75	0.08	0.40	0.07	0.54	0.03	0.36	0.04	0.42	0.34
	tot		***12.98***		***13.60***		***10.66***		***6.48***		***10.06***		***5.29***		***7.37***	
Organic acids																
22.1	Acetic acid	576	n.d.		n.d.		n.d.		1.03	0.21	0.81	0.04	6.38	0.87	7.01	1.22
26.17	Butanoic acid	775	2.89	0.11	n.d.		n.d.		0.99	0.21	0.37	0.02	n.d.		n.d.	
30.33	Hexanoic acid	974	0.54	0.27	4.28	1.23	2.37	0.34	0.41	0.08	1.33	0.07	0.22	0.02	1.15	1.43
31.96	Heptanoic acid	1073	0.17	0.01	n.d.		n.d.		0.15	0.03	0.36	0.00	0.21	0.02	0.23	0.03
33.04	Octanoic acid	1173	0.63	0.17	1.10	0.42	0.14	0.00	0.07	0.01	0.29	0.00	0.19	0.03	0.20	0.05
34.11	Nonanoic acid	1272	0.56	0.11	0.68	0.11	0.25	0.01	0.15	0.03	0.44	0.00	0.35	0.02	0.32	0.10
	tot		***4.78***		***6.06***		***2.75***		***2.80***		***3.60***		***7.35***		***8.91***	
Monoterpenes																
9.88	β-Pinene	989	5.15	0.05	5.62	2.52	9.41	2.91	4.00	0.74	3.06	0.26	4.61	0.44	2.85	0.77
12.14	δ-3-Carene	1015	15.67	1.65	15.31	2.62	16.48	3.68	14.66	2.73	10.37	0.88	12.91	1.24	9.35	0.60
12.94	α-Phellandrene	1017	17.69	1.73	20.98	5.17	6.42	0.21	6.87	1.28	7.43	0.38	6.64	0.64	8.41	0.36
13.38	β-Myrcene	1023	79.03	5.41	84.24	19.46	37.29	2.84	27.33	5.09	39.76	1.83	49.08	4.95	39.27	4.36
13.64	α-Terpinene	1026	22.35	1.80	24.70	6.17	8.57	2.70	8.99	1.67	9.59	0.02	6.55	0.66	9.21	1.53

14.48	α-Linonene	1038	24.28	0.71	26.43	5.80	11.43	1.66	11.50	2.43	12.11	0.62	11.65	1.12	11.91	2.28
14.78	β-Sabinene	1044	34.87	4.96	39.93	12.22	17.45	0.92	18.07	3.36	21.80	1.11	23.54	3.22	19.16	3.61
16.43	γ-Terpinene	1066	18.05	2.01	21.50	5.33	7.14	0.34	9.06	1.69	11.98	0.02	7.34	0.70	10.51	2.03
16.9	β-Ocimene	1070	61.33	0.57	69.03	21.03	30.81	0.42	26.25	4.89	36.62	1.86	32.79	3.15	34.70	2.72
17.26	p-Cymene	1083	53.75	27.96	72.47	29.86	44.99	20.41	40.15	8.83	39.92	2.03	15.16	1.46	25.04	4.22
17.71	α-Terpinolene	1094	340.98	13.36	335.47	87.70	171.57	4.28	147.70	27.49	198.41	10.08	216.78	56.06	195.03	7.82
21.98	Cymenene	1120	20.30	0.81	26.88	9.10	21.41	4.98	30.03	5.59	29.19	1.48	8.43	0.81	11.57	2.78
22.63	4.8-epoxy-p-Menth-1-ene	1177	2.00	0.40	2.42	0.28	34.23	17.58	1.44	0.27	2.32	0.00	1.68	0.17	1.62	0.65
23.13	cis-Menthone	1198	n.d.		n.d.		10.98	3.42	n.d.		0.86	0.04	0.55	0.62	0.42	0.13
24.66	Linalool	1209	5.41	1.00	5.48	0.09	2.92	0.42	6.27	1.01	3.66	0.19	1.92	1.31	2.69	3.15
26.53	Menthol	1217	0.00	0.00	0.00	0.00	13.67	9.27	0.55	0.10	9.80	0.02	n.d.		n.d.	
27.41	1.8-Menthadien-4-ol	1225	2.12	0.07	2.59	0.10	0.00	0.00	1.91	0.35	1.07	0.00	0.95	0.09	1.99	0.87
27.6	α-Terpineol	1245	7.94	0.16	10.58	1.99	5.66	0.47	7.55	1.41	6.34	0.01	4.49	0.45	5.13	3.07
29.66	*trans*-2.3-Epoxycaren	1293	0.28	0.01	9.24	2.55	0.00	0.00	0.16	0.03	0.00	0.00	0.18	0.02	0.39	0.25
30.4	p-Cymenol		3.10	0.24	0.34	0.10	0.59	0.24	2.40	0.45	2.63	0.17	1.49	0.20	2.48	1.48
	tot		***714.30***		***773.22***		***451.03***		***364.90***		***446.93***		***406.73***		***391.72***	
Sesquitepenes																
25.58	γ-Caryophyllene	1482	36.90	6.05	40.26	3.45	29.14	4.84	38.82	7.23	5.14	0.26	13.11	1.32	23.12	11.8
27.05	α-Humulene	1494	8.37	0.77	8.65	0.10	6.83	0.44	9.41	1.75	1.69	0.09	3.26	0.45	5.36	2.96
28.03	δ-Guaiene	1485	8.25	0.13	8.48	1.06	6.33	0.57	6.66	1.58	7.78	0.40	2.34	0.22	3.50	1.75
28.14	β-Selinene	1490	2.29	0.24	2.55	1.09	1.77	0.29	2.41	0.45	2.73	0.01	0.80	0.05	1.44	0.38
28.33	α-Gurjunene	1507	2.04	0.13	2.46	0.53	1.48	0.03	2.30	0.43	2.43	0.12	0.75	0.07	1.77	0.36
29.02	β-Maaliene	1519	1.30	0.06	1.31	0.05	0.48	0.67	1.04	0.19	1.35	0.00	3.46	0.20	1.27	0.46
29.19	Selina-3.7(11)-diene	1527	15.30	0.20	8.88	9.15	10.21	1.52	12.58	2.34	13.88	0.91	4.64	0.63	7.96	3.23
	tot		***74.44***		***72.59***		***56.24***		***73.22***		***35.00***		***28.36***		***44.42***	

RT: retention time (min); Mean: Mean value (n = 3); Data are expressed in ppm SD: Standard deviation (n = 3); RI[b]: retention index calculated on a Rtx-Wax (30 m x 0.25 mm x 0.25 m f.t.)

Table S6. Concentration of terpenes (ppm) in Bedrocan oils obtained using MCT oil as a function of the storage time

RT	Compound	RI	Storage days											
			T0		T15		T30		T45		T60		T75		T90	
			Mean	±SD	Mean	±SD	Mean	±SD	Mean	±SD	Mean[c]	±SD	Mean[c]	±SD[d]	Mean[c]	±SD[d]
Aldehydes																
8.98	Hexanal	785	n.d.		n.d.		n.d.		n.d.		n.d.		n.d.		n.d.	
	tot															
Alcohols																
20.02	1-Hexanol	831	n.d.		n.d.		n.d.		4.95	0.13	4.89	0.04	4.10	0.05	4.61	0.15
	tot								***4.95***		***4.89***		***4.10***		***4.61***	
Esters																
21.66	Butanoic acid-hexyl ester	1183	11.57	3.73	12.37	1.94	7.75	0.45	5.68	0.14	15.78	0.14	11.63	1.50	5.96	0.44
24.93	(-)-Menthyl acetate	1381	n.d.		n.d.		8.21	4.22	n.d.		n.d.		n.d.		n.d.	
29.81	β-phenethyl acetate	1410	2.98	0.27	2.54	0.98	1.21	0.11	n.d.		n.d.		n.d.		n.d.	
	tot		***14.55***		***14.90***		***17.17***		***5.68***		***15.78***		***11.63***		***5.96***	
Organic acids																
22.1	Acetic acid	576	n.d.		n.d.		n.d.		10.72	0.27	3.97	0.04	16.78	0.22	12.54	4.71
26.17	Butanoic acid	775	3.23	0.70	n.d.		0.95	1.35	9.97	0.25	3.56	0.74	0.90	0.01	0.47	0.03
30.33	Hexanoic acid	974	0.56	0.15	4.60	0.42	3.81	0.47	0.39	0.01	0.37	0.00	0.30	0.12	0.11	0.01
31.96	Heptanoic acid	1073	0.19	0.06	n.d.		n.d.		0.12	0.00	0.19	0.00	0.15	0.00	0.13	0.00
33.04	Octanoic acid	1173	0.68	0.02	1.34	0.95	0.22	0.01	0.60	0.02	0.35	0.00	0.38	0.00	0.13	0.00
34.11	Nonanoic acid	1272	0.62	0.03	0.80	0.42	0.40	0.02	0.31	0.01	0.37	0.00	0.17	0.02	0.28	0.01
	tot		***5.28***		***6.74***		***5.38***		***22.12***		***8.82***		***18.67***	***0.38***	***13.66***	
Monoterpenes																
9.88	β-Pinene	989	6.63	0.34	5.84	0.47	15.16	4.41	6.15	0.16	5.87	0.05	9.58	2.54	8.78	0.28
12.14	δ-3-Carene	1015	17.37	2.62	16.82	3.54	26.56	5.43	25.40	0.64	25.00	1.20	22.32	5.91	16.78	1.25
12.94	α-Phellandrene	1017	19.62	3.10	22.71	3.05	10.36	0.14	10.54	0.27	26.69	0.24	12.34	3.27	9.24	2.58

13.38	β-Myrcene	1023	88.01	16.48	91.49	13.75	60.20	3.42	57.63	1.46	85.61	0.78	73.38	0.94	59.21	1.87
13.64	α-Terpinene	1026	25.36	8.40	26.73	3.50	13.80	4.10	16.92	0.43	20.56	0.19	18.82	0.24	15.58	1.16
14.48	α-Linonene	1038	27.17	6.14	28.77	4.66	18.44	2.32	16.56	0.42	30.40	0.28	18.89	5.00	21.02	5.88
14.78	β-Sabinene	1044	38.46	4.38	42.73	3.12	28.20	2.02	29.60	0.75	41.12	0.38	39.73	0.51	30.39	0.96
16.43	γ-Terpinene	1066	20.57	7.41	23.27	3.10	11.55	0.78	14.10	0.36	23.34	0.21	20.71	2.66	16.45	1.22
16.9	β-Ocimene	1070	68.82	16.86	73.89	5.50	49.78	1.64	47.02	2.83	78.10	0.71	58.64	7.55	56.30	4.18
17.26	p-Cymene	1083	64.38	46.75	75.92	3.07	72.98	34.36	70.81	79.87	11.18	0.10	74.46	9.58	38.01	10.63
17.71	α-Terpinolene	1094	381.13	82.33	389.63	35.15	277.07	1.57	241.02	6.10	344.83	3.15	339.90	4.37	323.25	10.19
21.98	Cymenene	1120	22.92	6.70	28.57	1.11	34.66	8.71	57.87	1.46	60.50	0.55	26.01	0.33	31.68	2.35
22.63	4.8-epoxy-p-Menth-1-ene	1177	2.19	0.12	2.69	0.71	55.02	27.33	0.00	0.00	3.21	0.03	2.28	0.03	n.d.	
23.13	cis-Menthone	1198	n.d.		n.d.		17.68	5.19	n.d.		1.92	0.02	0.58	0.01	0.53	0.01
24.66	Linalool	1209	5.93	0.43	6.20	2.22	4.71	0.59	3.72	0.09	6.15	0.06	4.34	0.06	3.06	0.04
26.53	Menthol	1217	n.d.		n.d.		21.94	14.54	n.d.		0.92	0.01	n.d.		1.64	0.12
27.41	1.8-Menthadien-4-ol	1225	2.39	0.68	2.92	0.98	n.d.		2.61	0.07	3.97	0.16	2.05	0.03	1.67	0.02
27.6	α-Terpineol	1245	8.90	2.09	11.59	2.24	9.13	0.58	9.68	0.25	11.94	0.11	8.59	0.11	4.99	0.16
29.66	*trans*-2.3-Epoxycaren	1293	n.d.		n.d.		n.d.		n.d.		n.d.		n.d.		n.d.	
30.4	p-Cymenol		3.45	0.61	0.37	0.03	0.96	0.41	12.63	14.31	3.86	0.04	2.73	0.04	1.91	0.06
	tot		***803.31***		***850.14***		***728.20***		***622.27***		***785.16***		***735.34***		***640.48***	
Sesquitepenes																
25.58	γ-Caryophyllene	1482	40.59	3.74	44.97	13.21	47.00	6.91	54.82	1.39	73.98	0.68	49.61	0.64	25.95	0.82
27.05	α-Humulene	1494	9.29	1.52	9.80	3.57	11.03	0.50	n.d.		20.46	0.19	8.32	1.07	4.61	0.07
28.03	δ-Guaiene	1485	9.24	2.20	9.40	2.40	10.21	0.73	12.55	0.32	16.46	0.15	7.50	0.97	2.52	0.19
28.14	β-Selinene	1490	2.60	0.93	2.66	0.15	2.86	0.41	3.87	0.10	5.69	0.12	3.19	0.04	1.27	0.02
28.33	α-Gurjunene	1507	2.28	0.44	2.68	0.44	2.40	0.09	3.38	0.09	5.04	0.05	2.59	0.33	1.04	0.01
29.02	β-Maaliene	1519	1.47	0.44	1.47	0.50	0.76	1.07	1.73	0.04	2.44	0.02	13.73	0.18	0.52	0.04
29.19	Selina-3.7(11)-diene	1527	17.21	4.59	12.03	14.17	16.47	2.14	22.22	0.07	28.50	0.26	16.30	2.10	7.69	0.24
	tot		***82.69***		***83.01***		***90.72***		***98.56***		***152.56***		***101.24***		***43.60***	

RT: retention time (min); Mean: Mean value (n = 3); Data are expressed in ppm SD: Standard deviation (n = 3); RI^{b}: retention index calculated on a Rtx-Wax (30 m x 0.25 mm x 0.25 m f.t.)