Supplementary material

Table S1: Chemical profile of Carthamus tinctorius extract.

Chemical profile of *Carthamus tinctorius hot* water extract

Peak	RT	Name	Formula	Area	Width	Area Sum %
1	7.064	Undecane	C11H24	1696512.64	0.532	1.71
2	17.329	Hexadecanoic acid, methyl ester	C17H34O2	3566814.71	0.183	3.59
3	18.96	9,12-Octadecadienoic acid (Z,Z)-, methyl ester	C19H34O2	660041.32	0.052	0.66
4	19.006	9-Octadecenoic acid (Z)-, methyl ester	C19H36O2	3580948.34	0.189	3.6
5	19.229	Octadecanoic acid, methyl ester	C19H38O2	3210585.48	0.129	3.23
6	19.79	Hexadecanamide	C16H33NO	8200882.2	0.571	8.25
7	21.323	9-Octadecenamide, (Z)-	C18H35NO	46245897.26	0.183	46.52
8	21.546	Octadecanamide	C18H37NO	4878833.56	0.292	4.91
9	24.516	13-Docosenamide, (Z)-	C22H43NO	27365785.26	0.269	27.53

Chemical profile of *Carthamus tinctorius* 70% ethanol extract

Peak	RT	Name	Formula	Area	Area Sum %
1	13.33	Cyclohexanemethanol, 4-ethenyl-.alpha.,.alpha.,4-trimethyl-3-(1-methylethenyl)-,	C15H26O	2584168.36	0.25
2	14.565	Eudesmol	C15H26O	4684330.14	0.46
3	14.6	Eudesmol	C15H26O	2592692.29	0.26
4	14.646	2-((2R,4aR,8aS)-4a-Methyl-8-methylenedecahydronaphthalen-2-yl)prop-2-en-1-ol	C15H24O	7647773.6	0.75
5	15.607	2-((2R,4aR)-4a,8-Dimethyl-1,2,3,4,4a,5,6,7-octahydronaphthalen-2-yl)prop-2-en-1-ol	C15H24O	2775495.4	0.27
6	15.847	2-((2R,4aR,8aS)-4a-Methyl-8-methylenedecahydronaphthalen-2-yl)prop-2-en-1-ol	C15H24O	14841604.19	1.46
7	15.899	2-((2R,4aR,8aS)-4a-Methyl-8-methylenedecahydronaphthalen-2-yl)prop-2-en-1-ol	C15H24O	6384406.96	0.63
8	16.225	2(3H)-Benzofuranone, 6-ethenylhexahydro-3,6-dimethyl-7-(1-methylethenyl)-, [3S-(3.alpha.,3a.alpha.,6.alpha.,7.beta.,7a.beta.)]-	C15H22O2	5817033.58	0.57
9	16.425	2(3H)-Benzofuranone, 6-ethenylhexahydro-6-methyl-3-methylene-7-(1-methylethenyl)-, [3aS-(3a.alpha.,6.alpha.,7.beta.,7a.beta.)]-	C15H20O2	2755366.94	0.27
10	16.62	2(3H)-Benzofuranone, 6-ethenylhexahydro-6-methyl-3-methylene-7-(1-methylethenyl)-, [3aS-(3a.alpha.,6.alpha.,7.beta.,7a.beta.)]-	C15H20O2	52969835.13	5.22
11	17.289	Eudesma-5,11(13)-dien-8,12-olide	C15H20O2	26260961.41	2.59

12	17.57	2(3H)-Benzofuranone, 6-ethenylhexahydro-6-methyl-3-methylene-7-(1-methylethenyl)-, [3aS-(3a.alpha.,6.alpha.,7.beta.,7a.beta.)]-	C15H20O2	7357392.85	0.73
13	17.61	2(3H)-Benzofuranone, 6-ethenylhexahydro-6-methyl-3-methylene-7-(1-methylethenyl)-, [3aS-(3a.alpha.,6.alpha.,7.beta.,7a.beta.)]-	C15H20O2	9818100.91	0.97
14	17.718	Dihydrodehydrocostus lactone	C15H20O2	76934777.31	7.59
15	17.753	Isoalantolactone	C15H20O2	24619136.07	2.43
16	17.793	2(3H)-Benzofuranone, 6-ethenylhexahydro-6-methyl-3-methylene-7-(1-methylethenyl)-, [3aS-(3a.alpha.,6.alpha.,7.beta.,7a.beta.)]-	C15H20O2	3588631.63	0.35
17	17.964	2(3H)-Benzofuranone, 6-ethenylhexahydro-6-methyl-3-methylene-7-(1-methylethenyl)-, [3aS-(3a.alpha.,6.alpha.,7.beta.,7a.beta.)]-	C15H20O2	7426190.37	0.73
18	18.079	Azuleno[4,5-b]furan-2(3H)-one, decahydro-3,6,9-tris(methylene)-, [3aS-(3a.alpha.,6a.alpha.,9a.alpha.,9b.beta.)]-	C15H18O2	16396355.4	1.62
19	18.125	Azuleno[4,5-b]furan-2(3H)-one, decahydro-3,6,9-tris(methylene)-, [3aS-(3a.alpha.,6a.alpha.,9a.alpha.,9b.beta.)]-	C15H18O2	43647699.96	4.3
20	18.388	Azuleno[4,5-b]furan-2(3H)-one, decahydro-3,6,9-tris(methylene)-, [3aS-(3a.alpha.,6a.alpha.,9a.alpha.,9b.beta.)]-	C15H18O2	416644855.2	41.09
21	18.428	2(3H)-Benzofuranone, 6-ethenylhexahydro-6-methyl-3-methylene-7-(1-methylethenyl)-, [3aS-(3a.alpha.,6.alpha.,7.beta.,7a.beta.)]-	C15H20O2	17214625.65	1.7
22	19.767	Hexadecanamide	C16H33NO	12094545.29	1.19
23	21.232	9-Octadecenamide, (Z)-	C18H35NO	3536976.59	0.35
24	21.34	9-Octadecenamide, (Z)-	C18H35NO	56251685.76	5.55
25	21.386	9-Octadecenamide, (Z)-	C18H35NO	24729864.33	2.44
26	21.426	9-Octadecenamide, (Z)-	C18H35NO	28530142.14	2.81
27	21.518	Octadecanamide	C18H37NO	10110113.22	1
28	22.376	1-Heptatriacotanol	C37H76O	6652568.2	0.66
29	22.485	Hexadecanoic acid, 2-hydroxy-1-(hydroxymethyl)ethyl ester	C19H38O4	38459648	3.79
30	22.96	cis-11-Eicosenamide	C20H39NO	8428862.49	0.83
31	23.005	cis-11-Eicosenamide	C20H39NO	6277381.86	0.62
32	24.03	Octadecanoic acid, 2-hydroxy-1-(hydroxymethyl)ethyl ester	C21H42O4	24800594.42	2.45
33	24.528	13-Docosenamide, (Z)-	C22H43NO	41087610.21	4.05

Chemical profile of *Carthamus tinctorius* traditional extract (2 hrs.)

Peak	RT	Name	Formula	Area	Width	Area Sum %
1	7.007	Undecane	C11H24	659005.33	0.09	0.38
2	7.092	Undecane	C11H24	880603.42	0.146	0.51
3	17.312	Hexadecanoic acid, methyl ester	C17H34O2	1166337.06	0.114	0.68
4	19.212	Heptadecanoic acid, 16-methyl-, methyl ester	C19H38O2	1388684.92	0.078	0.81

5	19.755	Hexadecanamide	C16H33NO	7508460.46	0.168	4.36
6	21.157	9-Octadecenamide	C18H35NO	5968844.09	0.177	3.47
7	21.323	9-Octadecenamide, (Z)-	C18H35NO	52933502.53	0.149	30.75
8	21.518	Octadecanamide	C18H37NO	6617261.33	0.206	3.84
9	22.376	Hexadecanoic acid, 1-(hydroxymethyl)-1,2-ethanediyl ester	C35H68O5	4354278.76	0.189	2.53
10	22.462	Hexadecanoic acid, 2-hydroxy-1-(hydroxymethyl)ethyl ester	C19H38O4	17681196.53	0.212	10.27
11	23.904	4-Hexyl-1-(7-methoxycarbonylheptyl)bicyclo[4.4.0]deca-2,5,7-triene	C25H40O2	7187290.34	0.189	4.17
12	24.018	Octadecanoic acid, 2-hydroxy-1-(hydroxymethyl)ethyl ester	C21H42O4	25804886.17	0.189	14.99
13	24.327	9,10-Secocholesta-5,7,10(19)-triene-3,24,25-triol, (3β,5Z,7E)-	C27H44O3	2763982.9	0.187	1.61
14	24.51	13-Docosenamide, (Z)-	C22H43NO	36704951.76	0.16	21.32
15	24.705	9,10-Secocholesta-5,7,10(19)-triene-3,24,25-triol, (3.beta.,5Z,7E)-	C27H44O3	538454.62	0.12	0.31

Chemical profile of *Carthamus tinctorius* traditional extract (12 hrs.)

Peak	RT	Name	Formula	Area	Width	Area Sum %
1	7.012	Undecane	C11H24	583248.02	0.082	0.39
2	7.081	Undecane	C11H24	905896.04	0.149	0.6
3	11.458	l-Gala-l-ido-octonic lactone	C8H14O8	510815.08	0.261	0.34
4	13.221	Melezitose	C18H32O16	1493788.29	0.561	0.99
5	15.069	Desulphosinigrin	C10H17NO6S	690907.03	0.383	0.46
6	17.312	Hexadecanoic acid, methyl ester	C17H34O2	1031212.1	0.114	0.68
7	19.212	Heptadecanoic acid, 16-methyl-, methyl ester	C19H38O2	1961579.46	0.18	1.3
8	19.755	Hexadecanamide	C16H33NO	6573009.63	0.21	4.35
9	21.146	9-Octadecenamide	C18H35NO	2948030.94	0.159	1.95
10	21.312	9-Octadecenamide, (Z)-	C18H35NO	45851462.1	0.177	30.33
11	21.512	Octadecanamide	C18H37NO	4303344.22	0.158	2.85
12	22.342	Hexadecanoic acid, 1-(hydroxymethyl)-1,2-ethanediyl ester	C35H68O5	3291352.18	0.183	2.18
13	22.462	Hexadecanoic acid, 2-hydroxy-1-(hydroxymethyl)ethyl ester	C19H38O4	16597579.85	0.189	10.98
14	23.898	4-Hexyl-1-(7-methoxycarbonylheptyl)bicyclo[4.4.0]deca-2,5,7-triene	C25H40O2	5693530	0.195	3.77
15	24.013	Octadecanoic acid, 2-hydroxy-1-(hydroxymethyl)ethyl ester	C21H42O4	24765560.17	0.189	16.38

16	24.327	9,10-Secocholesta-5,7,10(19)-triene-3,24,25-triol, (3β,5Z,7E)-	C27H44O3	1212043.17	0.171	0.8
17	24.499	13-Docosenamide, (Z)-	C22H43NO	32217734.27	0.158	21.31
18	24.705	9,10-Secocholesta-5,7,10(19)-triene-3,24,25-triol, (3.beta.,5Z,7E)-	C27H44O3	522863.54	0.113	0.35

Chemical profile of *Carthamus tinctorius* traditional extract (24 hrs.)

Peak	RT	Name	Formula	Area	Width	Area Sum %
1	7.007	Undecane	C11H24	926902.44	0.095	0.51
2	7.075	Undecane	C11H24	803641.86	0.132	0.44
3	8.203	1,3-Diazacyclooctane-2-thione	C6H12N2S	1038090.9	0.336	0.57
4	10.005	l-Gala-l-ido-octonic lactone	C8H14O8	1035796.2	0.445	0.57
5	11.447	.beta.-D-Glucopyranose, 1-thio-,1-[N-hydroxy-5-(methylthio)pentanimidate]	C12H23NO6S2	587047.71	0.176	0.32
6	13.227	Melezitose	C18H32O16	1036716.4	0.378	0.57
7	14.926	Desulphosinigrin	C10H17NO6S	1284854.7	0.461	0.7
8	17.306	Hexadecanoic acid, methyl ester	C17H34O2	936996.36	0.114	0.51
9	19.206	Heptadecanoic acid, 16-methyl-, methyl ester	C19H38O2	758564.54	0.044	0.42
10	19.343	Epi-Inositol	C6H12O6	1838296.3	0.286	1.01
11	19.744	Hexadecanamide	C16H33NO	9118211.8	0.206	5
12	21.14	9-Octadecenamide	C18H35NO	5970445.7	0.124	3.27
13	21.317	9-Octadecenamide, (Z)-	C18H35NO	57017520	0.166	31.26
14	21.506	Octadecanamide	C18H37NO	7055632.3	0.206	3.87
15	22.336	Hexadecanoic acid, 1-(hydroxymethyl)-1,2-ethanediyl ester	C35H68O5	3985521.9	0.195	2.18
16	22.456	Hexadecanoic acid, 2-hydroxy-1-(hydroxymethyl)ethyl ester	C19H38O4	14848328	0.212	8.14
17	23.858	4-Hexyl-1-(7-methoxycarbonylheptyl)bicyclo[4.4.0]deca-2,5,7-triene	C25H40O2	5376094	0.171	2.95
18	24.013	Octadecanoic acid, 2-hydroxy-1-(hydroxymethyl)ethyl ester	C21H42O4	21403503	0.155	11.73
19	24.322	9,10-Secocholesta-5,7,10(19)-triene-3,24,25-triol, (3β,5Z,7E)-	C27H44O3	4431201.7	0.172	2.43
20	24.505	13-Docosenamide, (Z)-	C22H43NO	41650264	0.166	22.83
21	24.699	9,10-Secocholesta-5,7,10(19)-triene-3,24,25-triol, (3.beta.,5Z,7E)-	C27H44O3	1315265.2	0.172	0.72