

Dr. Duke's Phytochemical and Ethnobotanical Database

Chemicals Found in *Carthamus tinctorius*

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	(E)-11-TRIDECENE-3,5,7,9-TETRAYNE-1,2-DIOL	Sprout Seedling	5.9	6.2		
0	(E)-2-HEPTENAL	Leaf	0.04	0.04		
0	(E)-2-HEPTENAL	Bud	0.02	0.02		
2	(E)-2-HEXENAL	Flower	0.5	0.6	-1.0000000000000002	
2	(E)-2-HEXENAL	Leaf	1.67	1.67	-1	
0	(E)-2-HEXENOL	Bud	0.22	0.22		
0	(E)-2-HEXENOL	Leaf	0.73	0.73		
0	(E)-2-METHYL-2-BUTENAL	Bud	0.05	0.05		
0	(E)-2-PENTENAL	Plant	--	--		
0	(E)-2-PENTENOL	Bud	0.01	0.01		
0	(E)-2-PENTENOL	Leaf	0.1	0.1		
0	(E)-BETA-FARNESENE	Flower	0.05	0.19		
0	(E)-BETA-FARNESENE	Leaf	0.04	0.04	-0.9320832719315618	
0	(E,E)-2,4-DECADIENAL	Flower	0.15	0.15		
0	(E,E)-3,11-TRIDECADIENE-5,7,9-TRIYNE-1,2-DIOL	Sprout Seedling	--	--		
0	(E,Z)-2,8-DECADIENE-4,6-DIYNE-1-YL-3-METHYLBUTYRATE	Flower	1.09	1.09		
0	(E,Z,E)-1,3,5,11-TRIDECATETRAENE-7,9-DIYNE	Flower	2	28		
0	(E,Z,E)-1,3,5,11-TRIDECATETRAENE-7,9-DIYNE	Leaf	3	3		

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	(FUNGICIDE)	Plant	--	--		
0	(Z)-2-HEPTENAL	Bud	0.03	0.03		
0	(Z)-2-PENTENOL	Bud	0.23	0.23		
0	(Z)-3-HEXENOL	Leaf	1.41	1.41	-1.2021074521179302	
0	(Z)-3-HEXENOL	Bud	0.57	0.57		
0	(Z)-3-HEXENYL-BENZOATE	Bud	0.04	0.04		
0	(Z)-3-HEXENYL-BENZOATE	Leaf	0.05	0.05		
0	(Z)-3-HEXENYL-BUTYRATE	Leaf	0.01	0.01		
0	(Z)-8-DECENE-4,6-DIYNE-1-YL-3-METHYLBUTYRATE	Leaf	0.07	0.07		
0	(Z)-8-DECENE-4,6-DIYNE-1-YL-3-METHYLBUTYRATE	Flower	0.9	19.7		
0	(Z,Z)-1,8,11-HEPTADECATRIENE	Flower	0.69	1.42		
0	(Z,Z)-1,8,11-HEPTADECATRIENE	Leaf	1.74	1.74		
0	(Z,Z)-3,11-TRIDECATRIENE-5,7,9-TRIYNE	Flower	0.82	0.82		
0	(Z,Z,Z)-1,8,11,14-HEPTADECATETRAENE	Flower	1.54	7.8		
0	1,2,3-TRIMETHOXY-5-METHYL-BENZENE	Flower	1.12	1.12		
0	1-HEPTADECENE	Sprout Seedling	--	--		
0	1-HEPTADECENE	Flower	0.51	0.51		
0	1-HEXADECENE	Flower	0.05	0.11		
0	1-HEXADECENE	Leaf	0.22	0.22		

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
1	1-PENTADECENE	Flower	9	110		
1	1-PENTADECENE	Leaf	138	138		
0	1-TRIDECENE	Bud	0.16	0.16		
0	1-TRIDECENE	Leaf	0.19	0.19		
0	1-TRIDECENE-3,5,7,9,11-PENTAYNE	Flower	0.39	0.79		
0	11E-TRIDECA-1,11-DIENE-3,5,7,9-TETRAYNE	Sprout Seedling	--	--		
0	11Z-TRIDECA-1,11-DIENE-3,5,7,9-TETRAYNE	Sprout Seedling	--	--		
0	2-HEXANOL	Flower	0.12	0.12		
0	2-HYDROXYARCTIIN	Flower	--	--		
0	2-METHYL-BUTYRIC-ACID	Flower	0.11	0.11		
0	2-METHYL-PROPANOL	Bud	0.07	0.07		
0	2-METHYLPENT-2-ENAL	Bud	0.2	0.2		
0	3,5,11E-TRIDECA-1,3,5,11-TETRAENE-7,9-DIYNE	Sprout Seedling	--	--		
0	3-HEXANOL	Flower	0.1	0.1		
0	3-METHYL-BUTYRIC-ACID	Flower	1.2	1.2		
0	3E,11E-TRIDECA-1,3,11-TRIENE-5,7,9-TRIYNE	Flower	--	--		
0	3E,11E-TRIDECA-1,3,11-TRIENE-5,7,9-TRIYNE	Sprout Seedling	--	--		
0	3E,5E,11E-TRIDECA-1,3,5,11-TETRAENE-7,9-DIYNE	Sprout Seedling	--	--		
0	3E,5Z,11E-TRIDECA-1,3,5,11-TETRAENE-7,9-DIYNE	Sprout Seedling	--	--		

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	3E-TRIDECA-1,3-DIENE-5,7,9,11-TETRAYNE	Sprout Seedling	--	--		
0	3Z,11E-TRIDECA-1,3,11-TRIENE-5,7,9-TRIYNE	Flower	--	--		
0	3Z,11Z-TRIDECA-1,3,11-TRIENE-5,7,9-TRIYNE	Sprout Seedling	--	--		
0	3Z,11Z-TRIDECA-1,3,11-TRIENE-5,7,9-TRIYNR	Sprout Seedling	--	--		
0	ALLO-AROMADENDRENE	Bud	0.01	0.01		
3	ALPHA-CEDRENE	Flower	0.24	1.4		
0	ALPHA-COPAENE	Flower	0.17	0.22	-0.8722153075099439	
0	ALPHA-COPAENE	Leaf	0.05	0.05	-0.3560123650887585	
0	ALPHA-GURJUNENE	Bud	0.04	0.04		
0	ALPHA-MUUROLENE	Bud	0.09	0.09		
11	ALPHA-PHELLANDRENE	Leaf	0.01	0.01	-0.3143142988548442	
11	ALPHA-PHELLANDRENE	Bud	0.01	0.01		
32	ALPHA-TOCOPHEROL	Oil	449	449	-0.0369380787245654	
5	ALUMINUM	Flower	12	84	-0.24989404157549264	
0	ARACHIDIC-ACID	Seed	1000	3130	-0.34939367755991074	
2	ARSENIC	Flower	0.48	0.48	0.6445840747173526	
112	ASCORBIC-ACID	Seed	--	--	-0.33845664486186666	
112	ASCORBIC-ACID	Flower	14	100	-0.8040063541862045	
0	ASH	Flower	5320	38000	-0.6963303382958294	

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	ASH	Plant	15000	122000	0.01783870103962789	
0	ASH	Seed	40000	45000	-0.08662699220958558	
1	BEHENIC-ACID	Seed	--	--		
24	BENZALDEHYDE	Leaf	0.04	0.04	-0.4691395911467352	
24	BENZALDEHYDE	Bud	0.1	0.1		
3	BENZENE	Flower	0.13	0.25		
0	BENZOTHAZOLE	Flower	0.01	0.01		
0	BENZOTHAZOLE	Leaf	0.03	0.03		
53	BETA-CAROTENE	Flower	13	90	0.770394138576049	
0	BETA-CYCLOCITRAL	Leaf	0.05	0.05		
0	BETA-CYCLOCITRAL	Flower	0.03	0.03		
13	BETA-IONONE	Flower	0.07	0.88	-0.5939949516750141	
13	BETA-IONONE	Leaf	0.09	0.09	-0.970249789050833	
3	BETA-SELINENE	Flower	0.14	0.29	-1	
3	BETA-SELINENE	Leaf	0.11	0.11	-0.5235476750267929	
28	CALCIUM	Flower	620	4430	-0.3708630185678622	
28	CALCIUM	Plant	17000	17000	0.3648211099783701	
28	CALCIUM	Seed	1260	1324	-0.5183596092485815	
0	CARBOHYDRATES	Plant	692000	892000	1.413974870716482	

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	CARBOHYDRATES	Seed	124000	530000	0.02622064507550898	
1	CARTHAMIN	Flower	3000	6000		
0	CARTHAMONE	Flower	--	--		
31	CARYOPHYLLENE	Flower	43	50	-0.7466837902953343	
31	CARYOPHYLLENE	Leaf	27	28	-0.6518220503422282	
6	CARYOPHYLLENE-EPOXIDE	Flower	2.4	4.5		
6	CARYOPHYLLENE-EPOXIDE	Leaf	1.14	1.14	-1.0000000000000004	
24	CHROMIUM	Flower	0.4	3.1	0.07742646188569892	
2	COBALT	Flower	0.4	2.6	-0.4076076948646282	
12	COPPER	Flower	20	26	1.8649677339170079	
0	CYCLOSATIVENE	Bud	0.09	0.09		
0	DECA-4,6-DIYN-1-OL	Plant	--	--		
0	DECA-4,6-DIYN-1-YL-3-METHYLBUTYRATE	Flower	0.7	12.2		
0	DECA-4,6-DIYN-1-YL-3-METHYLBUTYRATE	Leaf	0.59	0.59		
0	DECANAL	Flower	0.03	0.03		
0	DECANAL	Leaf	0.03	0.03	-0.7081307801782422	
0	DECANE	Bud	0.01	0.01		
9	DELTA-CADINENE	Leaf	0.12	0.12	-0.4635627243605292	
9	DELTA-CADINENE	Flower	0.63	0.84	-1.0807474918188316	

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	DIHYDROACTINIDIOLIDE	Flower	0.02	0.1		
6	ETHYL-ACETATE	Flower	0.04	0.14	-0.9999999999999999	
0	ETHYLBENZENE	Flower	0.4	0.5		
0	FAT	Plant	16000	51000	-0.010900590094613647	
0	FAT	Seed	200000	626000	1.8994745477013804	
0	FAT	Flower	8820	63000	0.08325606823768805	
15	FIBER	Flower	93000	93000	-0.4719304151098302	Pedersen, M. 1987. Nutritional Herbology. Pederson Publishing. Bountiful, Utah. 377 pp.
15	FIBER	Plant	109000	582000	2.6556495468581263	
15	FIBER	Seed	251000	582000	3.5313347977031055	
0	FIBER(CRUDE)	Flower	--	93000	0.8337716352232641	
0	FIBER(DIETARY)	Flower	--	290000	-0.21521861253312108	
0	GAMMA-MUUROLENE	Bud	0.06	0.06		
14	GAMMA-TOCOPHEROL	Oil	26	26	-1.245244060310563	
2	GERMACRENE-D	Leaf	0.04	0.04	-0.525020905500319	
5	HEXANAL	Bud	0.06	0.06		

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3	HEXANOL	Bud	0.27	0.27		
3	HEXANOL	Leaf	1.06	1.06	1.4091405923182305	
0	HEXYL-3-METHYL-BUTYRATE	Bud	0.01	0.01		
2	HUMULENE	Flower	1.6	2		
2	HUMULENE	Leaf	1.13	1.13	-0.46575930703125656	
6	IRON	Flower	1	8	-1.050072826643537	
6	IRON	Seed	97	102	-0.22670770717721234	
0	ISOCARTHAMIN	Flower	--	--		
0	KAEMPFEROL-GLYCOSIDE	Flower	--	--		
0	KILOCALORIES	Seed	4820	6470	1.2609998714062267	
7	LAURIC-ACID	Seed	--	--		
1	LIGNOCERIC-ACID	Seed	--	--		
60	LIMONENE	Bud	0.01	0.01		
60	LIMONENE	Leaf	0.01	0.01	-0.44777369951183704	
27	LINOLEIC-ACID	Seed	122000	481394	3.2067979683786954	
0	LINOLENIC-ACID	Seed	5200	16276	-0.29572352589995704	
0	LUTEOLIN-7-BETA-D-GLUCOSIDE	Leaf	--	--		
0	M-XYLENE	Bud	0.12	0.12		
65	MAGNESIUM	Flower	260	1860	-0.6881879935904329	

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
14	MANGANESE	Flower	0.4	3.1	-0.38175217245146315	
0	MATAIRESINOL-4-O-BETA-GLUCOPYRANOSIDE	Seed	--	--		
0	MATAIRESINOSIDE	Seed	--	--		
1	MERCURY	Flower	0.02	0.02	-0.9956069335307655	
5	METHYL-CINNAMATE	Flower	0.08	0.08	-1	
3	MUCILAGE	Flower	--	--		
6	MYRISTIC-ACID	Seed	3000	9390	-0.1730799967535169	
0	NEOCARTHAMIN	Flower	--	--		
39	NIACIN	Flower	--	--		
39	NIACIN	Seed	5	5.3	-1.1251050059916683	
0	NONANAL	Flower	0.03	0.07	-0.9999999999999999	
0	NONANAL	Leaf	0.13	0.13		
0	O-XYLENE	Flower	0.5	0.11		
18	OLEIC-ACID	Seed	11000	206580	0.7191086813826397	
16	P-CYMENE	Bud	0.01	0.01		
16	P-CYMENE	Leaf	0.03	0.03	-0.4000885643823194	
0	P-XYLENE	Flower	0.5	0.24		
13	PALMITIC-ACID	Seed	6000	18780	-0.3121087137263382	
0	PENT-1-EN-3-OL	Flower	0.07	0.31		

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	PENT-3-EN-2-ONE	Bud	0.28	0.28		
0	PENTANAL	Leaf	0.04	0.04		
0	PENTANOL	Bud	0.13	0.13		
26	PHENOL	Bud	0.04	0.04		
2	PHENYL-ACETALDEHYDE	Leaf	0.07	0.07		
2	PHENYL-ACETALDEHYDE	Flower	1.22	1.22	0.9999999999999999	
4	PHOSPHORUS	Flower	332	2370	-0.5632081846851916	
4	PHOSPHORUS	Plant	3400	3400	-0.09065654884395533	
4	PHOSPHORUS	Seed	3100	3526	-0.4828946265642366	
14	POTASSIUM	Flower	2674	19100	-0.017465611124368237	
0	PROTEIN	Plant	122000	170000	-0.028396655033997305	
0	PROTEIN	Seed	126000	201000	-0.29173800499018654	
0	PROTEIN	Flower	20720	148000	0.060142035750731584	
15	RIBOFLAVIN	Seed	1	2	-0.5841625019907875	
15	RIBOFLAVIN	Flower	0.5	3.6	-0.6124279137361128	
0	SAFFLOWER-YELLOW	Flower	200000	300000		
0	SAFYNOL	Plant	--	--		
0	SD	Plant	--	--		
60	SELENIUM	Flower	0.3	2	-0.4856005150965234	

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	SEROTOBENINE	Plant	--	--		
4	SILICON	Flower	0.7	4.7	-0.5588401013097406	
1	SODIUM	Flower	325	2320	0.7443077617414459	
5	STARCH	Flower	14000	100000		
8	STEARIC-ACID	Seed	2000	6260	-0.42956929735990995	
0	SUGARS	Flower	12600	90000	-1.632993161855452	
23	TERPINEN-4-OL	Flower	0.01	0.1	-1.2822283694095995	
0	TETRACHELOSIDE	Flower	--	--		
0	TETRADECENE	Bud	0.08	3.1		
0	TETRADECENE	Leaf	3.66	3.66		
31	THIAMIN	Seed	5.9	6.2	-0.09165085828262295	
0	THIAMINE	Flower	--	--		
4	TIN	Flower	1.4	10	-0.8082238591204874	
6	TRACHELOSIDE	Seed	--	--		
0	TRIDECA-1,3,5-TRIENE-7,9,11-TRIYNE	Seed	--	--		
0	TRIDECANE	Bud	0.02	0.02		
0	UBIQUINONE-9	Plant	--	--		
5	VERBENONE	Flower	0.16	0.16		
0	WATER	Flower	--	860000	0.31204457974706823	

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	WATER	Seed	48000	50000	-0.6815525254932836	
77	ZINC	Flower	--	--		