

Dr. Duke's Phytochemical and Ethnobotanical Databases

Chemicals found in *Trifolium pratense*

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
1	(-)-MAACKIAIN-3-O-GLUCOSIDE	Root				--
2	(E)-2-HEXENAL	Flower		20.0	1.0	Buchnauer,G.,Jirovetz,L.,Nikiforov,A.1996.Comparative Investigation of Essential Clover Flower Oils from Austria Using Gas Chromatography-Flame Ionization Detection,Gas Chromatography-Mass Spectrometry,and Gas Chrom.-Olfactometry.J.Agric.Food Chem.44:1827-8
0	(E)-2-HEXENOL	Flower		7.0		Buchnauer,G.,Jirovetz,L.,Nikiforov,A.1996.Comparative Investigation of Essential Clover Flower Oils from Austria Using Gas Chromatography-Flame Ionization Detection,Gas Chromatography-Mass Spectrometry,and Gas Chrom.-Olfactometry.J.Agric.Food Chem.44:1827-8
0	(E)-LINALOL-OXIDE	Flower		19.0		Buchnauer,G.,Jirovetz,L.,Nikiforov,A.1996.Comparative Investigation of Essential Clover Flower Oils from Austria Using Gas Chromatography-Flame Ionization Detection,Gas Chromatography-Mass Spectrometry,and Gas Chrom.-Olfactometry.J.Agric.Food Chem.44:1827-8
0	(E)-LINALOOL-OXIDE	Flower		19.0		Buchnauer,G.,Jirovetz,L.,Nikiforov,A.1996.Comparative Investigation of Essential Clover Flower Oils from Austria Using Gas Chromatography-Flame Ionization Detection,Gas Chromatography-Mass Spectrometry,and Gas Chrom.-Olfactometry.J.Agric.Food Chem.44:1827-8

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	(Z)-1-HEXEN-3-OL	Flower		22.0		Buchnauer, G., Jirovetz, L., Nikiforov, A. 1996. Comparative Investigation of Essential Clover Flower Oils from Austria Using Gas Chromatography-Flame Ionization Detection, Gas Chromatography-Mass Spectrometry, and Gas Chrom.-Olfactometry. J. Agrc. Food Chem. 44:1827-8
0	(Z)-3-HEXENOL	Flower		14.0		Buchnauer, G., Jirovetz, L., Nikiforov, A. 1996. Comparative Investigation of Essential Clover Flower Oils from Austria Using Gas Chromatography-Flame Ionization Detection, Gas Chromatography-Mass Spectrometry, and Gas Chrom.-Olfactometry. J. Agrc. Food Chem. 44:1827-8
0	(Z)-3-HEXENYL-ACETATE	Flower		37.0		Buchnauer, G., Jirovetz, L., Nikiforov, A. 1996. Comparative Investigation of Essential Clover Flower Oils from Austria Using Gas Chromatography-Flame Ionization Detection, Gas Chromatography-Mass Spectrometry, and Gas Chrom.-Olfactometry. J. Agrc. Food Chem. 44:1827-8
0	(Z)-LINALOL-OXIDE	Flower		15.0		Buchnauer, G., Jirovetz, L., Nikiforov, A. 1996. Comparative Investigation of Essential Clover Flower Oils from Austria Using Gas Chromatography-Flame Ionization Detection, Gas Chromatography-Mass Spectrometry, and Gas Chrom.-Olfactometry. J. Agrc. Food Chem. 44:1827-8

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0	(Z)-LINALOOL-OXIDE	Flower		15.0		Buchnauer,G.,Jirovetz,L.,Nikiforov,A.1996.Comparative Investigation of Essential Clover Flower Oils from Austria Using Gas Chromatography-Flame Ionization Detection,Gas Chromatography-Mass Spectrometry,and Gas Chrom.-Olfactometry.J.Agric.Food Chem.44:1827-8
0	1-OCTEN-3-OL	Flower		29.0	0.29423194619643844	Buchnauer,G.,Jirovetz,L.,Nikiforov,A.1996.Comparative Investigation of Essential Clover Flower Oils from Austria Using Gas Chromatography-Flame Ionization Detection,Gas Chromatography-Mass Spectrometry,and Gas Chrom.-Olfactometry.J.Agric.Food Chem.44:1827-8
0	1-PHENYLETHANOL	Flower				--
0	1-PHENYLETHYL-ALCOHOL	Flower		55.0		Buchnauer,G.,Jirovetz,L.,Nikiforov,A.1996.Comparative Investigation of Essential Clover Flower Oils from Austria Using Gas Chromatography-Flame Ionization Detection,Gas Chromatography-Mass Spectrometry,and Gas Chrom.-Olfactometry.J.Agric.Food Chem.44:1827-8
0	2,4-METHYLENE-CHOLESTEROL	Pollen Or Spore				--
0	2-ETHYLHEXANAL	Flower		3.0		Buchnauer,G.,Jirovetz,L.,Nikiforov,A.1996.Comparative Investigation of Essential Clover Flower Oils from Austria Using Gas Chromatography-Flame Ionization Detection,Gas Chromatography-Mass Spectrometry,and Gas Chrom.-Olfactometry.J.Agric.Food Chem.44:1827-8
0	2-METHYL-BUTAN-1-OL	Root				--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	2-METHYL-BUTAN-1-OL	Fruit				--
0	2-PHENYLETHAN-1-OL	Root				--
0	2-PHENYLETHANOL	Flower				--
0	2-PHENYLETHYL-ALCOHOL	Flower		32.0		Buchnauer, G., Jirovetz, L., Nikiforov, A. 1996. Comparative Investigation of Essential Clover Flower Oils from Austria Using Gas Chromatography-Flame Ionization Detection, Gas Chromatography-Mass Spectrometry, and Gas Chrom.-Olfactometry. J. Agrc. Food Chem. 44:1827-8
0	3-BUTYLPHthalIDE	Flower		20.0		Buchnauer, G., Jirovetz, L., Nikiforov, A. 1996. Comparative Investigation of Essential Clover Flower Oils from Austria Using Gas Chromatography-Flame Ionization Detection, Gas Chromatography-Mass Spectrometry, and Gas Chrom.-Olfactometry. J. Agrc. Food Chem. 44:1827-8
4	3-METHYLQUERCETIN	Flower				--
0	3-METHYLQUERCETIN-7-O-BETA-D-GLUCOSIDE-6"-O-MALONATE	Flower				--
0	3-P-COUMAROYLQUININE	Plant				J.S. Glasby Dict. Pls Containing 2ndary Metabolite. 1991.
0	4',5-DIHYDROXY-6,7-METHYLENEDIOXY-ISOFLAVONE	Root				--
2	4-METHOXYMEDICARPIN	Root				--
0	6-ALPHA-7-DIHYDROXYMAACKIAIN	Leaf Diffusate		5.0		--
0	6-ALPHA-7-DIHYDROXYMEDICARPIN	Leaf Diffusate		7.0		--
2	6-ALPHA-HYDROXYMAACKIAIN	Plant				--
2	6-ALPHA-HYDROXYMAACKIAIN	Leaf Diffusate		46.0		--
6	6-ALPHA-HYDROXYMEDICARPIN	Plant				--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
6	6-ALPHA-HYDROXYMEDICARPIN	Leaf Diffusate		75.0		--
6	6-ALPHA-HYDROXYMEDICARPIN	Leaf				--
0	6-ALPHA-METHOXY-MAACKIIN	Leaf				--
0	7-BETA-D-GLUCOSYL-5-,7-DIHYDROXY-4'-METHOXYISOFLAVONE	Plant				--
0	7-O-BETA-D-GLUCOSIDE-3-METHOXY-QUERCETIN	Plant				--
0	9-O-METHYLCOUMESTROL	Sprout Seedling				--
16	ACETIC-ACID	Fruit				--
16	ACETIC-ACID	Root				--
0	ACETOIN	Fruit				--
0	ACETOIN	Root				--
0	ACETOIN	Flower				--
6	ACETOPHENONE	Fruit				--
6	ACETOPHENONE	Flower		41.0		--
0	AFROMORSIN	Flower				--
0	AFROMORSIN-7-O-BETA-D-GLUCOSIDE	Leaf				--
0	AFROMORSIN-7-O-BETA-D-GLUCOSIDE--6"-O-MALONATE	Flower				--
0	ALLANTOIC-ACID	Plant				--
12	ALLANTOIN	Sprout Seedling				--
0	ALPHA-KETO-GLUTARIC-ACID	Plant				--
32	ALPHA-TOCOPHEROL	Plant				--
32	ALPHA-TOCOPHEROL	Inflorescence	126.0	400.0		--
5	ALUMINUM	Flower	25.0	137.0	0.6800025424215751	--
0	ARABINOSE	Plant				Newall, C. A., Anderson, L. A. and Phillipson, J. D. 1996. Herbal Medicine - A Guide for Health-care Professionals. The Pharmaceutical Press, London. 296pp.

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
12	ARACHIDONIC-ACID	Pollen Or Spore				--
14	ARGININE	Plant				--
112	ASCORBIC-ACID	Flower	534.0	2966.0	0.07833639670796254	--
0	ASH	Shoot		79000.0	-0.5458945326022187	--
0	ASH	Seed		41000.0	-0.20693751206665473	Laferriere, J.E., 1988, Nutricomp Program, Nutricomp Database; reviewed in J. Ethnobiology 9(1):27-29.
0	ASH	Flower	8100.0	45000.0	-0.5367537976576187	--
0	ASPARAGINIC-ACID	Plant				--
1	BEHENIC-ACID	Pollen Or Spore				--
24	BENZALDEHYDE	Flower		12.0	1.0000000000000004	Buchnauer, G., Jirovetz, L., Nikiforov, A. 1996. Comparative Investigation of Essential Clover Flower Oils from Austria Using Gas Chromatography-Flame Ionization Detection, Gas Chromatography-Mass Spectrometry, and Gas Chrom.-Olfactometry. J. Agrc. Food Chem. 44:1827-8
0	BENZOIC-ACID-ETHYL-ESTER	Root				--
0	BENZOIC-ACID-METHYL-ESTER	Root				--
9	BENZYL-ACETATE	Plant				--
9	BENZYL-ACETATE	Flower		22.0	-1.1788033227009656	Buchnauer, G., Jirovetz, L., Nikiforov, A. 1996. Comparative Investigation of Essential Clover Flower Oils from Austria Using Gas Chromatography-Flame Ionization Detection, Gas Chromatography-Mass Spectrometry, and Gas Chrom.-Olfactometry. J. Agrc. Food Chem. 44:1827-8
9	BENZYL-ALCOHOL	Plant				--
9	BENZYL-ALCOHOL	Root				--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
9	BENZYL-ALCOHOL	Flower		15.0	-0.7590932524068246	Buchnauer,G.,Jirovetz,L.,Nikiforov,A.1996.Comparative Investigation of Essential Clover Flower Oils from Austria Using Gas Chromatography-Flame Ionization Detection,Gas Chromatography-Mass Spectrometry,and Gas Chrom.-Olfactometry.J.Agric.Food Chem.44:1827-8
0	BENZYL-FORMIATE	Plant				--
53	BETA-CAROTENE	Flower	2.0	12.0	-0.43685333121665465	--
0	BETA-CARYOPHYLLENE	Flower		5.0	-0.6818573355086633	Buchnauer,G.,Jirovetz,L.,Nikiforov,A.1996.Comparative Investigation of Essential Clover Flower Oils from Austria Using Gas Chromatography-Flame Ionization Detection,Gas Chromatography-Mass Spectrometry,and Gas Chrom.-Olfactometry.J.Agric.Food Chem.44:1827-8
47	BETA-SITOSTEROL	Flower				ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes.
32	BIOCHANIN-A	Stem		68.0		--
32	BIOCHANIN-A	Root		31.0	1.0	--
32	BIOCHANIN-A	Leaf	310.0	3250.0		--
32	BIOCHANIN-A	Shoot				--
32	BIOCHANIN-A	Plant		8000.0		--
32	BIOCHANIN-A	Flower		338.0		--
0	BIOCHANIN-A-7-O-BETA-D-GLUCOSIDE-6"-MALONATE	Stem		108.0		--
0	BIOCHANIN-A-7-O-BETA-D-GLUCOSIDE-6"-MALONATE	Root		358.0		--
0	BIOCHANIN-A-7-O-BETA-D-GLUCOSIDE-6"-O-MALONATE	Leaf				--
0	BIOCHANIN-A-7-O-GLUCOSIDE-6"-MALONATE	Leaf				--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	BIOCHANIN-A-7-O-GLUCOSIDE-6"-MALONATE-METHYL-ESTER	Leaf				--
4	BORON	Stem		16.0	-1.0978789041988413	--
4	BORON	Leaf		23.0	-1.0421614129310122	--
0	BUTANE-2,3-DIOL	Flower				--
102	CAFFEIC-ACID	Flower				Williamson, E. M. and Evans, F. J., Potter's New Cyclopaedia of Botanical Drugs and Preparations, Revised Ed., Saffron Walden, the C. W. Daniel Co., Ltd., Essex UK, 362 pp, 1988, reprint 1989.
102	CAFFEIC-ACID	Leaf				--
28	CALCIUM	Shoot	4800.0	22900.0	0.5954625659846638	--
28	CALCIUM	Flower	2358.0	13100.0	2.0277064932464137	--
0	CALYCOSIN	Plant				--
0	CALYCOSIN	Leaf				--
0	CALYCOSIN	Flower				--
0	CALYCOSIN	Root				--
0	CALYCOSIN-7-GALATOSIDE	Plant				--
0	CALYCOSIN-7-O-BETA-D-GLUCOSIDE	Leaf				--
2	CAMPESTEROL	Plant				--
1	CAPROIC-ACID	Root				--
0	CARBOHYDRATES	Shoot		743000.0	0.8594524253707005	Laferriere, J.E., 1988, Nutricomp Program, Nutricomp Database; reviewed in J. Ethnobiology 9(1):27-29.
0	CARBOHYDRATES	Flower	137340.0	763000.0	0.5520054843170712	--
31	CARYOPHYLLENE	Fruit				--
31	CARYOPHYLLENE	Flower				--
31	CARYOPHYLLENE	Leaf				--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
77	CHLOROGENIC-ACID	Plant				J.S. Glasby Dict.Pls Containing 2ndary Metabolite. 1991.
20	CHOLINE	Plant				--
24	CHROMIUM	Flower	0.6	3.2	0.1253191187222141	--
0	CINNAMIC-ACID-METHYL-ESTER	Flower				--
3	CINNAMIC-ALCOHOL	Flower		22.0		Buchnauer,G.,Jirovetz,L.,Nikiforov,A.1996.Comparative Investigation of Essential Clover Flower Oils from Austria Using Gas Chromatography-Flame Ionization Detection,Gas Chromatography-Mass Spectometry,and Gas Chrom.-Olfactometry.J.Agrc.Food Chem.44:1827-8
0	CINNAMIC-ALDEHYDE	Flower		19.0		Buchnauer,G.,Jirovetz,L.,Nikiforov,A.1996.Comparative Investigation of Essential Clover Flower Oils from Austria Using Gas Chromatography-Flame Ionization Detection,Gas Chromatography-Mass Spectometry,and Gas Chrom.-Olfactometry.J.Agrc.Food Chem.44:1827-8
0	CINNAMYL-HEXANOATE	Flower		14.0		Buchnauer,G.,Jirovetz,L.,Nikiforov,A.1996.Comparative Investigation of Essential Clover Flower Oils from Austria Using Gas Chromatography-Flame Ionization Detection,Gas Chromatography-Mass Spectometry,and Gas Chrom.-Olfactometry.J.Agrc.Food Chem.44:1827-8
0	CIS-BETA-OCIMENE	Fruit				--
0	CIS-BETA-OCIMENE	Flower				--
0	CIS-BETA-OCIMENE	Leaf				--
0	CIS-CLOVAMIDE	Leaf				--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	CIS-CLOVAMIDE	Flower				Leung, A. Y. and Foster, S. 1995. Encyclopedia of Common Natural Ingredients 2nd Ed. John Wiley & Sons, New York. 649 pp.
5	CITRULLINE	Shoot				--
0	CLOVAMIDE	Plant				--
2	COBALT	Flower	0.3	1.8	-0.45121303121454254	--
12	COPPER	Hay	7.0	18.0		--
57	COUMARIN	Flower		22.0		Buchnauer, G., Jirovetz, L., Nikiforov, A. 1996. Comparative Investigation of Essential Clover Flower Oils from Austria Using Gas Chromatography-Flame Ionization Detection, Gas Chromatography-Mass Spectrometry, and Gas Chrom.-Olfactometry. J. Agr. Food Chem. 44:1827-8
13	COUMESTROL	Shoot				--
13	COUMESTROL	Leaf				--
13	COUMESTROL	Flower				Williamson, E. M. and Evans, F. J., Potter's New Cyclopaedia of Botanical Drugs and Preparations, Revised Ed., Saffron Walden, the C. W. Daniel Co., Ltd., Essex UK, 362 pp, 1988, reprint 1989.
7	CYANIDIN	Plant				--
32	DAIDZEIN	Plant				--
32	DAIDZEIN	Shoot				--
32	DAIDZEIN	Stem		334.0	-1.0	--
32	DAIDZEIN	Flower		461.0		--
32	DAIDZEIN	Leaf		349.0	-1.0	--
4	DAIDZEN	Plant				--
0	DAIDZEN-GLYCOSIDE	Plant				--
10	DAIDZIN	Flower				--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
10	DAIDZIN	Leaf				--
0	DECANOIC-ACID-ETHYL-ESTER	Root				--
1	DECYL-ACETATE	Fruit				--
9	DELPHINIDIN	Plant				--
0	DEMETHYL-HOMOPTEROCARPIN	Plant				--
0	DEMETHYLPTEROCARPAN	Plant				J.S. Glasby Dict.Pls Containing 2ndary Metabolite. 1991.
0	DOCOSENOIC-ACID	Pollen Or Spore				--
0	DODECADIENOIC-ACID	Pollen Or Spore				--
0	DODECAN-1-AL	Root				--
0	DODECYL-ACETATE	Fruit				--
0	EO	Flower		1700.0	-0.36672560272657334	Buchnauer,G.,Jirovetz,L.,Nikiforov,A.1996.Comparative Investigation of Essential Clover Flower Oils from Austria Using Gas Chromatography-Flame Ionization Detection,Gas Chromatography-Mass Spectrometry,and Gas Chrom.-Olfactometry.J.Agrc.Food Chem.44:1827-8
12	ESTRAGOLE	Root				--
2	ETHYL-CINNAMATE	Flower		25.0	-1.0	Buchnauer,G.,Jirovetz,L.,Nikiforov,A.1996.Comparative Investigation of Essential Clover Flower Oils from Austria Using Gas Chromatography-Flame Ionization Detection,Gas Chromatography-Mass Spectrometry,and Gas Chrom.-Olfactometry.J.Agrc.Food Chem.44:1827-8
76	EUGENOL	Flower				--
5	EUGENOL-METHYL-ETHER	Root				--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	FAT	Seed		85000.0	-0.9501659675612444	Laferriere, J.E., 1988, Nutricomp Program, Nutricomp Database; reviewed in J. Ethnobiology 9(1):27-29.
0	FAT	Flower	6480.0	36000.0	-0.34244487720641337	--
0	FAT	Shoot	11000.0	36000.0	-0.19906084026559623	--
15	FIBER	Flower		99000.0	-0.39855791142456015	Pedersen, M. 1987. Nutritional Herbology. Pederson Publishing. Bountiful, Utah. 377 pp.
15	FIBER	Shoot	77000.0	301000.0	1.3664226044856718	--
0	FIBER(CRUDE)	Flower		99000.0	1.0814265763786892	--
0	FIBER(DIETARY)	Flower		360000.0	0.523276626551118	--
0	FLAVANOIDS	Hay				--
16	FORMONONETIN	Root		94.0	-0.6868766457286021	--
16	FORMONONETIN	Leaf	270.0	2470.0		--
16	FORMONONETIN	Stem		280.0		--
16	FORMONONETIN	Shoot				--
16	FORMONONETIN	Sprout Seedling				--
16	FORMONONETIN	Plant	800.0	7000.0		--
16	FORMONONETIN	Flower		391.0		--
0	FORMONONETIN-7-O-BETA-D-GLUCOSIDE-6"-MALONATE	Root		221.0		--
0	FORMONONETIN-7-O-BETA-D-GLUCOSIDE-6"-MALONATE	Stem		418.0		--
0	FORMONONETIN-7-O-BETA-D-GLUCOSIDE-6"-O-MALONATE	Flower				--
0	FORMONONETIN-7-O-GLUCOSIDE-6"-MALONATE	Leaf				--
0	FORMONONETIN-7-O-GLUCOSIDE-6"-MALONATE-METHYL-ESTER	Leaf				--

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0	FUFURAL	Flower				Williamson, E. M. and Evans, F. J., Potter's New Cyclopaedia of Botanical Drugs and Preparations, Revised Ed., Saffron Walden, the C. W. Daniel Co., Ltd., Essex UK, 362 pp, 1988, reprint 1989.
0	FURFUROL	Plant				--
81	GENISTEIN	Root		10.0	-1.0	--
81	GENISTEIN	Plant				--
81	GENISTEIN	Leaf	22.0	23.0	-0.9500496298711887	--
81	GENISTEIN	Stem		62.0		--
81	GENISTEIN	Flower		19.0		--
81	GENISTEIN	Shoot				--
3	GENISTIN	Leaf				--
3	GENISTIN	Root				--
3	GENISTIN	Flower				--
0	GENISTIN-6"-O-MALONATE	Leaf				--
0	GENISTIN-6"-O-MALONATE	Flower				--
35	GERANIOL	Flower		3.0	-0.5150688773064958	Buchnauer,G.,Jirovetz,L.,Nikiforov,A.1996.Comparative Investigation of Essential Clover Flower Oils from Austria Using Gas Chromatography-Flame Ionization Detection,Gas Chromatography-Mass Spectrometry,and Gas Chrom.-Olfactometry.J.Agric.Food Chem.44:1827-8
7	GLUCOSE	Plant				Newall, C. A., Anderson, L. A. and Phillipson, J. D. 1996. Herbal Medicine - A Guide for Health-care Professionals. The Pharmaceutical Press, London. 296pp.

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
4	GLUCURONIC-ACID	Plant				Newall, C. A., Anderson, L. A. and Phillipson, J. D. 1996. Herbal Medicine - A Guide for Health-care Professionals. The Pharmaceutical Press, London. 296pp.
8	GLUTAMIC-ACID	Plant				--
0	GUM	Flower	9000.0	50000.0		--
0	HENTRIACONTANE	Flower				ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes.
0	HEPTADECENOIC-ACID	Pollen Or Spore				--
0	HEPTAN-2-ONE	Flower				--
0	HEX-2-EN-1-AL	Root				--
0	HEX-CIS-2-EN-AL	Fruit				--
0	HEX-CIS-3-EN-1-OL	Leaf				--
0	HEX-CIS-3-EN-1-OL	Flower				--
0	HEX-CIS-3-EN-1-OL-ACETATE	Flower				--
0	HEX-CIS-3-EN-1-OL-ACETATE	Leaf				--
0	HEX-CIS-3-EN-1-OL-ACETATE	Fruit				--
0	HEX-TRANS-2-EN-1-AL	Flower				--
0	HEX-TRANS-2-EN-1-OL	Flower				--
0	HEX-TRANS-2-EN-1-OL	Leaf				--
0	HEXADECANOIC-ACID-ETHYL-ESTER	Root				--
0	HEXADECENOIC-ACID	Pollen Or Spore				--
0	HEXAN-1-OL	Flower				--
0	HEXAN-1-OL	Leaf				--
0	HEXAN-1-OL	Root				--
0	HEXAN-2-ONE	Flower				--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
3	HEXANOL	Flower		27.0	0.9999999999999998	Buchnauer,G.,Jirovetz,L.,Nikiforov,A. 1996.Comparative Investigation of Essential Clover Flower Oils from Austria Using Gas Chromatography-Flame Ionization Detection, Gas Chromatography-Mass Spectrometry, and Gas Chrom.-Olfactometry. J. Agrc. Food Chem.44:1827-8
7	HISTIDINE	Plant				--
2	HOMOPISATIN	Plant				--
0	HOMOPTEROCARPIN	Root				--
0	HOMOPTEROCARPIN	Leaf				--
1	HOMOSERINE	Plant				--
30	HYPEROSIDE	Leaf				--
30	HYPEROSIDE	Flower				--
30	HYPEROSIDE	Plant				--
0	INERMIN	Root				--
0	INERMIN-GLUCOSIDE	Root				--
0	IONONE	Flower				--
4	IRILONE	Leaf				--
4	IRILONE	Flower				--
4	IRILONE	Root				--
0	IRILONE-4'-O-BETA-D-GLUCOSIDE	Leaf				--
0	IRILONE-4'-O-BETA-D-GLUCOSIDE-6"-O-MALONATE	Leaf				--
0	IRILONE-4'-O-BETA-D-GLUCOSIDE-6"-O-MALONATE	Flower				--
0	IRILONE-4'-O-GLUCOSIDE	Root				--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
3	IROLONE	Plant				Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.
6	IRON	Shoot	10.0	1850.0	1.8092404799960726	Duke, J. A. Writeups or information summaries on approximately 2,000 economic plants, USDA, ARS, Beltsville, MD 20705.
6	IRON	Flower				--
0	ISOCHANIN-A	Leaf				--
0	ISOFLAVONES	Stem		744.0		--
0	ISOFLAVONES	Leaf		1067.0		--
0	ISOFLAVONES	Flower		1209.0		--
3	ISOLEUCINE	Plant				--
22	ISOQUERCITRIN	Flower				--
22	ISOQUERCITRIN	Leaf				--
0	ISOQUERCITRIN-6"-O-MALONATE	Leaf				--
0	ISOQUERCITRIN-6"-O-MALONATE	Flower				--
11	ISORHAMNETIN	Plant				J.S. Glasby Dict.Pls Containing 2ndary Metabolite. 1991.
11	ISORHAMNETIN	Flower				ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes.
0	ISORHAMNETIN-GLYCOSIDE	Plant				--
0	ISOTRIFOLIN	Flower				ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes.
75	KAEMPFEROL	Flower				--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
75	KAEMPFEROL	Leaf				Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.
0	KAEMPFEROL-3-0-GALACTOSIDE	Leaf				Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.
0	L-ASPARAGINE	Plant				J.S. Glasby Dict.Pls Containing 2ndary Metabolite. 1991.
0	L-DOPA-CAFFEIC-ACID-CONJUGATE	Flower				Williamson, E. M. and Evans, F. J., Potter's New Cyclopaedia of Botanical Drugs and Preparations, Revised Ed., Saffron Walden, the C. W. Daniel Co., Ltd., Essex UK, 362 pp, 1988, reprint 1989.
7	LAURIC-ACID	Pollen Or Spore				--
1	LAURIC-ACID-ETHYL-ESTER	Root				--
2	LEUCINE	Plant				--
60	LIMONENE	Flower		27.0	-0.6377062548200526	Buchnauer,G.,Jirovetz,L.,Nikiforov,A.1996.Comparative Investigation of Essential Clover Flower Oils from Austria Using Gas Chromatography-Flame Ionization Detection,Gas Chromatography-Mass Spectrometry,and Gas Chrom.-Olfactometry.J.Agrc.Food Chem.44:1827-8
0	LINALOL	Flower		70.0	-0.3766233489791954	Buchnauer,G.,Jirovetz,L.,Nikiforov,A.1996.Comparative Investigation of Essential Clover Flower Oils from Austria Using Gas Chromatography-Flame Ionization Detection,Gas Chromatography-Mass Spectrometry,and Gas Chrom.-Olfactometry.J.Agrc.Food Chem.44:1827-8

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
53	LINALOOL	Flower		70.0	-0.5766567688779776	Buchnauer,G.,Jirovetz,L.,Nikiforov,A.1996.Comparative Investigation of Essential Clover Flower Oils from Austria Using Gas Chromatography-Flame Ionization Detection,Gas Chromatography-Mass Spectrometry,and Gas Chrom.-Olfactometry.J.Agrc.Food Chem.44:1827-8
7	LINALYL-ACETATE	Flower		14.0	-0.52919258398599	Buchnauer,G.,Jirovetz,L.,Nikiforov,A.1996.Comparative Investigation of Essential Clover Flower Oils from Austria Using Gas Chromatography-Flame Ionization Detection,Gas Chromatography-Mass Spectrometry,and Gas Chrom.-Olfactometry.J.Agrc.Food Chem.44:1827-8
27	LINOLEIC-ACID	Pollen Or Spore				--
0	LINOLENIC-ACID	Pollen Or Spore				--
0	LONGIFOLENE	Fruit				--
4	LYSINE	Plant				--
2	MAACKIAIN	Root				--
2	MAACKIAIN	Leaf Diffusate	8.0	42.0		--
2	MAACKIAIN	Plant				--
0	MAACKIANIN-3-O-BETA-D-GALACTOSIDE	Root				--
65	MAGNESIUM	Hay	2400.0	8100.0	1.0	--
65	MAGNESIUM	Flower	628.0	3490.0	0.4898420957878223	--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
11	MALTOL	Flower		140.0		Buchnauer,G.,Jirovetz,L.,Nikiforov,A.1996.Comparative Investigation of Essential Clover Flower Oils from Austria Using Gas Chromatography-Flame Ionization Detection,Gas Chromatography-Mass Spectrometry,and Gas Chrom.-Olfactometry.J.Agric.Food Chem.44:1827-8
2	MALTOSE	Leaf				--
6	MALVIDIN	Flower				--
14	MANGANESE	Hay	25.0	464.0	1.0000000000000002	--
14	MANGANESE	Flower	1.0	5.9	-0.37185317533053636	--
0	MARGARIC-ACID	Pollen Or Spore				--
3	MEDICAGOL	Sprout Seedling				--
3	MEDICAGOL	Flower				Williamson, E. M. and Evans, F. J., Potter's New Cyclopaedia of Botanical Drugs and Preparations, Revised Ed., Saffron Walden, the C. W. Daniel Co., Ltd., Essex UK, 362 pp, 1988, reprint 1989.
13	MEDICARPIN	Root				--
13	MEDICARPIN	Leaf Diffusate	10.0	45.0		--
13	MEDICARPIN	Plant				--
0	MEDICARPIN-GLUCOSIDE	Root				--
1	MELILOTIC-ACID	Plant		7060.0		--
15	METHIONINE	Plant				--
0	METHYL-ANTHRALINATE	Flower				--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
5	METHYL-CINNAMATE	Flower		15.0	1.0000000000000002	Buchnauer,G.,Jirovetz,L.,Nikiforov,A.1996.Comparative Investigation of Essential Clover Flower Oils from Austria Using Gas Chromatography-Flame Ionization Detection,Gas Chromatography-Mass Spectrometry,and Gas Chrom.-Olfactometry.J.Agrc.Food Chem.44:1827-8
0	METHYL-N-METHYL-ANTHRALINATE	Flower				--
21	METHYL-SALICYLATE	Flower				--
2	MOLYBDENUM	Stem	0.12	0.15	-0.7462339475150717	--
34	MYRICETIN	Seed				--
0	MYRICYL-ALCOHOL	Flower				ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes.
6	MYRISTIC-ACID	Pollen Or Spore				--
1	MYRISTIC-ACID-ETHYL-ESTER	Root				--
1	MYRISTOLEIC-ACID	Pollen Or Spore				--
0	N-HEPTACOSANE	Flower				ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes.
39	NIACIN	Flower	23.0	125.0	0.30027617080224206	--
2	OCIMENE	Flower		12.0		Buchnauer,G.,Jirovetz,L.,Nikiforov,A.1996.Comparative Investigation of Essential Clover Flower Oils from Austria Using Gas Chromatography-Flame Ionization Detection,Gas Chromatography-Mass Spectrometry,and Gas Chrom.-Olfactometry.J.Agrc.Food Chem.44:1827-8
0	OCT-1-EN-3-OL	Flower				--
0	OCT-1-EN-3-OL	Leaf				--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	OCT-1-EN-3-OL	Fruit				--
0	OCTAN-3-ONE	Root				--
18	OLEIC-ACID	Pollen Or Spore				--
2	ONONIN	Leaf				--
2	ONONIN	Stem		31.0		--
2	ONONIN	Flower				--
2	ONONIN	Root		49.0	-0.7559178162475134	--
2	ONONIN	Plant				--
0	OROBOL-4'-METHYLETHER	Plant				--
9	OXALIC-ACID	Plant				--
25	P-COUMARIC-ACID	Plant				J.S. Glasby Dict.Pls Containing 2ndary Metabolite. 1991.
0	PAEONIDIN	Flower				--
13	PALMITIC-ACID	Pollen Or Spore				--
2	PECTOLINARIGENIN	Flower				--
2	PECTOLINARIN	Flower				Williamson, E. M. and Evans, F. J., Potter's New Cyclopaedia of Botanical Drugs and Preparations, Revised Ed., Saffron Walden, the C. W. Daniel Co., Ltd., Essex UK, 362 pp, 1988, reprint 1989.
0	PENT-1-EN-3-ONE	Fruit				--
0	PENTADECAN-1-AL	Root				--
1	PENTADECANOIC-ACID	Pollen Or Spore				--
0	PENTADECENOIC-ACID	Pollen Or Spore				--
0	PHASEOLIC-ACID	Flower				Leung, A. Y. and Foster, S. 1995. Encyclopedia of Common Natural Ingredients 2nd Ed. John Wiley & Sons, New York. 649 pp.
0	PHASEOLIC-ACID	Plant				--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
26	PHENOL	Flower		49.0		Buchnauer,G.,Jirovetz,L.,Nikiforov,A.1996.Comparative Investigation of Essential Clover Flower Oils from Austria Using Gas Chromatography-Flame Ionization Detection,Gas Chromatography-Mass Spectrometry,and Gas Chrom.-Olfactometry.J.Agrc.Food Chem.44:1827-8
7	PHENYLALANINE	Plant				--
0	PHENYLETHYL-ACETATE	Flower		46.0	1.2830859681126607	Buchnauer,G.,Jirovetz,L.,Nikiforov,A.1996.Comparative Investigation of Essential Clover Flower Oils from Austria Using Gas Chromatography-Flame Ionization Detection,Gas Chromatography-Mass Spectrometry,and Gas Chrom.-Olfactometry.J.Agrc.Food Chem.44:1827-8
4	PHOSPHORUS	Flower	580.0	3220.0	-0.2058307284109949	--
4	PHOSPHORUS	Shoot	900.0	4500.0	0.5039172570812402	--
5	PINITOL	Shoot				--
2	PIPECOLIC-ACID	Plant				--
5	PISATIN	Leaf				--
14	POTASSIUM	Flower	3600.0	20000.0	0.07485647549902923	--
14	POTASSIUM	Shoot	5400.0	26700.0	0.19972594147646744	--
0	PRATENOL	Plant				--
0	PRATENOL-A	Shoot		3.7		--
0	PRATENOL-B	Shoot		1.2		--
1	PRATENSEIN	Leaf	13.0	153.0		--
1	PRATENSEIN	Flower				--
0	PRATENSEIN-7-O-BETA-D-GLUCOSIDE	Leaf				--
0	PRATENSEIN-7-O-BETA-D-GLUCOSIDE-6"-O-MALONATE	Leaf				--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	PRATENSEIN-7-O-BETA-D-GLUCOSIDE-6''-O-MALONATE	Flower				--
0	PRATENSIN	Shoot				--
0	PRATENSIN	Plant				Newall, C. A., Anderson, L. A. and Phillipson, J. D. 1996. Herbal Medicine - A Guide for Health-care Professionals. The Pharmaceutical Press, London. 296pp.
0	PRATENSOL	Flower				ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes.
0	PRATOL	Flower				ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes.
0	PROTEIN	Shoot	41000.0	280000.0	0.6236569419692796	--
0	PROTEIN	Seed	360000.0	380000.0	1.3005596951790173	Duke, J. A. Writeups or information summaries on approximately 2,000 economic plants, USDA, ARS, Beltsville, MD 20705.
0	PROTEIN	Flower	20700.0	115000.0	-0.322653241355452	--
2	PRUNETIN	Leaf				--
2	PRUNETIN	Flower				--
0	PRUNETIN-4'-O-GLUCOSIDE	Leaf				--
0	PRUNITRIN	Shoot				--
3	PSEUDOBAPTIGENIN	Plant				--
3	PSEUDOBAPTIGENIN	Root				--
3	PSEUDOBAPTIGENIN	Flower				--
3	PSEUDOBAPTIGENIN	Leaf				--
0	PSEUDOBAPTIGENIN-7-O-GLUCOSIDE	Root				--
176	QUERCETIN	Flower				--
44	QUERCITRIN	Flower				--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	RESIN	Plant				--
0	RESINS	Plant				Leung, A. Y. and Foster, S. 1995. Encyclopedia of Common Natural Ingredients 2nd Ed. John Wiley & Sons, New York. 649 pp.
0	RHAMNOSE	Plant				--
15	RIBOFLAVIN	Flower	0.6	3.3	-0.6828377956128976	--
0	ROTHINDIN	Leaf				--
0	ROTHINDIN	Flower				--
34	SALICYLIC-ACID	Flower				Newall, C. A., Anderson, L. A. and Phillipson, J. D. 1996. Herbal Medicine - A Guide for Health-care Professionals. The Pharmaceutical Press, London. 296pp.
0	SALICYLIC-ACID-METHYL-ESTER	Leaf				--
60	SELENIUM	Stem		0.018	-0.4284717031857897	--
60	SELENIUM	Leaf		0.024	-0.3807027917986485	--
60	SELENIUM	Flower	0.1	0.8	-0.7014229662505338	--
1	SERINE	Plant				--
4	SILICON	Flower	0.2	1.2	-0.6385118061807831	--
0	SISSOTRIN	Flower				--
0	SISSOTRIN	Leaf				--
0	SISSOTRIN	Root		29.0		--
0	SISSOTRIN	Stem		6.8		--
0	SITOSTEROL-BETA-D-GLUCOSIDE	Plant				--
4	SLAFRAMINE	Flower				Duke, J. A. Writeups or information summaries on approximately 2,000 economic plants, USDA, ARS, Beltsville, MD 20705.
1	SODIUM	Flower	29.0	160.0	-0.5257596176552087	--
0	SOYASAPOGENOL-B	Root				--
0	SOYASAPOGENOL-C	Root				--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	SOYASAPOGENOL-D	Root				--
0	SOYASAPOGENOL-E	Root				--
0	SOYASAPOGENOL-F	Root				--
0	SOYASAPOGENOLS	Plant				J.S. Glasby Dict.Pls Containing 2ndary Metabolite. 1991.
0	SOYASAPONIN-I	Seed				--
8	STEARIC-ACID	Pollen Or Spore				--
0	SUGARS	Flower	21600.0	120000.0	0.816496580927726	--
0	TETRADECAN-1-AL	Root				--
0	TETRADECANOIC-ACID-ETHYL-ESTER	Root				--
31	THIAMIN	Flower		4.2	-0.32448493232300896	Pedersen, M. 1987. Nutritional Herbology. Pederson Publishing. Bountiful, Utah. 377 pp.
0	THIAMINE	Flower	0.8	4.2	0.9436637744775491	--
4	THREONINE	Plant				--
4	TIN	Flower	5.0	25.0	1.4368424162141988	--
2	TRANS-BETA-FARNESENE	Fruit				--
2	TRANS-BETA-FARNESENE	Leaf				--
0	TRANS-BETA-OCIMENE	Fruit				--
0	TRANS-BETA-OCIMENE	Flower				--
0	TRANS-BETA-OCIMENE	Leaf				--
0	TRANS-CLOVAMIDE	Leaf				--
0	TRANS-CLOVAMIDE	Flower				Leung, A. Y. and Foster, S. 1995. Encyclopedia of Common Natural Ingredients 2nd Ed. John Wiley & Sons, New York. 649 pp.
0	TRIDECAN-1-AL	Root				--
0	TRIDECAN-1-OIC-ACID	Pollen Or Spore				--
0	TRIFOLIAN	Root				--
0	TRIFOLIANOL	Plant				--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	TRIFOLIIN	Flower				Williamson, E. M. and Evans, F. J., Potter's New Cyclopaedia of Botanical Drugs and Preparations, Revised Ed., Saffron Walden, the C. W. Daniel Co., Ltd., Essex UK, 362 pp, 1988, reprint 1989.
2	TRIFOLIN	Leaf				Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.
2	TRIFOLIRHIZIN	Flower				ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes.
2	TRIFOLIRHIZIN	Root				--
0	TRIFOLIRHIZIN-GLUCOSIDE	Plant				--
0	TRIFOLITIN	Plant				--
0	TRIFOSIDE	Flower				--
0	TRIFOSIDE	Leaf				--
0	TRIFOSIDE-6"-O-MALONATE	Leaf				--
0	TRIFOSIDE-6"-O-MALONATE	Flower				--
29	TRYPTOPHAN	Plant				J.S. Glasby Dict.Pls Containing 2ndary Metabolite. 1991.
8	TYROSINE	Plant				--
0	UNDEC-1-ENE	Root				--
3	VALINE	Plant				--
0	VARIABILIN	Leaf				--
0	WATER	Flower		820000.0	0.051372721135444006	--
3	XYLOSE	Plant				Newall, C. A., Anderson, L. A. and Phillipson, J. D. 1996. Herbal Medicine - A Guide for Health-care Professionals. The Pharmaceutical Press, London. 296pp.

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Refernce Citation
77	ZINC	Flower				--