

Dr. Duke's Phytochemical and Ethnobotanical Databases

Chemicals found in *Trifolium pratense*

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
28	CALCIUM	Flower	2358.0	13100.0	2.0277064932464137	--
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.
4	TIN	Flower	5.0	25.0	1.4368424162141988	--
15	FIBER	Shoot	77000.0	301000.0	1.3664226044856718	--
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	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.Agric.Food Chem.44:1827-8
0	FIBER(CRUDE)	Flower		99000.0	1.0814265763786892	--
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.Agric.Food Chem.44:1827-8
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.Agric.Food Chem.44:1827-8

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
14	MANGANESE	Hay	25.0	464.0	1.0000000000000002	--
65	MAGNESIUM	Hay	2400.0	8100.0	1.0	--
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. Agrc. Food Chem. 44:1827-8
32	BIOCHANIN-A	Root		31.0	1.0	--
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
0	THIAMINE	Flower	0.8	4.2	0.9436637744775491	--
0	CARBOHYDRATES	Shoot		743000.0	0.8594524253707005	Laferriere, J.E., 1988, Nutricomp Program, Nutricomp Database; reviewed in J. Ethnobiology 9(1):27-29.
0	SUGARS	Flower	21600.0	120000.0	0.816496580927726	--
5	ALUMINUM	Flower	25.0	137.0	0.6800025424215751	--
0	PROTEIN	Shoot	41000.0	280000.0	0.6236569419692796	--
28	CALCIUM	Shoot	4800.0	22900.0	0.5954625659846638	--
0	CARBOHYDRATES	Flower	137340.0	763000.0	0.5520054843170712	--
0	FIBER(DIETARY)	Flower		360000.0	0.523276626551118	--
4	PHOSPHORUS	Shoot	900.0	4500.0	0.5039172570812402	--
65	MAGNESIUM	Flower	628.0	3490.0	0.4898420957878223	--
39	NIACIN	Flower	23.0	125.0	0.30027617080224206	--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
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. Agrc. Food Chem. 44:1827-8
14	POTASSIUM	Shoot	5400.0	26700.0	0.19972594147646744	--
24	CHROMIUM	Flower	0.6	3.2	0.1253191187222141	--
112	ASCORBIC-ACID	Flower	534.0	2966.0	0.07833639670796254	--
14	POTASSIUM	Flower	3600.0	20000.0	0.07485647549902923	--
0	WATER	Flower		820000.0	0.051372721135444006	--
0	FAT	Shoot	11000.0	36000.0	-0.19906084026559623	--
4	PHOSPHORUS	Flower	580.0	3220.0	-0.2058307284109949	--
0	ASH	Seed		41000.0	-0.20693751206665473	Laferriere, J.E., 1988, Nutricomp Program, Nutricomp Database; reviewed in J. Ethnobiology 9(1):27-29.
0	PROTEIN	Flower	20700.0	115000.0	-0.322653241355452	--
31	THIAMIN	Flower		4.2	-0.32448493232300896	Pedersen, M. 1987. Nutritional Herbology. Pederson Publishing. Bountiful, Utah. 377 pp.
0	FAT	Flower	6480.0	36000.0	-0.34244487720641337	--
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
14	MANGANESE	Flower	1.0	5.9	-0.37185317533053636	--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
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
60	SELENIUM	Leaf		0.024	-0.3807027917986485	--
15	FIBER	Flower		99000.0	-0.39855791142456015	Pedersen, M. 1987. Nutritional Herbology. Pederson Publishing. Bountiful, Utah. 377 pp.
60	SELENIUM	Stem		0.018	-0.4284717031857897	--
53	BETA-CAROTENE	Flower	2.0	12.0	-0.43685333121665465	--
2	COBALT	Flower	0.3	1.8	-0.45121303121454254	--
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.Agrc.Food Chem.44:1827-8
1	SODIUM	Flower	29.0	160.0	-0.5257596176552087	--
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
0	ASH	Flower	8100.0	45000.0	-0.5367537976576187	--
0	ASH	Shoot		79000.0	-0.5458945326022187	--

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
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
4	SILICON	Flower	0.2	1.2	-0.6385118061807831	--
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.Agrc.Food Chem.44:1827-8
15	RIBOFLAVIN	Flower	0.6	3.3	-0.6828377956128976	--
16	FORMONONETIN	Root		94.0	-0.6868766457286021	--
60	SELENIUM	Flower	0.1	0.8	-0.7014229662505338	--
2	MOLYBDENUM	Stem	0.12	0.15	-0.7462339475150717	--
2	ONONIN	Root		49.0	-0.7559178162475134	--

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.Agrc.Food Chem.44:1827-8
81	GENISTEIN	Leaf	22.0	23.0	-0.9500496298711887	--
0	FAT	Seed		85000.0	-0.9501659675612444	Laferriere, J.E., 1988, Nutricomp Program, Nutricomp Database; reviewed in J. Ethnobiology 9(1):27-29.
32	DAIDZEIN	Stem		334.0	-1.0	--
81	GENISTEIN	Root		10.0	-1.0	--
32	DAIDZEIN	Leaf		349.0	-1.0	--
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
4	BORON	Leaf		23.0	-1.0421614129310122	--
4	BORON	Stem		16.0	-1.0978789041988413	--
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
2	ONONIN	Flower				--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	7-BETA-D-GLUCOSYL-5-,7-DIHYDROXY-4'-METHOXYISOFLAVONE	Plant				--
2	MALTOSE	Leaf				--
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.
0	CIS-BETA-OCIMENE	Flower				--
0	TETRADECANOIC-ACID-ETHYL-ESTER	Root				--
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. Agrc. Food Chem. 44:1827-8
5	EUGENOL-METHYL-ETHER	Root				--
3	ISOLEUCINE	Plant				--
1	DECYL-ACETATE	Fruit				--
2	MAACKIAIN	Leaf Diffusate	8.0	42.0		--
0	ISOQUERCITRIN-6"-O-MALONATE	Flower				--
1	LAURIC-ACID-ETHYL-ESTER	Root				--
18	OLEIC-ACID	Pollen Or Spore				--
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 Spectrometry, and Gas Chrom.-Olfactometry. J. Agrc. Food Chem. 44:1827-8

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	CINNAMIC-ACID-METHYL-ESTER	Flower				--
0	FURFUROL	Plant				--
31	CARYOPHYLLENE	Fruit				--
2	TRIFOLIRHIZIN	Flower				ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes.
0	FORMONONETIN-7-O-BETA-D-GLUCOSIDE-6"-O-MALONATE	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.
7	PHENYLALANINE	Plant				--
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	HEX-CIS-3-EN-1-OL-ACETATE	Leaf				--
0	HEX-CIS-3-EN-1-OL-ACETATE	Fruit				--
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.
44	QUERCITRIN	Flower				--
32	BIOCHANIN-A	Leaf	310.0	3250.0		--
0	SOYASAPOGENOL-C	Root				--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
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.Agrc.Food Chem.44:1827-8
34	MYRICETIN	Seed				--
0	VARIABILIN	Leaf				--
1	PENTADECANOIC-ACID	Pollen Or Spore				--
0	PRATOL	Flower				ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes.
22	ISOQUERCITRIN	Flower				--
6	6-ALPHA-HYDROXYMEDICARPIN	Plant				--
0	IRILONE-4'-O-GLUCOSIDE	Root				--
0	CIS-BETA-OCIMENE	Leaf				--
2	TRANS-BETA-FARNESENE	Leaf				--
0	2-PHENYLETHAN-1-OL	Root				--
0	BENZOIC-ACID-METHYL-ESTER	Root				--
22	ISOQUERCITRIN	Leaf				--
0	CLOVAMIDE	Plant				--
0	6-ALPHA-7-DIHYDROXYMEDICARPIN	Leaf Diffusate		7.0		--
7	LAURIC-ACID	Pollen Or Spore				--
0	OCT-1-EN-3-OL	Fruit				--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
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 Spectrometry,and Gas Chrom.-Olfactometry.J.Agrc.Food Chem.44:1827-8
0	2,4-METHYLENE-CHOLESTEROL	Pollen Or Spore				--
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.
31	CARYOPHYLLENE	Flower				--
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.
0	CIS-CLOVAMIDE	Leaf				--
0	PHASEOLIC-ACID	Plant				--
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.Agrc.Food Chem.44:1827-8
0	HEX-CIS-3-EN-1-OL	Leaf				--
0	HEX-CIS-3-EN-1-OL	Flower				--
3	MEDICAGOL	Sprout Seedling				--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
3	PSEUDOBAPTIGENIN	Leaf				--
32	BIOCHANIN-A	Shoot				--
0	DEMETHYLPTEROCARPAN	Plant				J.S. Glasby Dict.Plis Containing 2ndary Metabolite. 1991.
0	SOYASAPOGENOL-B	Root				--
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.
0	PENTADECAN-1-AL	Root				--
30	HYPEROSIDE	Flower				--
2	6-ALPHA-HYDROXYMAACKIAIN	Plant				--
4	IRILONE	Root				--
1	MYRISTIC-ACID-ETHYL-ESTER	Root				--
0	SOYASAPOGENOL-F	Root				--
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	DODECYL-ACETATE	Fruit				--
6	IRON	Flower				--
13	MEDICARPIN	Plant				--
0	IRILONE-4'-O-BETA-D-GLUCOSIDE-6"-O-MALONATE	Leaf				--
0	PRATENSOL	Flower				ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes.

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	6-ALPHA-7-DIHYDROXYMAACKIAIN	Leaf Diffusate		5.0		--
0	INERMIN	Root				--
1	MYRISTOLEIC-ACID	Pollen Or Spore				--
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 Spectrometry,and Gas Chrom.-Olfactometry.J.Agrc.Food Chem.44:1827-8
0	ISOCHANIN-A	Leaf				--
16	FORMONONETIN	Plant	800.0	7000.0		--
31	CARYOPHYLLENE	Leaf				--
0	TRIFOLIANOL	Plant				--
0	CALYCOSIN-7-O-BETA-D-GLUCOSIDE	Leaf				--
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	HEX-CIS-2-EN-AL	Fruit				--
0	HEX-2-EN-1-AL	Root				--
2	PRUNETIN	Leaf				--
9	BENZYL-ALCOHOL	Root				--
9	DELPHINIDIN	Plant				--
0	SISSOTRIN	Root		29.0		--
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.

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
21	METHYL-SALICYLATE	Flower				--
4	SLAFRAMINE	Flower				Duke, J. A. Writeups or information summaries on approximately 2,000 economic plants, USDA, ARS, Beltsville, MD 20705.
13	PALMITIC-ACID	Pollen Or Spore				--
3	GENISTIN	Flower				--
0	3-P-COUMAROYLQUININE	Plant				J.S. Glasby Dict.Plis Containing 2ndary Metabolite. 1991.
2	MAACKIAIN	Plant				--
0	9-O-METHYLCOUMESTROL	Sprout Seedling				--
6	MYRISTIC-ACID	Pollen Or Spore				--
0	SOYASAPOGENOL-D	Root				--
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	DODECAN-1-AL	Root				--
0	IONONE	Flower				--
77	ZINC	Flower				--
0	IRILONE-4'-O-BETA-D-GLUCOSIDE-6''-O-MALONATE	Flower				--
20	CHOLINE	Plant				--
1	PRATENSEIN	Flower				--
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
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.
30	HYPEROSIDE	Plant				--
1	MELILOTIC-ACID	Plant		7060.0		--
1	CAPROIC-ACID	Root				--
16	FORMONONETIN	Flower		391.0		--
2	TRIFOLIRHIZIN	Root				--
102	CAFFEIC-ACID	Leaf				--
32	BIOCHANIN-A	Plant		8000.0		--
0	PAEONIDIN	Flower				--
0	HEPTAN-2-ONE	Flower				--
0	HEPTADECENOIC-ACID	Pollen Or Spore				--
2	PRUNETIN	Flower				--
0	BENZOIC-ACID-ETHYL-ESTER	Root				--
0	DAIDZEN-GLYCOSIDE	Plant				--
0	DEMETHYL-HOMOPTEROCARPIN	Plant				--
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	7-O-BETA-D-GLUCOSIDE-3-METHOXY-QUERCETIN	Plant				--
0	METHYL-N-METHYL-ANTHRALINATE	Flower				--
0	PSEUDOBAPTIGENIN-7-O-GLUCOSIDE	Root				--

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
4	LYSINE	Plant				--
6	6-ALPHA-HYDROXYMEDICARPIN	Leaf Diffusate		75.0		--
6	6-ALPHA-HYDROXYMEDICARPIN	Leaf				--
0	SISSOTRIN	Stem		6.8		--
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	DOCOSENOIC-ACID	Pollen Or Spore				--
1	HOMOSERINE	Plant				--
0	GUM	Flower	9000.0	50000.0		--
0	IRILONE-4'-O-BETA-D-GLUCOSIDE	Leaf				--
77	CHLOROGENIC-ACID	Plant				J.S. Glasby Dict.Pls Containing 2ndary Metabolite. 1991.
0	PRATENOL	Plant				--
13	COUMESTROL	Leaf				--
0	HEXAN-2-ONE	Flower				--
0	MAACKIANIN-3-O-BETA-D-GALACTOSIDE	Root				--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
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.Agric.Food Chem.44:1827-8
0	TRIFOSIDE-6"-O-MALONATE	Leaf				--
0	CALYCOSIN-7-GALATOSIDE	Plant				--
0	FLAVANOIDS	Hay				--
0	TRIFOLIAN	Root				--
4	THREONINE	Plant				--
0	BIOCHANIN-A-7-O-BETA-D-GLUCOSIDE-6"-O-MALONATE	Leaf				--
32	BIOCHANIN-A	Flower		338.0		--
25	P-COUMARIC-ACID	Plant				J.S. Glasby Dict.Pls Containing 2ndary Metabolite. 1991.
0	PRATENSEIN-7-O-BETA-D-GLUCOSIDE-6"-O-MALONATE	Leaf				--
1	BEHENIC-ACID	Pollen Or Spore				--
4	DAIDZEN	Plant				--
0	HOMOPTEROCARPIN	Root				--
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.
14	ARGININE	Plant				--
0	METHYL-ANTHRALINATE	Flower				--
0	PRUNETIN-4'-O-GLUCOSIDE	Leaf				--
0	OCTAN-3-ONE	Root				--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
10	DAIDZIN	Flower				--
81	GENISTEIN	Stem		62.0		--
2	LEUCINE	Plant				--
3	GENISTIN	Root				--
2	4-METHOXYMEDICARPIN	Root				--
0	SALICYLIC-ACID-METHYL-ESTER	Leaf				--
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. Agrc. Food Chem. 44:1827-8
0	DECANOIC-ACID-ETHYL-ESTER	Root				--
2	HOMOISATIN	Plant				--
3	VALINE	Plant				--
4	IRILONE	Leaf				--
6	ACETOPHENONE	Fruit				--
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.
0	HEXAN-1-OL	Flower				--
0	LONGIFOLENE	Fruit				--
0	TRIFOSIDE-6"-O-MALONATE	Flower				--
0	BUTANE-2,3-DIOL	Flower				--
0	TRIDECAN-1-AL	Root				--
0	AFROMORSIN-7-O-BETA-D-GLUCOSIDE--6"-O-MALONATE	Flower				--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
47	BETA-SITOSTEROL	Flower				ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes.
9	OXALIC-ACID	Plant				--
0	FORMONONETIN-7-O-BETA-D-GLUCOSIDE-6"-MALONATE	Stem		418.0		--
0	PRATENSEIN-7-O-BETA-D-GLUCOSIDE-6"-O-MALONATE	Flower				--
12	ARACHIDONIC-ACID	Pollen Or Spore				--
32	DAIDZEIN	Flower		461.0		--
0	HOMOPTEROCARPIN	Leaf				--
0	RHAMNOSE	Plant				--
0	SISSOTRIN	Flower				--
15	METHIONINE	Plant				--
0	KAEMPFEROL-3-O-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	OCT-1-EN-3-OL	Flower				--
0	CALYCOSIN	Flower				--
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
81	GENISTEIN	Shoot				--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
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.
81	GENISTEIN	Flower		19.0		--
0	MEDICARPIN-GLUCOSIDE	Root				--
1	PRATENSEIN	Leaf	13.0	153.0		--
7	HISTIDINE	Plant				--
8	TYROSINE	Plant				--
4	IRILONE	Flower				--
0	ACETOIN	Fruit				--
0	CALYCOSIN	Root				--
0	HEXAN-1-OL	Leaf				--
27	LINOLEIC-ACID	Pollen Or Spore				--
0	TRIFOSIDE	Leaf				--
0	2-METHYL-BUTAN-1-OL	Fruit				--
32	ALPHA-TOCOPHEROL	Plant				--
0	SOYASAPOGENOLS	Plant				J.S. Glasby Dict.Pls Containing 2ndary Metabolite. 1991.
0	AFROMORSIN-7-O-BETA-D-GLUCOSIDE	Leaf				--
0	OROBOL-4'-METHYLETHER	Plant				--
0	PRATENSEIN-7-O-BETA-D-GLUCOSIDE	Leaf				--
7	CYANIDIN	Plant				--
0	PRUNITRIN	Shoot				--
0	RESIN	Plant				--
176	QUERCETIN	Flower				--
32	ALPHA-TOCOPHEROL	Inflorescence	126.0	400.0		--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
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.
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	OCT-1-EN-3-OL	Leaf				--
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.
0	FORMONONETIN-7-O-BETA-D-GLUCOSIDE-6"-MALONATE	Root		221.0		--
0	ISOTRIFOLIN	Flower				ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes.
16	FORMONONETIN	Shoot				--
0	FORMONONETIN-7-O-GLUCOSIDE-6"-MALONATE-METHYL-ESTER	Leaf				--
0	MARGARIC-ACID	Pollen Or Spore				--
5	PINITOL	Shoot				--
32	DAIDZEIN	Plant				--
0	HENTRIACONTANE	Flower				ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes.
1	(-)-MAACKIAIN-3-O-GLUCOSIDE	Root				--
29	TRYPTOPHAN	Plant				J.S. Glasby Dict.Pls Containing 2ndary Metabolite. 1991.

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
30	HYPEROSIDE	Leaf				--
2	CAMPESTEROL	Plant				--
5	PISATIN	Leaf				--
0	L-ASPARAGINE	Plant				J.S. Glasby Dict.Pls Containing 2ndary Metabolite. 1991.
0	ACETOIN	Root				--
0	CALYCOSIN	Leaf				--
0	HEXADECANOIC-ACID-ETHYL-ESTER	Root				--
0	INERMIN-GLUCOSIDE	Root				--
6	ACETOPHENONE	Flower		41.0		--
0	TRANS-CLOVAMIDE	Leaf				--
0	2-METHYL-BUTAN-1-OL	Root				--
0	TETRADECAN-1-AL	Root				--
0	AFROMORSIN	Flower				--
0	BENZYL-FORMIATE	Plant				--
2	ONONIN	Plant				--
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.
0	PRATENSIN	Shoot				--
3	PSEUDOBAPTIGENIN	Plant				--
3	PSEUDOBAPTIGENIN	Flower				--
0	ALPHA-KETO-GLUTARIC-ACID	Plant				--
0	ISOFLAVONES	Stem		744.0		--
0	TRANS-BETA-OCIMENE	Fruit				--
0	UNDEC-1-ENE	Root				--

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.Agrc.Food Chem.44:1827-8
16	FORMONONETIN	Leaf	270.0	2470.0		--
0	ISORHAMNETIN-GLYCOSIDE	Plant				--
16	FORMONONETIN	Sprout Seedling				--
2	ONONIN	Leaf				--
0	FORMONONETIN-7-O-GLUCOSIDE-6"-MALONATE	Leaf				--
0	6-ALPHA-METHOXY-MAACKIAIN	Leaf				--
0	PENTADECENOIC-ACID	Pollen Or Spore				--
32	DAIDZEIN	Shoot				--
8	GLUTAMIC-ACID	Plant				--
13	MEDICARPIN	Root				--
0	TRIFOSIDE	Flower				--
0	GENISTIN-6"-O-MALONATE	Leaf				--
0	CALYCOSIN	Plant				--
2	PIPECOLIC-ACID	Plant				--
0	BIOCHANIN-A-7-O-GLUCOSIDE-6"-MALONATE-METHYL-ESTER	Leaf				--
0	HEX-TRANS-2-EN-1-OL	Flower				--
0	HEXAN-1-OL	Root				--
2	6-ALPHA-HYDROXYMAACKIAIN	Leaf Diffusate		46.0		--
0	SISSOTRIN	Leaf				--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	BIOCHANIN-A-7-O-BETA-D-GLUCOSIDE-6"-MALONATE	Stem		108.0		--
8	STEARIC-ACID	Pollen Or Spore				--
0	SITOSTEROL-BETA-D-GLUCOSIDE	Plant				--
0	3-METHYLQUERCETIN-7-O-BETA-D-GLUCOSIDE-6"-O-MALONATE	Flower				--
9	BENZYL-ALCOHOL	Plant				--
0	ACETOIN	Flower				--
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.Agrc.Food Chem.44:1827-8
0	PRATENOL-B	Shoot		1.2		--
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.
12	ALLANTOIN	Sprout Seedling				--
0	ISOFLAVONES	Leaf		1067.0		--
0	TRANS-BETA-OCIMENE	Flower				--
0	TRIDECAN-1-OIC-ACID	Pollen Or Spore				--
0	4',5-DIHYDROXY-6,7-METHYLENEDIOXY-ISOFLAVONE	Root				--
11	ISORHAMNETIN	Plant				J.S. Glasby Dict.Pls Containing 2ndary Metabolite. 1991.
12	ESTRAGOLE	Root				--
75	KAEMPFEROL	Flower				--
16	FORMONONETIN	Stem		280.0		--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
2	MAACKIAIN	Root				--
0	PENT-1-EN-3-ONE	Fruit				--
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. Agrc. Food Chem. 44:1827-8
13	COUMESTROL	Shoot				--
81	GENISTEIN	Plant				--
13	MEDICARPIN	Leaf Diffusate	10.0	45.0		--
0	TRIFOLITIN	Plant				--
0	GENISTIN-6"-O-MALONATE	Flower				--
0	2-PHENYLETHANOL	Flower				--
0	BIOCHANIN-A-7-O-GLUCOSIDE-6"-MALONATE	Leaf				--
0	HEX-TRANS-2-EN-1-AL	Flower				--
0	HEXADECENOIC-ACID	Pollen Or Spore				--
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	ROTHINDIN	Leaf				--
0	BIOCHANIN-A-7-O-BETA-D-GLUCOSIDE-6"-MALONATE	Root		358.0		--
0	SOYASAPONIN-I	Seed				--
4	3-METHYLQUERCETIN	Flower				--
9	BENZYL-ACETATE	Plant				--
0	N-HEPTACOSANE	Flower				ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes.

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
16	ACETIC-ACID	Fruit				--
0	PRATENOL-A	Shoot		3.7		--
2	PECTOLINARIGENIN	Flower				--
0	ALLANTOIC-ACID	Plant				--
6	MALVIDIN	Flower				--
0	ISOFLAVONES	Flower		1209.0		--
0	CIS-BETA-OCIMENE	Fruit				--
0	TRANS-BETA-OCIMENE	Leaf				--
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.Agric.Food Chem.44:1827-8
2	TRANS-BETA-FARNESENE	Fruit				--
11	ISORHAMNETIN	Flower				ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes.
0	DODECADIENOIC-ACID	Pollen Or Spore				--
0	ISOQUERCITRIN-6"-O-MALONATE	Leaf				--
12	COPPER	Hay	7.0	18.0		--
10	DAIDZIN	Leaf				--
0	LINOLENIC-ACID	Pollen Or Spore				--
2	ONONIN	Stem		31.0		--
5	CITRULLINE	Shoot				--
0	TRIFOLIRHIZIN-GLUCOSIDE	Plant				--
3	GENISTIN	Leaf				--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
32	BIOCHANIN-A	Stem		68.0		--
0	HEX-CIS-3-EN-1-OL-ACETATE	Flower				--
0	HEX-TRANS-2-EN-1-OL	Leaf				--
3	PSEUDOBAPTIGENIN	Root				--
0	ROTHINDIN	Flower				--
76	EUGENOL	Flower				--
0	SOYASAPOGENOL-E	Root				--
1	SERINE	Plant				--
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	ASPARAGINIC-ACID	Plant				--
0	MYRICYL-ALCOHOL	Flower				ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes.
16	ACETIC-ACID	Root				--
0	1-PHENYLETHANOL	Flower				--