

Dr. Duke's Phytochemical and Ethnobotanical Databases

Chemicals found in *Trifolium pratense*

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
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	CARBOHYDRATES	Flower	137340.0	763000.0	0.5520054843170712	--
15	FIBER	Shoot	77000.0	301000.0	1.3664226044856718	--
0	PROTEIN	Shoot	41000.0	280000.0	0.6236569419692796	--
0	SUGARS	Flower	21600.0	120000.0	0.816496580927726	--
0	PROTEIN	Flower	20700.0	115000.0	-0.322653241355452	--
0	FAT	Shoot	11000.0	36000.0	-0.19906084026559623	--
0	GUM	Flower	9000.0	50000.0		--
0	ASH	Flower	8100.0	45000.0	-0.5367537976576187	--
0	FAT	Flower	6480.0	36000.0	-0.34244487720641337	--
14	POTASSIUM	Shoot	5400.0	26700.0	0.19972594147646744	--
28	CALCIUM	Shoot	4800.0	22900.0	0.5954625659846638	--
14	POTASSIUM	Flower	3600.0	20000.0	0.07485647549902923	--
65	MAGNESIUM	Hay	2400.0	8100.0	1.0	--
28	CALCIUM	Flower	2358.0	13100.0	2.0277064932464137	--
4	PHOSPHORUS	Shoot	900.0	4500.0	0.5039172570812402	--
16	FORMONONETIN	Plant	800.0	7000.0		--
65	MAGNESIUM	Flower	628.0	3490.0	0.4898420957878223	--
4	PHOSPHORUS	Flower	580.0	3220.0	-0.2058307284109949	--
112	ASCORBIC-ACID	Flower	534.0	2966.0	0.07833639670796254	--
32	BIOCHANIN-A	Leaf	310.0	3250.0		--
16	FORMONONETIN	Leaf	270.0	2470.0		--
32	ALPHA-TOCOPHEROL	Inflorescence	126.0	400.0		--
1	SODIUM	Flower	29.0	160.0	-0.5257596176552087	--
14	MANGANESE	Hay	25.0	464.0	1.0000000000000002	--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
5	ALUMINUM	Flower	25.0	137.0	0.6800025424215751	--
39	NIACIN	Flower	23.0	125.0	0.30027617080224206	--
81	GENISTEIN	Leaf	22.0	23.0	-0.9500496298711887	--
1	PRATENSEIN	Leaf	13.0	153.0		--
13	MEDICARPIN	Leaf Diffusate	10.0	45.0		--
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.
2	MAACKIAIN	Leaf Diffusate	8.0	42.0		--
12	COPPER	Hay	7.0	18.0		--
4	TIN	Flower	5.0	25.0	1.4368424162141988	--
53	BETA-CAROTENE	Flower	2.0	12.0	-0.43685333121665465	--
14	MANGANESE	Flower	1.0	5.9	-0.37185317533053636	--
0	THIAMINE	Flower	0.8	4.2	0.9436637744775491	--
24	CHROMIUM	Flower	0.6	3.2	0.1253191187222141	--
15	RIBOFLAVIN	Flower	0.6	3.3	-0.6828377956128976	--
2	COBALT	Flower	0.3	1.8	-0.45121303121454254	--
4	SILICON	Flower	0.2	1.2	-0.6385118061807831	--
2	MOLYBDENUM	Stem	0.12	0.15	-0.7462339475150717	--
60	SELENIUM	Flower	0.1	0.8	-0.7014229662505338	--
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	ISOFLAVONES	Leaf		1067.0		--
0	BENZYL-FORMIATE	Plant				--
0	TRANS-BETA-OCIMENE	Flower				--
2	ONONIN	Plant				--
0	TRIDECAN-1-OIC-ACID	Pollen Or Spore				--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
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	4',5-DIHYDROXY-6,7-METHYLENEDIOXY-ISOFLAVONE	Root				--
12	ESTRAGOLE	Root				--
75	KAEMPFEROL	Flower				--
0	PRATENOL-B	Shoot		1.2		--
0	ISORHAMNETIN-GLYCOSIDE	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.
3	PSEUDOBAPTIGENIN	Plant				--
16	FORMONONETIN	Stem		280.0		--
0	ALPHA-KETO-GLUTARIC-ACID	Plant				--
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

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
13	COUMESTROL	Shoot				--
0	GENISTIN-6"-O-MALONATE	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				--
8	GLUTAMIC-ACID	Plant				--
0	TRIFOSIDE	Flower				--
16	ACETIC-ACID	Fruit				--
0	CALYCOSIN	Plant				--
0	2-PHENYLETHANOL	Flower				--
2	PIPECOLIC-ACID	Plant				--
2	PECTOLINARIGENIN	Flower				--
0	FAT	Seed		85000.0	-0.9501659675612444	Laferriere, J.E., 1988, Nutricomp Program, Nutricomp Database; reviewed in J. Ethnobiology 9(1):27-29.
0	SITOSTEROL-BETA-D-GLUCOSIDE	Plant				--
0	ISOFLAVONES	Flower		1209.0		--
9	BENZYL-ALCOHOL	Plant				--
0	CIS-BETA-OCIMENE	Fruit				--
0	TRANS-BETA-OCIMENE	Leaf				--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
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
2	TRANS-BETA-FARNESENE	Fruit				--
0	DODECADIENOIC-ACID	Pollen Or Spore				--
0	ISOQUERCITRIN-6"-O-MALONATE	Leaf				--
0	PRATENOL-A	Shoot		3.7		--
11	ISORHAMNETIN	Plant				J.S. Glasby Dict. Pls Containing 2ndary Metabolite. 1991.
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
10	DAIDZIN	Leaf				--
12	ALLANTOIN	Sprout Seedling				--
0	LINOLENIC-ACID	Pollen Or Spore				--
2	ONONIN	Stem		31.0		--
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

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
5	CITRULLINE	Shoot				--
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
3	GENISTIN	Leaf				--
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				--
32	BIOCHANIN-A	Root		31.0	1.0	--
0	SOYASAPOGENOL-E	Root				--
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.Agrc.Food Chem.44:1827-8
81	GENISTEIN	Plant				--
0	TRIFOLITIN	Plant				--
16	ACETIC-ACID	Root				--
0	1-PHENYLETHANOL	Flower				--

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.
9	BENZYL-ACETATE	Plant				--
0	CIS-BETA-OCIMENE	Flower				--
0	N-HEPTACOSANE	Flower				ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes.
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				--
1	DECYL-ACETATE	Fruit				--
0	ISOQUERCITRIN-6"-O-MALONATE	Flower				--
2	ONONIN	Flower				--
11	ISORHAMNETIN	Flower				ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes.
32	DAIDZEIN	Stem		334.0	-1.0	--
0	ALLANTOIC-ACID	Plant				--
1	LAURIC-ACID-ETHYL-ESTER	Root				--
6	MALVIDIN	Flower				--
18	OLEIC-ACID	Pollen Or Spore				--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
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
0	CINNAMIC-ACID-METHYL-ESTER	Flower				--
31	CARYOPHYLLENE	Fruit				--
0	FORMONONETIN-7-O-BETA-D-GLUCOSIDE-6"-O-MALONATE	Flower				--
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				--
0	SOYASAPOGENOL-C	Root				--
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
0	TRIFOLIRHIZIN-GLUCOSIDE	Plant				--
0	VARIABILIN	Leaf				--
1	PENTADECANOIC-ACID	Pollen Or Spore				--



Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
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
76	EUGENOL	Flower				--
1	SERINE	Plant				--
0	IRILONE-4'-O-GLUCOSIDE	Root				--
0	ASPARAGINIC-ACID	Plant				--
0	CIS-BETA-OCIMENE	Leaf				--
0	MYRICYL-ALCOHOL	Flower				ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes.
2	TRANS-BETA-FARNESENE	Leaf				--
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
0	2-PHENYLETHAN-1-OL	Root				--
0	BENZOIC-ACID-METHYL-ESTER	Root				--
22	ISOQUERCITRIN	Leaf				--
22	ISOQUERCITRIN	Flower				--
0	6-ALPHA-7-DIHYDROXYMEDICARPIN	Leaf Diffusate		7.0		--
0	7-BETA-D-GLUCOSYL-5-,7-DIHYDROXY-4'-METHOXYISOFLAVONE	Plant				--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
7	LAURIC-ACID	Pollen Or Spore				--
2	MALTOSE	Leaf				--
0	OCT-1-EN-3-OL	Fruit				--
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				--
31	CARYOPHYLLENE	Flower				--
0	CIS-CLOVAMIDE	Leaf				--
3	ISOLEUCINE	Plant				--
0	HEX-CIS-3-EN-1-OL	Flower				--
3	MEDICAGOL	Sprout Seedling				--
3	PSEUDOBAPTIGENIN	Leaf				--
32	BIOCHANIN-A	Shoot				--
0	SOYASAPOGENOL-B	Root				--
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
0	FURFUROL	Plant				--
2	TRIFOLIRHIZIN	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
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.
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.
0	PENTADECAN-1-AL	Root				--
7	PHENYLALANINE	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	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
60	SELENIUM	Stem		0.018	-0.4284717031857897	--
4	IRILONE	Root				--
0	ASH	Shoot		79000.0	-0.5458945326022187	--
1	MYRISTIC-ACID-ETHYL-ESTER	Root				--
34	MYRICETIN	Seed				--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
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.Agric.Food Chem.44:1827-8
0	DODECYL-ACETATE	Fruit				--
0	IRILONE-4'-O-BETA-D-GLUCOSIDE-6''-O-MALONATE	Leaf				--
30	HYPEROSIDE	Flower				--
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.Agric.Food Chem.44:1827-8
0	CLOVAMIDE	Plant				--
0	PRATOL	Flower				ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes.
0	6-ALPHA-7-DIHYDROXYMAACKIAIN	Leaf Diffusate		5.0		--
6	6-ALPHA-HYDROXYMEDICARPIN	Plant				--
0	INERMIN	Root				--
1	MYRISTOLEIC-ACID	Pollen Or Spore				--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
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.Agric.Food Chem.44:1827-8
0	ISOCHANIN-A	Leaf				--
31	CARYOPHYLLENE	Leaf				--
0	CALYCOSIN-7-O-BETA-D-GLUCOSIDE	Leaf				--
0	HEX-2-EN-1-AL	Root				--
2	PRUNETIN	Leaf				--
9	BENZYL-ALCOHOL	Root				--
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.
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	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.
4	SLAFRAMINE	Flower				Duke, J. A. Writeups or information summaries on approximately 2,000 economic plants, USDA, ARS, Beltsville, MD 20705.

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
4	BORON	Stem		16.0	-1.0978789041988413	--
13	PALMITIC-ACID	Pollen Or Spore				--
0	PHASEOLIC-ACID	Plant				--
3	GENISTIN	Flower				--
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
0	HEX-CIS-2-EN-AL	Fruit				--
0	DEMETHYLPTEROCARPAN	Plant				J.S. Glasby Dict. Pls Containing 2ndary Metabolite. 1991.
60	SELENIUM	Leaf		0.024	-0.3807027917986485	--
0	9-O-METHYLCOUMESTROL	Sprout Seedling				--
0	ASH	Seed		41000.0	-0.20693751206665473	Laferriere, J.E., 1988, Nutricomp Program, Nutricomp Database; reviewed in J. Ethnobiology 9(1):27-29.
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	IRILONE-4'-O-BETA-D-GLUCOSIDE-6''-O-MALONATE	Flower				--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
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.
13	MEDICARPIN	Plant				--
0	PRATENSOL	Flower				ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes.
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.
2	6-ALPHA-HYDROXYMAACKIAIN	Plant				--
30	HYPEROSIDE	Plant				--
1	MELLILOTIC-ACID	Plant		7060.0		--
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
1	CAPROIC-ACID	Root				--
2	TRIFOLIRHIZIN	Root				--
102	CAFFEIC-ACID	Leaf				--
6	IRON	Flower				--
2	PRUNETIN	Flower				--
0	BENZOIC-ACID-ETHYL-ESTER	Root				--
0	DEMETHYL-HOMOPTEROCARPIN	Plant				--
0	7-O-BETA-D-GLUCOSIDE-3-METHOXY-QUERCETIN	Plant				--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	TRIFOLIANOL	Plant				--
0	PSEUDOBAPTIGENIN-7-O-GLUCOSIDE	Root				--
4	BORON	Leaf		23.0	-1.0421614129310122	--
2	ONONIN	Root		49.0	-0.7559178162475134	--
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.
16	FORMONONETIN	Root		94.0	-0.6868766457286021	--
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. Agr. Food Chem. 44:1827-8
0	HEPTAN-2-ONE	Flower				--
0	HEPTADECENOIC-ACID	Pollen Or Spore				--
9	DELPHINIDIN	Plant				--
6	6-ALPHA-HYDROXYMEDICARPIN	Leaf Diffusate		75.0		--
6	6-ALPHA-HYDROXYMEDICARPIN	Leaf				--
21	METHYL-SALICYLATE	Flower				--
0	SISSOTRIN	Stem		6.8		--



Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
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				--
0	IRILONE-4'-O-BETA-D-GLUCOSIDE	Leaf				--
20	CHOLINE	Plant				--
1	PRATENSEIN	Flower				--
13	COUMESTROL	Leaf				--
0	3-P-COUMAROYLQUININE	Plant				J.S. Glasby Dict.Pls Containing 2ndary Metabolite. 1991.
0	HEXAN-2-ONE	Flower				--
2	MAACKIAIN	Plant				--
0	MAACKIANIN-3-O-BETA-D-GALACTOSIDE	Root				--
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
0	TRIFOSIDE-6"-O-MALONATE	Leaf				--
0	CALYCOSIN-7-GALATOSIDE	Plant				--
0	TRIFOLIAN	Root				--
0	BIOCHANIN-A-7-O-BETA-D-GLUCOSIDE-6"-O-MALONATE	Leaf				--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	IONONE	Flower				--
77	ZINC	Flower				--
0	PRATENSEIN-7-O-BETA-D-GLUCOSIDE-6"-O-MALONATE	Leaf				--
1	BEHENIC-ACID	Pollen Or Spore				--
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.
16	FORMONONETIN	Flower		391.0		--
0	PRUNETIN-4'-O-GLUCOSIDE	Leaf				--
32	BIOCHANIN-A	Plant		8000.0		--
0	OCTAN-3-ONE	Root				--
0	PAEONIDIN	Flower				--
10	DAIDZIN	Flower				--
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. Agr. Food Chem. 44:1827-8
81	GENISTEIN	Stem		62.0		--
81	GENISTEIN	Root		10.0	-1.0	--
0	DAIDZEN-GLYCOSIDE	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.

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
3	GENISTIN	Root				--
2	4-METHOXYMEDICARPIN	Root				--
0	METHYL-N-METHYL-ANTHRALINATE	Flower				--
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				--
0	FIBER(DIETARY)	Flower		360000.0	0.523276626551118	--
4	IRILONE	Leaf				--
77	CHLOROGENIC-ACID	Plant				J.S. Glasby Dict.Pls Containing 2ndary Metabolite. 1991.
0	PRATENOL	Plant				--
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				--
4	LYSINE	Plant				--
0	LONGIFOLENE	Fruit				--
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

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
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				--
1	HOMOSERINE	Plant				--
0	WATER	Flower		820000.0	0.051372721135444006	--
6	ACETOPHENONE	Fruit				--
12	ARACHIDONIC-ACID	Pollen Or Spore				--
0	HOMOPTEROCARPIN	Leaf				--
0	SISSOTRIN	Flower				--
0	FLAVANOIDS	Hay				--
4	THREONINE	Plant				--
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.
32	BIOCHANIN-A	Flower		338.0		--
0	OCT-1-EN-3-OL	Flower				--
25	P-COUMARIC-ACID	Plant				J.S. Glasby Dict.Plis Containing 2ndary Metabolite. 1991.
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

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
81	GENISTEIN	Shoot				--
0	FORMONONETIN-7-O-BETA-D-GLUCOSIDE-6"-MALONATE	Stem		418.0		--
0	PRATENSEIN-7-O-BETA-D-GLUCOSIDE-6"-O-MALONATE	Flower				--
4	DAIDZEN	Plant				--
81	GENISTEIN	Flower		19.0		--
14	ARGININE	Plant				--
0	MEDICARPIN-GLUCOSIDE	Root				--
0	METHYL-ANTHRALINATE	Flower				--
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
32	DAIDZEIN	Leaf		349.0	-1.0	--
0	FIBER(CRUDE)	Flower		99000.0	1.0814265763786892	--
4	IRILONE	Flower				--
0	CALYCOSIN	Root				--
0	HEXAN-1-OL	Leaf				--
2	LEUCINE	Plant				--
27	LINOLEIC-ACID	Pollen Or Spore				--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
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	TRIFOSIDE	Leaf				--
0	2-METHYL-BUTAN-1-OL	Fruit				--
32	ALPHA-TOCOPHEROL	Plant				--
0	AFROMORSIN-7-O-BETA-D-GLUCOSIDE	Leaf				--
2	HOMOISATIN	Plant				--
3	VALINE	Plant				--
0	ACETOIN	Fruit				--
0	CARBOHYDRATES	Shoot		743000.0	0.8594524253707005	Laferriere, J.E., 1988, Nutricomp Program, Nutricomp Database; reviewed in J. Ethnobiology 9(1):27-29.
0	PRUNITRIN	Shoot				--
176	QUERCETIN	Flower				--
31	THIAMIN	Flower		4.2	-0.32448493232300896	Pedersen, M. 1987. Nutritional Herbology. Pederson Publishing. Bountiful, Utah. 377 pp.
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.
47	BETA-SITOSTEROL	Flower				ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes.
0	OCT-1-EN-3-OL	Leaf				--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
9	OXALIC-ACID	Plant				--
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.
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	FORMONONETIN-7-O-BETA-D-GLUCOSIDE-6"-MALONATE	Root		221.0		--
16	FORMONONETIN	Shoot				--
0	PRATENSEIN-7-O-BETA-D-GLUCOSIDE	Leaf				--
32	DAIDZEIN	Flower		461.0		--
0	RHAMNOSE	Plant				--
0	FORMONONETIN-7-O-GLUCOSIDE-6"-MALONATE-METHYL-ESTER	Leaf				--
0	MARGARIC-ACID	Pollen Or Spore				--
15	METHIONINE	Plant				--
5	PINITOL	Shoot				--
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

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
32	DAIDZEIN	Plant				--
1	(-)-MAACKIAIN-3-O-GLUCOSIDE	Root				--
30	HYPEROSIDE	Leaf				--
0	CALYCOSIN	Leaf				--
0	HEXADECANOIC-ACID-ETHYL-ESTER	Root				--
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.
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				--
7	HISTIDINE	Plant				--
8	TYROSINE	Plant				--
0	ACETOIN	Root				--
0	PRATENSIN	Shoot				--
3	PSEUDOBAPTIGENIN	Flower				--
15	FIBER	Flower		99000.0	-0.39855791142456015	Pedersen, M. 1987. Nutritional Herbology. Pederson Publishing. Bountiful, Utah. 377 pp.
0	SOYASAPOGENOLS	Plant				J.S. Glasby Dict.Pls Containing 2ndary Metabolite. 1991.
0	ISOFLAVONES	Stem		744.0		--
0	TRANS-BETA-OCIMENE	Fruit				--
0	OROBOL-4'-METHYLETHER	Plant				--



Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	UNDEC-1-ENE	Root				--
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	Sprout Seedling				--
2	ONONIN	Leaf				--
0	ISOTRIFOLIN	Flower				ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes.
7	CYANIDIN	Plant				--
0	RESIN	Plant				--
0	FORMONONETIN-7-O-GLUCOSIDE-6"-MALONATE	Leaf				--
0	6-ALPHA-METHOXY-MAACKIAIN	Leaf				--
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.
0	PENTADECENOIC-ACID	Pollen Or Spore				--
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

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
32	DAIDZEIN	Shoot				--
13	MEDICARPIN	Root				--
0	GENISTIN-6"-O-MALONATE	Leaf				--
5	PISATIN	Leaf				--
0	BIOCHANIN-A-7-O- GLUCOSIDE-6"- MALONATE-METHYL- ESTER	Leaf				--
0	HEX-TRANS-2-EN-1-OL	Flower				--
0	L-ASPARAGINE	Plant				J.S. Glasby Dict.Pls Containing 2ndary Metabolite. 1991.
0	HEXAN-1-OL	Root				--
2	6-ALPHA- HYDROXYMAACKIAIN	Leaf Diffusate		46.0		--
0	SISSOTRIN	Leaf				--
0	BIOCHANIN-A-7-O-BETA-D- GLUCOSIDE-6"-MALONATE	Stem		108.0		--
8	STEARIC-ACID	Pollen Or Spore				--
0	3-METHYLQUERCETIN-7-O- BETA-D-GLUCOSIDE-6"-O- MALONATE	Flower				--
0	HENTRIACONTANE	Flower				ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes.
29	TRYPTOPHAN	Plant				J.S. Glasby Dict.Pls Containing 2ndary Metabolite. 1991.
0	ACETOIN	Flower				--
2	CAMPESTEROL	Plant				--