

# Dr. Duke's Phytochemical and Ethnobotanical Databases

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## Chemicals and their Biological Activities in: *Salvia officinalis* L. (Lamiaceae) -- Sage

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### Chemicals

#### 1,8-CINEOLE *Plant* 390 - 6,288 ppm

(-)-Chronotropic 87 nl/ml; (-)-Inotropic; Acaricide  $LC_{100}=6 \mu M$ ; Allelopathic; Allergenic; Anesthetic; Anthelmintic; Antiacetylcholinesterase  $IC_{50}=41 \mu g/ml$ ; Antiallergic; Antibacterial 50 ppm; Antibronchitic; Anticariogenic; Anticatarrh; Anticholinesterase  $IC_{50}=50-70$ ; Antifatigue; Antihalitosis; Antiinflammatory; Antilaryngitic; Antinociceptive; Antipharyngitic; Antiplatelet; Antirheumatic; Antirhinitic; Antiseptic; Antisinusitic; Antispasmodic; Antistaphylococcal 50 ppm; Antitussive; Antiulcer; Candidicide; Carcinogenic; Choleric; CNS-Stimulant; Convulsant; Counterirritant; Cytochrome-P450-Inducer; Decongestant; Degranulant 0.3 ul/ml; Dentifrice; Edemagenic inj; Expectorant; FLavor FEMA 1-200; Fungicide; Gastroprotective; Gram(+)-icide; Gram(-)-icide; Hepatotonic; Herbicide  $IC_{50}=78 \mu M$ ; Hypotensive; Inflammatory inj; Insectifuge; Irritant; Myorelaxant; Nematicide; Neurotoxic; P450-Inducer; Pediculicide 2.3 x pyrethrin; Perfume; Pesticide; Rubefacient; Secretagogue; Sedative; Spasmogenic; Surfactant; Testosterone-Hydroxylase-Inducer; Transdermal; Trichomonicide  $LD_{100}=1,000 \mu g/ml$

#### 1,8-CINEOLE-SYNTHETASE *Leaf*:

No activity reported.

#### 1-OCTEN-3-OL *Plant*:

No activity reported.

#### 2-ALPHA,3-ALPHA-DIHYDROXY-OLEAN-12-EN-28-OIC-ACID *Leaf*:

No activity reported.

#### 2-ALPHA-HYDROXY-3-OXO-OLEAN-12-EN-28-OIC-ACID *Leaf* 1.2 - 17 ppm

No activity reported.

#### 2-AMINO-ADIPIC-ACID *Shoot* 1.6 ppm;

No activity reported.

#### 2-METHYL-3-METHYLENE-5-HEPTANE *Leaf* 50 - 280 ppm

No activity reported.

#### 2-METHYL-3-METHYLENE-HEPT-CIS-5-ENE *Leaf* 40 - 224 ppm

No activity reported.

**2-METHYL-3-METHYLENE-HEPT-TRANS-5-ENE Leaf 5 - 28 ppm**

No activity reported.

**3-CARENE Plant:**

No activity reported.

**3-EPIOLEANOLIC-ACID Leaf 1.4 ppm;**

No activity reported.

**3-ISOTHUJONE Leaf:**

Antifeedant; Pesticide

**5-METHOXSALVIGENIN Leaf:**

No activity reported.

**6-METHOXY-GENKWANIN Plant:**

No activity reported.

**6-METHOXYGENKWANIN-7-METHYL-ETHER Plant:**

No activity reported.

**6-METHOXYLUTEOLIN Plant:**

No activity reported.

**6-METHOXYLUTEOLIN-7-METHYL-ETHER Plant:**

No activity reported.

**ACETO-HYDROXY-ROYLEANONE Plant:**

No activity reported.

**ALLO-AROMADENDRENE Leaf 15 - 84 ppm**

No activity reported.

**ALPHA-AMYRIN Leaf 1,800 ppm; Plant:**

Analgesic; Antiedemic  $IC_{43}=40$  mg/kg ipr rat; Antiinflammatory  $IC_{71}=1,000$  ppm orl;  
Antinociceptive; Antitumor; Antiulcer; Cytotoxic 50-400; Gastroprotective;  
Hepatoprotective; Insectifuge

**ALPHA-CEDRENE Plant:**

Cancer-Preventive; Irritant; Perfume

**ALPHA-COROCALENE Plant:**

No activity reported.

**ALPHA-GURJUNENE Plant:**

No activity reported.

**ALPHA-HUMULENE Leaf 110 - 616 ppm**

Antitumor; Perfumery

**ALPHA-OLEANOLIC-ACID Plant:**

No activity reported.

**ALPHA-PHELLANDRENE *Leaf tr*;**

Antibacterial; Antistaphylococcic; Dermal; Emetic; FLavor *FEMA 10-130*; Fungicide; Insectiphile; Irritant; Laxative; Perfumery; Pesticide

**ALPHA-PINENE *Plant 7 - 1,540 ppm***

Allelochemic; Allergenic; Antiacne; Antibacterial; Antifeedant; Antiflu; Antiinflammatory *500 mg/kg*; Antipneumonic; Antiseptic; Antispasmodic; Antistaphylococcic; Antiviral; Cancer-Preventive; Coleoptophile; Expectorant; FLavor *FEMA 15-150*; Herbicide *IC50=30 uM*; Insecticide *0.82 uM/fly*; Insectifuge *50 ppm*; Insectiphile; Irritant; P450-2B1-Inhibitor *IC50=0.087 uM*; Perfumery; Pesticide; Sedative; Spasmogenic; Tranquilizer; Transdermal

**ALPHA-TERPINENE *Leaf 10 - 56 ppm***

Acaricide; ACE-Inhibitor *100 ug/ml (weak activity)*; Aldose-Reductase-Inhibitor *100 ug/ml*; Antiacetylcholinesterase *IC50=1.0 mM*; Antinitrosaminic; Antispasmodic; FLavor *FEMA 1-40*; Insecticide *0.86 uM/fly*; Insectifuge; P450-2B1-Inhibitor *IC50=0.76 uM*; Perfumery; Pesticide; Spasmogenic

**ALPHA-TERPINEOL *Leaf 5 - 910 ppm***

ACE-Inhibitor *100 ug/ml (weak activity)*; Aldose-Reductase-Inhibitor *100 ug/ml*; Allelopathic; Antiacne; Antibacterial *MIC=800-1,600 ug/ml*; Anticancer; Anticariogenic; Antiinflammatory; Antiproliferant; Antiseptic; Cicatrizant *ED50=240 ug/g mus*; FLavor *FEMA 5-40*; Insecticide *1.29 uM/fly*; Interleukin-6-Inhibitor; Mosquitofuge > *Deet*; Motor-Depressant; Nematicide *MLC=1 mg/ml*; Perfumery; Pesticide; Sedative; Termiticide *IC100=5 mg/g*; Transdermal; Vulnerary *ED50=240 ug/g mus*

**ALPHA-THUJENE *Leaf 386 ppm*;**

No activity reported.

**ALPHA-THUJONE *Leaf 200 - 10,172 ppm***

Abortifacient; Antibacterial; Emmenagogue; Insecticide; Larvicide; Pesticide

**ALPHA-URSOLIC-ACID *Plant*:**

No activity reported.

**APIGENIN *Plant*:**

11B-HSD-Inhibitor; AntiADD; Antiaflatoxin *IC50=2.57 ppm IC50=9.52 uM*; Antiaggregant; Antiaging; Antiallergic; Antiangiogenic *4 uM*; Antiarrhythmic; Antibacterial; Anticancer (Lung); Anticomplementary; Antidermatitic; Antiestrogenic; Antiherpetic *20-54 ug/ml*; Antihistaminic *IC50=10-35 uM*; AntiHIV *IC50=143 ug/ml IC72=200 ug/ml*; Antiinflammatory = *indomethacin IC~65=1,000 uM*; Antileukemic *20-50 uM*; Antimelanomic *1-50 uM*; Antimetastatic; Antimutagenic *ID50=0.55 ug/ml ID50=10-40 nM*; Antioxidant *1.5 x Vit. E IC28.5=62.5 ug/ml*; Antiperistaltic; Antiproliferant *1-50 uM IC50=155 uM*; Antispasmodic *EC50=1-5 uM*; Antistress *10 mg/kg*; Antithyroid; Antitumor *1-50 uM*; Antitumor (Breast); Antitumor (Lung); Antitumor (Skin); Antiviral *20-54 ug/ml*; Anxiolytic *10 mg/kg*; Apoptotic *12-60 uM*; Aromatase-Inhibitor *IC65=1 uM/l*; Beta-Glucuronidase-Inhibitor *IC50=~40 uM*; Calcium-Antagonist?; Cancer-Preventive; Choleric; CNS-Depressant; COX-1-Inhibitor *IC65=1,000 uM*; COX-2-Inhibitor *<40 uM IC50=<15 uM IC>65=1,000 uM*; Cyclooxygenase-Inhibitor; Cytochrome-P450-1A1-Inhibitor; Cytotoxic *1-50 uM IC50=9.5 uM IC88=10 ug/ml*; Deiodinase-Inhibitor; Differentiator *IC40=40 uM*

*MIC=30 uM*; Diuretic; DNA-Protective; Estrogenic *16% genistein EC50=0.1-25 uM/l EC50=1 uM*; HIF-1alpha-Inhibitor; Hyaluronidase-Inhibitor *IC50+=50-250 uM*; Hypotensive; ICAM-1-Inhibitor; IKK-Inhibitor; iNOS-Inhibitor *IC50=<15 uM*; Inotropic; Interleukin-6-Inhibitor; MAO-Inhibitor; MAPK-Inhibitor; Musculotropic; Mutagenic; Myorelaxant; NADH-Oxidase-Inhibitor; NF-kB-Inhibitor; NO-Synthase-Inhibitor *5-50 uM*; Nodulation-Signal; Ornithine-Decarboxylase-Inhibitor; P21-Inducer *10-70 uM*; Pesticide; PKC-Inhibitor *IC50=10 uM*; Polyamine-Synthesis-Inhibitor; Progestational; Protein-Kinase-C-Inhibitor *IC50=10-40 uM*; PTK-Inhibitor *10-100 uM*; Quinone-Reductase-Inducer *20 uM*; Radioprotective; Sedative *30-100 mg/kg*; Sunscreen; TNF-alpha-Inhibitor *IC50=3.27 uM*; Topoisomerase-I-Inhibitor; Topoisomerase-II-Inhibitor *50 ug/ml IC28=18 uM IC45=180 uM*; Uterotrophic *EC50=0.1-25 uM/l*; Vasodilator; VEGF-Inhibitor *IC50=2-7 uM*; Xanthine-Oxidase-Inhibitor *0.36 uM*

**APIGENIN-7-O-BETA-D-GLUCURONYLPYRANOSIDE *Plant*:**

No activity reported.

**AROMADENDRENE *Plant*:**

Antiseptic; Cancer-Preventive; Pesticide

**ASPARAGINE *Plant*:**

Antisickling; Diuretic

**AVENASTEROL *Fruit*:**

No activity reported.

**BETA-AMYRIN *Leaf 1,000 ppm; Plant*:**

Analgesic; Antiedemic *IC27=40 mg/kg ipr rat*; Antiinflammatory; Antinociceptive; Antiulcer; Gastroprotective; Hepatoprotective; Larvicide; Mosquitocide

**BETA-CARYOPHYLLENE *Leaf 500 - 760 ppm***

No activity reported.

**BETA-COPAENE *Plant*:**

No activity reported.

**BETA-OLEANOLIC-ACID *Plant*:**

No activity reported.

**BETA-PHELLANDRENE *Leaf 5 - 28 ppm***

Expectorant; Fungicide; Perfumery

**BETA-PINENE *Plant 20 - 1,540 ppm***

Allergenic; Antiinflammatory; Antiseptic; Antispasmodic; Candidicide; Flavor *FEMA 15-600*; Herbicide; Insectifuge; Irritant; Perfumery; Pesticide; Spasmogenic; Transdermal

**BETA-SITOSTEROL-D-GLUCOSIDE *Seed*:**

Antispasmodic; Antitumor; CNS-Depressant; CNS-Stimulant; Convulsant; Hypoglycemic

**BETA-THUJONE *Leaf 200 - 9,968 ppm***

Abortifacient; Antibacterial; Emmenagogue; Insectifuge; Pesticide

**BETA-URSOLIC-ACID *Plant:***

No activity reported.

**BETULIN *Leaf 15 ppm;***

Anticarcinomic; Antifeedant; Antiflu; AntiHIV  $6.1 \mu\text{M}$ ; Antiinflammatory; Antitumor; Antiviral; Aphidifuge; Cytotoxic  $600 \text{ ppm } 8.6 \mu\text{M}$ ; Hypolipemic; Prostaglandin-Synthesis-Inhibitor  $\text{IC}_{50}=119 \mu\text{M}$ ; Topoisomerase-II-Inhibitor  $\text{IC}_{50}=38.6 \mu\text{M}$

**BORNEOL *Shoot 7,000 ppm;***

(-)-Chronotropic  $29 \mu\text{g/ml}$ ; (-)-Inotropic; Allelochemic; Analgesic; Antiacetylcholine; Antibacterial  $\text{MIC}=125\text{-}250 \mu\text{g/ml}$ ; Antibronchitic; Antiescherichic  $\text{MIC}=125 \mu\text{g/ml}$ ; Antifeedant; Antiinflammatory; Antiotitic; Antipyretic; Antisalmonella; Antispasmodic  $\text{ED}_{50}=0.008 \text{ mg/ml}$ ; Antistaphylococcic  $\text{MIC}=250 \mu\text{g/ml}$ ; Antiyeast; Candidicide; Choleric; CNS-Stimulant; CNS-Toxic; FLavor  $\text{FEMA}<1$ ; Fungicide; Hepatoprotective; Herbicide  $\text{IC}_{50}=470 \text{ mM } \text{IC}_{50}=470 \mu\text{M}$ ; Inhalant; Insect-Repellent; Insectifuge; Irritant; Myorelaxant; Nematicide  $\text{MLC}=1 \text{ mg/ml}$ ; Perfumery; Pesticide; Sedative; Tranquilizer

**BORNYL-ACETATE *Shoot 5 - 1,780 ppm***

(-)-Chronotropic  $933 \text{ nl/ml}$ ; (-)-Inotropic; Antibacterial; Antifeedant; Antispasmodic  $\text{ED}_{50}=0.09 \text{ mg/ml}$ ; Antiviral; Expectorant; FLavor  $\text{FEMA } 70\text{-}80$ ; Insectifuge; Myorelaxant; Pesticide; Sedative

**CAFFEIC-ACID *Shoot:***

Aldose-Reductase-Inhibitor  $4 \mu\text{g/ml}$  (*weak activity*); Allergenic; Analgesic; Antiadenoviral; Antiaggregant; Antiaging; Antiatherogenic; Antibacterial; Anticancer; Anticarcinogenic; Antidepressant; Antiedemic; Antielastase  $\text{IC}_{50}=86 \mu\text{g/ml}$  ( $475 \mu\text{M}$ )  $\text{IC}_{50}=93 \mu\text{m/l}$ ; Antiescherichic; Antiflu; Antigonadotropic; Antihemolytic  $25 \mu\text{M}$ ; Antihepatadenomic  $200 \text{ ppm diet orl mus}$ ; Antihepatotoxic; Antiherpetic  $50 \mu\text{g/ml}$   $\text{EC}_{50}=>50 \mu\text{g/ml}$ ; Antihistaminic; AntiHIV  $\text{EC}_{50}=200 \mu\text{g/ml}$ ; Antihypercholesterolemic; Antihyperthyroid; Antiinflammatory; AntiLegionella; Antileukemic; Antileukotriene; Antimelanogenic; Antimutagenic; Antinitrosaminic; Antiophidic; Antioxidant  $1.3 \times \text{Vit. E } 1/2 \text{ BHA } 1/3 \text{ quercetin } 30 \text{ mM } 50 \mu\text{M } \text{IC}_{57}=30 \text{ ppm}$ ; Antiperoxidant  $\text{IC}_{35}=200 \mu\text{g/ml}$   $\text{IC}_{50}=44 \mu\text{M}$   $\text{IC}_{85}=100 \mu\text{g/ml}$ ; Antiproliferant; Antiprostaglandin; Antiradicular  $1/3 \text{ quercetin } 10 \mu\text{M } 30 \text{ mM } \text{IC}_{50}=32\text{-}35 \mu\text{M}$ ; Antiseptic; Antispasmodic  $\text{EC}_{50}=3.4\text{-}15 \mu\text{M}$ ; Antistaphylococcic; Antistomatitic; Antisunburn; Antithiamin; Antithyroid; Antitumor  $200 \text{ ppm diet orl mus}$ ; Antitumor (Skin); Antitumor-Promoter  $\text{IC}_{42}=10 \mu\text{M}$ ; Antiulcerogenic; Antivaccinia; Antiviral  $\text{IC}_{50}=62.5 \mu\text{g/ml}$ ; Anxiolytic; Calcium-Antagonist  $\text{IC}_{50}=1.2 \mu\text{M rbt}$ ; Cancer-Preventive; Carcinogenic  $2\%$  (*diet*); Chemopreventive; Cholagogue; Choleric; Clastogenic; CNS-Active; Co-carcinogenic; Collagen-Sparing; COX-2-Inhibitor  $\text{IC}_{32}=100 \mu\text{M}$ ; Cytoprotective; Cytotoxic  $\text{TC}_{50}=200 \mu\text{g/ml}$ ; Diuretic; DNA-Active; DNA-Protective; Fungicide  $\text{MIC}=0.4 \text{ mg/ml}$ ; Hepatocarcinogenic  $400 \text{ ppm diet orl mus}$  (*in the absence of alcohol*); Hepatoprotective; Hepatotropic; Histamine-Inhibitor; Immunostimulant; Insectifuge; Leukotriene-Inhibitor; Lipoxygenase-Inhibitor  $\text{IC}_{27}=5 \text{ mM } \text{IC}_{50}=62\text{-}148 \mu\text{M}$ ; Lyase-Inhibitor  $\text{IC}_{50}=94\text{-}164 \mu\text{M}$ ; Metal-Chelator; Ornithine-Decarboxylase-Inhibitor; Pesticide; Prooxidant; Prostaglandigenic; Sedative  $500 \text{ mg}$ ; Sunscreen  $\text{IC}_{50}=2.5 \text{ mg/l}$   $\text{IC}_{91}=5 \text{ mg/l}$   $\text{IC}_{98}=25 \text{ mg/l}$ ; Tumorigenic; Vulnerary; Xanthine-Oxidase-Inhibitor  $\text{IC}_{50}=39.21 \mu\text{M}$

**CALAMENE *Plant* 5 - 28 ppm**

No activity reported.

**CAMPESTEROL *Fruit*:**

Antioxidant  $IC_{37}=10 \mu M$ ; Hypocholesterolemic

**CAMPHENE *Leaf* 20 - 18,592 ppm**

Allelopathic; Antilithic?; Antioxidant; Expectorant; FLavor *FEMA 15-175*;  
Hypocholesterolemic?; Insectifuge; Pesticide; Spasmogenic

**CAMPHOR *Leaf* 9,324 ppm;**

Allelopathic; Analgesic; Anesthetic; Antiacne; Antidiarrheic  $500 \mu g/ml$ ; Antidysenteric;  
Antiemetic  $100-200 \text{ mg man orl}$ ; Antifeedant  $IC_{50}=5,000 \text{ ppm diet}$ ; Antifibrositic;  
Antineuralgic; Antipruritic; Antiseptic; Antispasmodic  $ED_{50}=0.075 \text{ mg/ml}$ ; Cancer-  
Preventive; Carminative; CNS-Stimulant; Convulsant; Cosmetic; Counterirritant;  
Decongestant; Deliriant; Ecbolic; Emetic; Epileptogenic; Expectorant; Fungicide  
 $ED_{50}=2.7 \text{ mM}$ ; Herbicide  $IC_{50}=3.3-180 \text{ mM}$ ; Insect-Repellent; Insectifuge; Irritant;  
Nematicide  $MLC=1 \text{ mg/ml}$ ; Oculoirritant; P450-2B1-Inhibitor  $IC_{50}=7.89 \mu M$ ;  
Pesticide; Respirainhibitor; Respirastimulant; Rubefacient; Stimulant; Transdermal;  
Verrucolytic; Vibriocide  $500 \mu g/ml$

**CARNOSIC-ACID *Leaf*:**

Antimutagenic; Antioxidant  $IC_{50}=0.81 \mu M$

**CARNOSOL *Leaf: Plant*:**

5-Lipoxygenase-Inhibitor  $IC_{50} (\mu M)=2$ ; Antibiotic; Antihepatotoxic; AntiHIV;  
Antiinflammatory; Antilipoperoxidant; Antimutagenic; Antioxidant; Antiradicular;  
Antitumor; Antitumor-Promoter; Cancer-Preventive; Candidicide; Cyclooxygenase-  
Inhibitor  $IC_{50} (\mu M) =16$ ; Fungicide; Metal-Chelator; Ornithine-Decarboxylase-  
Inhibitor; Pesticide; Protease-Inhibitor; Quinone-Reductase-Inducer  $100 \text{ mg/kg ipr rat}$

**CARNOSOLIC-ACID *Leaf* 2,100 ppm;**

Antihepatotoxic; AntiHIV  $IC_{90}=0.32 \mu g/ml$ ; Antilipoperoxidant; Antioxidant;  
Antiradicular; Cytotoxic  $TC_{90}=0.36 \mu g/ml$ ; Protease-Inhibitor  $IC_{90}=0.08 \mu g/ml$

**CARYOPHYLLENE *Leaf* 1 - 1,430 ppm**

Aldose-Reductase-Inhibitor; Allergenic; Analgesic; Antiacne; Antiasthmatic;  
Antibacterial; Anticariogenic  $MIC=>1,600 \mu g/ml$ ; Antidermatitic; Antiedemic;  
Antifeedant  $500 \text{ ppm}$ ; Antiinflammatory  $IC_{50}=100 \mu M$ ; Antileishmanic;  
Antionychotic; Antiproliferant; Antispasmodic; Antistaphylococcic; Antistreptococcic;  
Antitumor; Antiulcer; Candidicide; FLavor *FEMA 20-200*; Fungicide; Gastroprotective;  
Insectifuge; Irritant; Larvicide; Mosquitocide; Perfumery; Pesticide; Sedative;  
Termitifuge

**CARYOPHYLLENE-OXIDE *Plant* 55 - 308 ppm**

Antiedemic; Antifeedant; Antiinflammatory; Antitumor; Calcium-Antagonist  $ED_{50}=32 \mu M \text{ gpg}$ ; Fungicide; Insecticide; Pesticide

**CATECHIN *Plant*:**

Allelochemic  $IC_{86}=1 \text{ mM}$ ; Antiaggregant  $IC_{68}=200 \mu g/ml$ ; Antialcoholic  $2,000 \text{ mg/man/day}$ ; Antiarthritic; Antibacterial  $MIC=>1,000 \mu g/ml$ ; Anticariogenic;  
Antiedemic; Antiendotoxic; Antifeedant; Antiflu; Antihepatitic  $1 \text{ g } 3x/day/man$ ;

Antihepatotoxic; Antiherpetic; Antihistaminic 1,000 mg 5x/day/man;  
Antihyperlipidemic; Antiinflammatory  $IC_{50}=80 \mu M$  (cf *indomethacin*  $IC_{50}=1 \mu M$ );  
Antileukemic  $IC_{50}=>10 \mu g/ml$ ; Antilipoperoxidant; Antiosteotic 500 mg 3x/day;  
Antioxidant 2.4 x Vit. E  $IC_{50}=0.19 \mu M$ ; Antiperiodontal; Antiplaque; Antiprostaglandin  
 $IC_{50}=80 \mu M$  (cf *indomethacin*  $IC_{50}=1 \mu M$ ); Antiradicular  $IC_{50}=8 \mu M$ ;  
Antisclerodermic; Antiulcer 1 g/5x/day/man/orl; Antiviral; Astringent; Cancer-  
Preventive; Carcinogenic; COMP-Inhibitor; COX-1-Inhibitor  $IC_{50}=80 \mu M$  (cf  
*indomethacin*  $IC_{50}=1 \mu M$ ); Cyclooxygenase-Inhibitor; Fungicide  $ED_{50}=2.9-4.6 \mu g/ml$ ;  
Hemostat; Hepatoprotective; Hypocholesterolemic; Immunostimulant; Lipoxygenase-  
Inhibitor  $IC_{96}=5 mM$ ; Pesticide; Propepic; Xanthine-Oxidase-Inhibitor

**CHLOROGENIC-ACID Shoot:**

Aldose-Reductase-Inhibitor  $IC_{50}=1.8 \mu M$  rat (strong activity); Allelochemic;  
Allergenic; Analgesic; Antiatherosclerotic; Antibacterial; Anticancer (Colon);  
Anticancer (Forestomach); Anticancer (Liver); Anticancer (Skin); Anticarcinogenic;  
Antidiabetic; AntiEBV; Antifeedant; Antigenotoxic; Antigonadotropic; Antihemolytic  
 $10 \mu M$ ; Antihepatotoxic; Antiherpetic; Antihistaminic; AntiHIV;  
Antihypercholesterolemic; Antihyperthyroid; Antiinflammatory; AntiLegionella;  
Antileukotriene; Antimelanogenic; Antimutagenic; Antinitrosaminic; Antioxidant  
 $IC_{50}=54.2 \mu M$   $IC_{53}=200 ppm$   $IC_{80}=12 \mu M$ ; Antiperoxidant  $IC_{50}=36 \mu M$ ; Antipolio;  
Antiradicular  $10 \mu M$  9 x *quercetin*; Antiseptic; Antisunburn; Antithyroid; Antitumor;  
Antitumor (Colon); Antitumor (Forestomach); Antitumor (Liver); Antitumor (Skin);  
Antitumor-Promoter  $IC_{25}=10 \mu M$ ; Antiulcer; Antiviral; Autotoxic; Cancer-Preventive;  
Cardioprotective; Chemopreventive; Cholagogue; Choloretic; Clastogenic; CNS-Active;  
CNS-Stimulant 1/6 *Caffeine*; Collagen-Sparing; Diuretic; Fungicide; Hepatoprotective;  
Histamine-Inhibitor; Hypoglycemic; Immunostimulant; Insectifuge; Interferonogenic;  
Juvabional; Larvostat; Leukotriene-Inhibitor; Lipoxygenase-Inhibitor  $IC_{23}=5 mM$ ;  
Metal-Chelator; NO-Genic; Ornithine-Decarboxylase-Inhibitor; Oviposition-Stimulant;  
Pesticide; Sunscreen; Sweetener; Vulnerary

**CHRYSOERIOL Plant:**

Aldose-Reductase-Inhibitor  $IC_{31}=10 \mu M$ ; Anticomplementary; Antimutagenic;  
Antioxidant; Antirhinoviral; Antiviral; Cancer-Preventive

**CINAROSIDE Shoot:**

No activity reported.

**CINEOLE Shoot 500 - 6,075 ppm**

No activity reported.

**CIRSILINEOL Plant:**

Aldose-Reductase-Inhibitor  $10 \mu M$ ; Antiinflammatory  $IC_{37}=1,000 \mu M$ ; Antimalarial  
 $IC_{50}=36 \mu M$ ; Antispasmodic; Cancer-Preventive; COX-1-Inhibitor  $IC_{37}=1,000 \mu M$ ;  
COX-2-Inhibitor  $IC_{>37}=1,000 \mu M$ ; Parasiticide  $IC_{50}=36 \mu M$ ; Pesticide; Plasmodicide

**CIRSILIOLOL Plant:**

Aldose-Reductase-Inhibitor  $10 \mu M$ ; Antileukotriene; Lipoxygenase-Inhibitor

**CIRSILION Plant:**

No activity reported.

**CIRSIMARITRIN Plant:**

No activity reported.

**CIS-BETA-TERPINEOL** *Leaf 10 - 56 ppm*

No activity reported.

**CIS-SABINENE-HYDRATE** *Leaf tr;*

No activity reported.

**CITRAL** *Plant:*

Allergenic; Antiallergic; Antianaphylactic; Antibacterial; Antihistaminic; Antiseptic 5.2 *x phenol*; Antishock; Barbituate-Synergist; Bronchorelaxant; Cancer-Preventive; Expectorant; FLavor *FEMA 4-170*; Fungicide *MIC 625 ug/ml*; Glaucomagenic; Herbicide *IC50=115 uM*; Nematicide *IC52=100 ug/ml MLC=100-260 ug/ml*; Perfumery; Pesticide; Prostatitogenic *185 mg/kg/day/3 ms*; Sedative *ED 1-32 mg/kg*; Teratogenic; Trichomonicide *LD100=150 ug/ml*; Tyrosinase-Inhibitor *ID50=1.5 mM*

**DELTA-CADINENE** *Plant 2 - 14 ppm*

Aldose-Reductase-Inhibitor; Antiacne; Antibacterial *MIC800 ug/ml*; Anticariogenic; Antistreptococcic; Cytochrome-P450-Inducer; P450-Inducer; Pesticide; Testosterone-Inducer

**DELTA-TERPINEOL** *Plant tr;*

No activity reported.

**DIOSMETIN** *Plant:*

Aldose-Reductase-Inhibitor *IC17=10 uM*; Antimutagenic *IC50=10-40 nM*; Antirhinoviral; Antiviral; Cancer-Preventive

**DIPENTENE-O-DIPHENOLLACTONE** *Leaf 3,500 ppm;*

No activity reported.

**EPIOLEANOLIC-ACID** *Leaf 20 ppm;*

No activity reported.

**FARNESOL** *Plant:*

Allergenic; Antiadenomic; Anticancer (Pancreas) *IC50=39 uM*; Anticarcinomic (Colon); Anticarcinomic (Lung); Antileukemic; Antimelanomic *IC50=50 uM/l*; Antispasmodic; Apoptotic; FLavor *FEMA 0.1-3*; Juvabional; Nematicide *MLC=100 ug/ml*; Perfumery; Pesticide; Pheromonal; Sedative; Trichomonicide *LD100=100 ug/ml*

**FERULIC-ACID** *Plant:*

Allelopathic; Analgesic; Antiaggregant; Antiallergic; Antiarrhythmic; Antibacterial; Anticancer (Colon); Anticancer (Forestomach); Anticancer (Liver); Anticancer (Skin); Anticarcinogenic; Antidysmenorrhic; Antiestrogenic; Antihepatotoxic; Antiherpetic; Antiinflammatory; Antileukemic *IC50=25-56 ug/ml*; Antimitotic; Antimutagenic; Antineoplastic (*Stomach*); Antinitrosaminic; Antioxidant *1/2 BHA 1/3 quercetin 3,000 uM EC50=9-15 ug/ml IC51=200 ppm*; Antiradicular *EC50=9-15 ug/ml IC50=116-124 uM*; Antiserotonin; Antispasmodic; Antithrombic; Antitumor; Antitumor (Colon); Antitumor (Forestomach); Antitumor (Liver); Antitumor (Skin); Antitumor-Promoter *IC46=10 uM*; Antiviral; Arteriodilator; Cancer-Preventive; Candidicide; Cardiac; Cholagogue; Choloretic; Fungicide; Hepatoprotective; Hepatotropic; Herbicide; Hydrocholoretic; Hypolipidemic; Immunostimulant; Insectifuge; Metal-Chelator;



Ornithine-Decarboxylase-Inhibitor; Pesticide; Phagocytotic; Preservative;  
Prostaglandinogenic; Prostaglandin-Synthesis-Inhibitor 0.58-3.2 mM; Sunscreen;  
Uterosedative 30-100 mg/kg *ivn rat*

**FUMARIC-ACID Plant:**

Acidulant; Antidermatitic; Antihepatocarcinogenic *IC100=1% (diet)*; Antioxidant;  
Antipsoriatic; Antitumor; FLavor *FEMA 50-3,600*

**GALLIC-ACID Plant:**

ACE-Inhibitor *IC50=7.7 mM/l*; Analgesic; Antiadenovirus; Antiallergenic;  
Antianaphylactic; Antiangiogenic; Antiasthmatic; Antibacterial *MIC=1,000 ug/ml*;  
Antibronchitic; Anticancer; Anticarcinomic *ED50=3*; Antiescherichic; Antifibrinolytic;  
Antiflu; Antihepatotoxic; Antiherpetic *EC50=>10 ug/ml*; AntiHIV; Antiinflammatory;  
Antileishmanic *EC50=4.4 ug/ml*; AntiMRSA; Antimutagenic; Antinitrosaminic;  
Antioxidant 2/3 *BHA 7 x quercetin IC44=33 ppm*; Antiperiodontitic *10 ug/ml*;  
Antiperoxidant *IC50=69 uM*; Antipolio; Antiproteolytic *10 ug/ml*; Antiradicular 7 x  
*quercetin IC50=4.9 uM*; Antiseptic; Antistaphylococcic *MIC=1,000 ug/ml*; Antitumor;  
Antitumor-Promoter; Antiviral; Apoptotic; Astringent; Bacteristat; Bronchodilator;  
Cancer-Preventive; Candidicide; Carcinogenic; Choleric; Cyclooxygenase-Inhibitor;  
Cytotoxic *500 uM*; Floral-Inhibitor; Gram(+)-icide *MIC=1,000 ug/ml*; Gram(-)-icide;  
Hemostat; Hepatoprotective; Immunomodulator; Immunostimulant;  
Immunosuppressant; Insulin-Sparing; Myorelaxant; Nephrotoxic; NO-Inhibitor *IC-26=250 uM*;  
Pesticide; Styptic; Topoisomerase-I-Inhibitor; Xanthine-Oxidase-Inhibitor  
*IC50=24 uM*

**GAMMA-CADINENE Plant 2 - 14 ppm**

No activity reported.

**GAMMA-MAALIENE Plant:**

No activity reported.

**GAMMA-TERPINENE Leaf 15 - 140 ppm**

Acaricide; ACE-Inhibitor *100 ug/ml (weak activity)*; Aldose-Reductase-Inhibitor *100 ug/ml*;  
Antiacetylcholinesterase *IC23=1.2 mM*; Antifeedant; Antioxidant; FLavor  
*FEMA 1-40*; Insectifuge; Irritant; Perfumery; Pesticide

**GENKWANIN Leaf:**

Antibacterial; Pesticide; Purgative

**GERANIOL Plant:**

Allergenic; Anthelmintic; Antibacterial *MBC=800 ug/ml MIC=400 ug/ml MIC=64 ug/ml*;  
Anticancer (Pancreas) *IC50=265 uM*; Anticariogenic *MIC=400 ug/ml*;  
Antimelanomic *IC50=150 uM/l*; Antisalmonella *MIC=400 ug/ml*; Antiseptic *400-800 ug/ml*  
*7 x phenol MIC=64 ug/ml*; Antispasmodic; Antitubercular; Antitumor; Antitumor  
(Pancreas) *IC50=265 uM*; Ascaricide; Cancer-Preventive; Candidicide; CNS-Stimulant;  
Embryotoxic; Emetic *3 x ipecac*; Expectorant; FLavor *FEMA 1-10*; Fungicide *IC93=2 mM*;  
Herbicide *IC100-2,000 uM*; Insectifuge *50 ppm*; Insectiphile; Mycobactericide  
*MIC=64 ug/ml*; Nematicide *IC86=100 ug/ml MLC=1,000 ug/ml*; Perfumery; Pesticide;  
Sedative; Trichomonicide *LD100=300 ug/ml*

**GERMANICOL Plant:**

No activity reported.

**HISPIDULIN Leaf:**

Antiaggregant  $IC_{50}=13\text{ }\mu\text{g/ml}$ ; Antihepatotoxic  $32\text{ mg/kg}$ ; Antioxidant  $ED=\mu\text{M}$ ;  
Antiperoxidant; Antiradicular; Antitumor; Cancer-Preventive

**ISOBORNEOL Shoot 784 ppm;**

Antiherpetic  $600\text{ ppm}$ ; Antiviral; Insectifuge; Motor-Stimulant; Nematicide  $MLC=1\text{ mg/ml}$ ; Pesticide; Sedative

**ISOBORNEOL-ACETATE Shoot 168 - 9,436 ppm**

No activity reported.

**ISOCARYOPHYLLENE Plant:**

Perfumery

**LABIATIC-ACID Leaf:**

Antioxidant

**LEDENE Plant:**

No activity reported.

**LIMONENE Plant 39 - 2,380 ppm**

Acaricide  $LC_{100}=8\text{ }\mu\text{M}$ ; AChE-Inhibitor; Allelochemic; Allergenic  $1/20\text{th carene}$ ;  
Antiacetylcholinesterase  $IC_{22-26}=1.2\text{ mM}$ ; Antiadenomic; Antialzheimeran?;  
Antiasthmatic; Antibacterial; Anticancer; Antiesophagitic; Antifeedant; Antiflu;  
Antiinflammatory; Antilithic; Antilymphomic; Antimetastatic (Stomach);  
Antimutagenic; Antiobesity; Antiseptic; Antispasmodic  $ED_{50}=0.197\text{ mg/ml}$ ; Antitumor;  
Antitumor (Breast); Antitumor (Colon); Antitumor (Pancreas); Antitumor (Prostate);  
Antitumor (Stomach); Antiviral; Apoptotic; Bronchoprotectant; Cancer-Preventive;  
Candidistat; Chemopreventive; Cholesterolytic; Detoxicant; Enterocontractant;  
Expectorant; FLavor; Fungiphilic; Fungistat; GST-Inducer; Herbicide  $IC_{50}=45\text{ }\mu\text{M}$ ;  
Histaminic; Immunomodulator; Insecticide  $0.37\text{ }\mu\text{M/fly}$ ; Insectifuge; Interleukin-6-  
Inhibitor; Irritant; Lipolytic; Myorelaxant  $50\text{ mg/kg}$ ; Nematicide  $IC=100\text{ }\mu\text{g/ml}$ ; NO-  
Genic; Ornithine-Decarboxylase-Inhibitor  $\sim 750\text{ mg/kg (diet)}$ ; Ozone-Scavenger; P450-  
Inducer; Peristaltic; Pesticide; Photosensitizer; Sedative  $ED=1-32\text{ mg/kg}$ ; Transdermal

**LINALOL Plant 3,500 ppm;**

No activity reported.

**LINALYL-ACETATE Plant 6,048 ppm;**

Anesthetic  $0.01-1\text{ }\mu\text{g/ml}$ ; Antioxidant  $400\text{ ppm}$ ; Antispasmodic  $ED_{50}=0.21\text{ mg/ml}$ ;  
FLavor  $FEMA\ 2-15$ ; Motor-Depressant; Perfumery; Sedative

**LUTEOLIN Shoot:**

Aldose-Reductase-Inhibitor  $EC=3\text{ ppm}$   $IC_{50}=0.45\text{ }\mu\text{M rat}$ ; Antiallergic; Antiangiogenic  
 $IC_{60-75}=10\text{ }\mu\text{M}$ ; Antiatherogenic; Antibacterial  $MIC=500\text{ }\mu\text{g/ml}$ ; Anticarcinogenic;  
Anticarcinomic; Anticataract  $EC=3\text{ ppm}$ ; Anticomplementary; Antidermatic;  
Antiestrogenic; Antifeedant  $IC_{52}=<1,000\text{ ppm diet}$ ; Antiherpetic  $11-23\text{ }\mu\text{g/ml}$ ;  
Antihistaminic  $<10-15\text{ }\mu\text{M}$ ; AntiHIV; Antiinflammatory =indomethacin; Antileukemic  
 $20-50\text{ }\mu\text{M}$ ; Antilymphomic; Antimelanomic; Antimutagenic  $ID_{50}=0.44\text{ }\mu\text{g/ml}$   $ID_{50}=2-5\text{ nM}$ ;  
Antinociceptive; Antioxidant  $IC_{50}=10\text{ }\mu\text{M}$ ; Antipolio; Antiproliferant;  
Antispasmodic; Antitumor  $1-50\text{ }\mu\text{M}$ ; Antitumor (brain); Antitumor (Colon); Antitumor  
(Kidney); Antitumor (Lung); Antitumor (Ovary); Antitumor (Pancreas); Antitumor

(Skin) 20  $\mu$ M; Antitumor (Stomach); Antitumor (Thyroid) 12-50  $\mu$ M; Antitussive; Antiviral 11-23  $\mu$ g/ml; Aphidifuge; Apoptotic 12-50  $\mu$ M; Aromatase-Inhibitor  $IC_{35}=1$   $\mu$ M/l; Beta-Glucuronidase-Inhibitor  $IC_{50}=\sim 40$   $\mu$ M; Calcium-Antagonist  $IC_{50}=1.2$   $\mu$ M *rbt*; Cancer-Preventive; Chemopreventive; Choleric; Cytotoxic 1-50  $\mu$ M; Deiodinase-Inhibitor; Differentiator  $IC_{>40}=40$   $\mu$ M; Diuretic; Estrogenic 58% *genistein*; Hepatoprotective; Hyaluronidase-Inhibitor  $IC_{50+}=100-250$   $\mu$ M; Hypocholesterolemic; ICAM-1-Inhibitor; IKK-Inhibitor; iNOS-Inhibitor; Iodothyronine-Deiodinase-Inhibitor; Lipoygenase-Inhibitor; MAPK-Inhibitor; Metalloproteinase-Inhibitor; MMP-9-Inhibitor 20  $\mu$ M; Myorelaxant; NEP-Inhibitor  $IC_{50}=>42$   $\mu$ M; NF-kB-Inhibitor; NO-Inhibitor; Pesticide; Proliferant; Prostaglandin-Synthetase-Inhibitor; Protein-Kinase-C-Inhibitor  $IC_{70}=50$   $\mu$ M; PTK-Inhibitor 10-100  $\mu$ M; Succinoxidase-Inhibitor; TNF-alpha-Inhibitor  $IC_{50}=14.44$   $\mu$ M; Topoisomerase-I-Inhibitor; Vasodilator; VEGF-Inhibitor  $IC_{50}=2-7$   $\mu$ M; Xanthine-Oxidase-Inhibitor  $IC_{50}=0.11$   $\mu$ g/ml

**LUTEOLIN-7-GLUCOSIDE Plant:**

Aldose-Reductase-Inhibitor  $IC_{31}=1$   $\mu$ M  $IC_{73}=10$   $\mu$ M; Antidermatic; Antiherpetic; Antiinflammatory; Antiviral; Pesticide

**LUTEOLIN-7-GLYCOSIDE Plant:**

No activity reported.

**LUTEOLIN-7-METHYL-ETHER Plant:**

No activity reported.

**LUTEOLIN-7-O-BETA-D-GLUCOSIDE Plant:**

No activity reported.

**LUTEOLIN-7-O-GLUCURONIDE Plant:**

No activity reported.

**MALIC-ACID Plant:**

Antiatherosclerotic; Antibacterial; Antifibromyalgic 300 mg 3x/day; Antioxidant Synergist; Antiseborrheic; Antiseptic; Antitubercular; Antitumor; Bacteristat; Bruchiphobe; Hemopoietic; Laxative?; Mycobactericide; Pesticide; Sialogogue

**MASLINIC-ACID Leaf 46 ppm;**

Antiedemic; Antihistaminic; AntiHIV  $IC_{100}=18$   $\mu$ g/ml; Antiinflammatory; Antiviral; Protease-Inhibitor

**METHYL-ISOVALERATE Plant 7 - 42 ppm**

FLavor FEMA 10-95; Perfumery

**MYRCENE Plant 336 ppm;**

ACE-Inhibitor 100  $\mu$ g/ml; Aldose-Reductase-Inhibitor; Allergenic; Analgesic; Antibacterial; Anticonvulsant; Antimutagenic; Antinitrosaminic; Antinociceptive 10-20 mg/kg *ipr mus* 20-40 mg/kg *scu mus*; Antioxidant; Antispasmodic; Chemopreventive; FLavor FEMA 0.5-9; Fungicide; Hypothermic; Insectifuge; Irritant; Myorelaxant 100-200 mg/kg; P450-2B1-Inhibitor  $IC_{50}=0.14$   $\mu$ M; Perfumery; Pesticide

**N-TRIACONTANE Plant:**

No activity reported.

**NEPETIN Plant:**

Aldose-Reductase-Inhibitor  $ED_{50}=1 \mu M$ ; Anticataract; Antitumor; Xanthine-Oxidase-Inhibitor

**NICOTINIC-ACID-AMIDE Plant 5,000 ppm;**

No activity reported.

**OLEANOLIC-ACID Leaf 140 - 786 ppm Stem 400 ppm;**

Abortifacient; Antiallergic; Antiarrhythmic  $40 \text{ mg/kg}$ ; Antiatherosclerotic; Antibacterial  $MIC=625-1,250 \text{ ug/ml}$ ; Anticarcinomic; Anticariogenic; Anticomplement  $IC_{40-50} 0.01 \text{ mM/l gpg}$   $IC_{80-90} 0.05 \text{ mM/l gpg}$ ; Antiedemic  $IC_{36}=40 \text{ mg/kg ipr rat}$ ; Antifertility; Antigingivitic  $MIC=625-1,250 \text{ ug/ml}$ ; Antihepatotoxic; AntiHIV  $EC_{50}=1.7 \text{ ug/ml}$   $IC_{50}=21.8 \text{ ug/ml}$ ; Antihyperlipidemic; Antiinflammatory  $40 \text{ mg/kg ipr}$ ; Antiischemic  $40 \text{ mg/kg}$ ; Antileukemic; Antileukotriene  $IC_{50}=17 \text{ uM}$ ; Antimalarial  $IC_{50}=70-89 \text{ ug/ml}$ ; Antinephritic  $IC_{50}=19-24 \text{ uM}$ ; Antioxidant  $IC_{46}=10 \text{ uM}$ ; Antiperiodontic  $MIC=625-1,250 \text{ ug/ml}$ ; Antiperoxidant  $IC_{30}=200 \text{ ug/ml}$ ; AntiPGE2  $IC_{50}=24 \text{ uM}$ ; Antiplatelet  $MIC=625-1,250 \text{ ug/ml}$ ; Antiplasmodial  $IC_{50}=70-89 \text{ ug/ml}$ ; Antisarcotic; Antiseptic  $MIC=625-1,250 \text{ ug/ml}$ ; AntiTGF-beta  $IC_{50}=19-24 \text{ uM}$ ; Antitumor; Antitumor (Breast); Antitumor (Colon); Antitumor (Kidney); Antitumor (Lung); Antitumor (Pancreas); Antiulcer  $> \text{carbenoxolone}$ ; Antiviral  $EC_{50}=1.7 \text{ ug/ml}$   $IC_{50}=21.8 \text{ ug/ml}$ ; Aromatase-Inhibitor; Beta-Blocker; Beta-Glucuronidase-Inhibitor  $\sim 100 \text{ mg/kg}$ ; Cancer-Preventive; Cardioprotective  $40 \text{ mg/kg}$ ; Cardiotonic; COX-2-Inhibitor  $IC_{50}=295 \text{ uM}$ ; Cyclooxygenase-Inhibitor; Diuretic; Elastase-Inhibitor  $IC_{50}=\sim 15 \text{ uM}$ ; Hepatoprotective; Hypolipemic; Hypotensive; Immunomodulator; Leucocytogenic; NF-kB-Inhibitor; Phagocytotic; Piscicide; Prostaglandin-Synthesis-Inhibitor *igs mus*; Sedative; Uterotonic; Vasopressor

**OXALIC-ACID Plant:**

Acaricide; Antiseptic; CNS-Paralytic; Fatal; Hemostatic; Irritant; Pesticide; Renotoxic; Varroicide

**P-COUMARIC-ACID Plant:**

Aldose-Reductase-Inhibitor  $4 \text{ ug/ml}$  (*weak activity*); Allelopathic; Antibacterial; Anticlastogen; Antifertility; Antihepatotoxic; Antileukemic  $IC_{50}=25-56 \text{ ug/ml}$ ; Antinitrosaminic; Antioxidant  $1/3 \text{ BHA}$   $IC_{24}=30 \text{ ppm}$ ; Antiperoxidant  $IC_{50}=>100 \text{ uM}$ ; Antiseptic; Antispasmodic; Antitumor; Cancer-Preventive; Chemopreventive; Choleric; Cytotoxic; Diaphoretic?; Fungicide; Lipoxigenase-Inhibitor  $IC_{11}=5 \text{ mM}$ ; Pesticide; Prostaglandinogenic; Prostaglandin-Synthesis-Inhibitor; Tyrosinase-Inhibitor  $ID_{50}=3,650 \text{ uM}$

**P-CYMEN-8-OL Plant:**

No activity reported.

**P-CYMENE Shoot 15 - 495 ppm**

Analgesic; Antiacetylcholinesterase  $IC_{40}=1.2 \text{ mM}$ ; Antibacillary; Antibacterial; Antiflu; Antirheumatologic; Antiviral; FLavor  $FEMA 12-250$ ; Fungicide; Herbicide  $IC_{50}=50 \text{ uM}$ ; Insectifuge; Irritant; Laxative; Pesticide; Sedative; Trichomonocidal  $LD_{100}=50 \text{ ug/ml}$

**PECTOLINAMARIGENIN Plant:**

No activity reported.

**PELLANDRENE Leaf 100 - 560 ppm**

Hyperthermic; Irritant; Spasmogenic; Tumor-Promoter

**PICROSALVIN Leaf:**

No activity reported.

**PINENE Leaf 420 - 2,352 ppm**

Allergenic; Antibacterial; Antiseptic; Antispasmodic; Convulsant; Enterocontractant; Expectorant; Fungicide; Herbicide  $IC_{50}=30\text{ mM}$ ; Perfumery; Pesticide; Spasmogenic

**PLANTEOSE Seed:**

No activity reported.

**POMOLIC-ACID Leaf 2.4 - 3 ppm**

AntiHIV  $EC_{50}=1.4\text{ ug/ml}$   $IC_{50}=23.3\text{ ug/ml}$

**POTASSIUM-NITRATE Plant:**

No activity reported.

**PRISTANE Leaf 56 ppm;**

No activity reported.

**ROSMANOL Plant:**

Antihepatotoxic; Antilipoperoxidant; Antioxidant; Antiradicular; Cancer-Preventive

**ROSMARINIC-ACID Plant 30,000 ppm; Shoot 2,000 - 5,800 ppm**

ABeta-Inhibitor; Adenylate-Cyclase-Inhibitor; Aldose-Reductase-Inhibitor; Antiaggregant; Antiallergic; Antialzheimeran; Antianaphylactic  $1-100\text{ mg/kg orl}$   $ID_{50}=1\text{ mg/kg ivn rat}$   $ID_{50}=10\text{ mg/kg ims rat}$ ; Antiatherosclerotic  $IC_{50}=0.74\text{ uM}$ ; Antibacterial; Anticoagulant; Anticomplementary  $1/2\text{ aspirin } 20\text{ mg/kg ivn}$ ; Antidepressant; Antiedemic  $0.316-3.16\text{ mg/kg ims}$ ; Antigonadotropic; Antihemolytic  $IC_{70}=5-10\text{ um/l}$ ; Antihepatotoxic; Antiherpetic  $50\text{ ug/ml}$   $EC_{50}=20\text{ ug/ml}$ ; AntiHIV  $EC_{50}=40\text{ ug/ml}$ ; Antihyperthyroid; Antiinflammatory  $IC_{58}=1,000\text{ uM}$ ; Antiintegrase  $10\text{ ug/ml}$ ; Antileukotriene; Antilipoperoxidant; Antimutagenic; Antinephritic; Antioxidant  $10\text{ uM}$   $EC_{50}=2.7\text{ ug/ml}$ ; Antioxidant (LDL)  $IC_{50}=0.74\text{ uM}$ ; Antiplaque; Antiproliferant; Antiprostaglandin  $20\text{ mg/kg ivn}$ ; Antiproteolytic  $IC_{50}=0.9\text{ mol l}$ ; Antipulmonotic; Antiradicular; Antishock; Antithyretropic; Antithyroid; Antiuremic; Antiviral  $EC_{50}=40\text{ ug/ml}$ ; Anxiolytic; Apoptotic; Calcium-Antagonist  $IC_{50}=1.2\text{ uM rbt}$ ; Cancer-Preventive; COX-1-Inhibitor  $IC_{58}=1,000\text{ uM}$ ; COX-2-Inhibitor  $IC_{58}=1,000\text{ uM}$ ; Cytotoxic  $TC_{50}=100-150\text{ ug/ml}$ ; Deiodinase-Inhibitor; Immunomodulator; Immunostimulant; Lipoxxygenase-Inhibitor; Neuroprotective; Pesticide; Radioprotective

**ROYLEANONE Root 20,300 ppm;**

No activity reported.

**SABINENE Leaf 10 - 56 ppm**

Antibacterial; Antihelicobacter; Antiseptic; Antiulcer; Perfumery

**SABINOL Leaf 85 - 476 ppm**

Anthelmintic; Emmenagogue; Perfumery; Pesticide; Toxic

**SABINYL-ACETATE Plant 110 - 616 ppm**

No activity reported.

**SACCHAROPINE Shoot 1.6 ppm;**

No activity reported.

**SALICYLIC-ACID Plant:**

Aldose-Reductase-Inhibitor 724.6  $\mu$ M; Analgesic; Antiarthritic; Antibacterial; Antidandruff; Antidermatotic; Antieczemic; Antiichthyosic; Antiinflammatory; Antineuralgic; Antionychomycotic; Antioxidant; Antiperiodic; Antipodagric; Antipsoriac; Antipyretic; Antirheumatic; Antiseborrheic; Antiseptic; Antitumor; Antitympanic; Cancer-Preventive; Comedolytic; COX-2-Inhibitor; Cyclooxygenase-Inhibitor; Dermatitogenic; Fungicide MIC 1,000  $\mu$ g/ml; Hypoglycemic; Insectifuge; Keratolytic; Pesticide; Thermogenic 130 ppm; Tineacide; Ulcerogenic

**SALVIATANNIN Leaf:**

No activity reported.

**SALVIGENIN Leaf:**

No activity reported.

**SALVIGENIN-7-O-GLUCURONIDE Plant:**

No activity reported.

**SALVIN Plant:**

Antibacterial; Antiseptic; Pesticide

**SALVIN-MONOMETHYL-ETHER Leaf:**

Antibacterial; Antiseptic; Pesticide

**SALVIOL Essential Oil:**

Antibacterial; Cytostatic ID50=10 $\mu$ g/ml; Pesticide

**SAPONIN Plant:**

No activity reported.

**SELINA-5,11-DIENE Plant:**

No activity reported.

**TERPINEN-4-OL Leaf 10 - 1,120 ppm**

Allelopathic; Antiacetylcholinesterase IC21-24=1.2 mM; Antiacne; Antiallergic; Antiasthmatic; Antibacterial; Antioxidant; Antiseptic; Antispasmodic; Antitussive; Antiulcer; Bacteriostatic; Diuretic 0.1 ml/rat; Fungicide; Herbicide IC50=200 mM IC50=22  $\mu$ M; Insectifuge; Irritant; Nematicide MLC=1 mg/ml; Pesticide; Renoirritant; Spermicide ED100=0.015; Vulnerary

**TERPINEOL Leaf:**

Analgesic 10-100  $\mu$ g/ml; Anesthetic; Antiallergenic; Antiasthmatic; Antibacterial; Anticancer; Antiproliferant; Antiseptic; Antispasmodic; Antitussive; Cholagogue; Culicide LC50=156-194 mg/l; Expectorant; Insecticide; Insectifuge; Larvicide; Perfumery; Pesticide

**TERPINOLENE Plant 112 ppm;**

Allelochemic; Antifeedant; Antinitrosaminic; Antioxidant; Deodorant; FLavor *FEMA* 15-60; Fungicide; Perfumery; Pesticide

**THUJONE** *Leaf* 1,453 - 12,636 ppm *Plant* 2,500 - 13,000 ppm

Abortifacient; Anthelmintic; Antibacterial; Antiseptic; Antispasmodic *ED50*=0.127 mg/ml; Cerebrodepressant; Convulsant 40 mg/kg; Counterirritant; Emmenagogue; Epileptogenic; Hallucinogenic; Herbicide *IC50*=22 mM; Neurotoxic; Perfumery; Pesticide; Respirainhibitor; Toxic

**THYMOL** *Essential Oil*:

Acaricide; Allergenic; Analgesic; Ancylostomicide; Anesthetic; Ankylostomacide; Anthelmintic; Antiacne; Antiaggregant *IC50*=0.75; Antialzheimeran?; Antiarthritic; Antiatherosclerotic *IC50*=4 uM; Antibacterial *MIC*=50-400 ug/ml; Antibronchitic; Anticariogenic *MIC*=200-400 ug/ml; Anticholinesterase; Antihalitotic; Antiherpetic; Antiinflammatory (=indomethacin); Antileptic; Antimelanomic *IC50*=120 uM/l; Antineuritic; Antioxidant 100 ppm; Antioxidant (LDL) *IC50*=4 uM; Antiperiodontic *MIC*=50-200 ug/ml; Antiplaque *MIC*=39-625 ug/ml; Antiradicular *EC*=60; Antirheumatic; Antisalmonella; Antiseptic 20 x phenol; Antispasmodic; Antistaphylococcic; Antistreptococcic *MIC*=200-400 ug/ml; Antitrichinosic 5%; Antitussive; Ataxigenic; Candidicide 100 ug/ml (>*Nystatin*); Carminative; Counterirritant; Culicide *LC50*=36-49 mg/l; Cyclooxygenase-Inhibitor (=indomethacin); Dentifrice; Deodorant; Dermatitigenic; Enterorelaxant; Enterotoxic; Expectorant; FLavor *FEMA* 2-100; Fungicide; Gastroirritant; Gram(+)icide *MIC*=200-400 ug/ml; Gram(-)icide *MIC*=50-200 ug/ml; Insecticide 0.22 uM/fly *LC50*=36-49 mg/l; Insectifuge; Irritant; Larvicide 10 ppm 58 ppm *LC50*=36-49 mg/l; Molluscicide; Myorelaxant; Nematicide *MLC*=0.1 mg/ml; Perfumery; Pesticide; Sedative; Sprout-Inhibitor; Tracheorelaxant; Trichomonicide *LD100*=25 ug/ml; Urinary-Antiseptic; Varroacide; Vermicide

**TRANS-3-HEXENAL** *Plant*:

No activity reported.

**TRANS-ALLO-OCIMENE** *Plant*:

No activity reported.

**TRANS-OCIMENE** *Plant*:

No activity reported.

**TRANS-SABINENE-HYDRATE** *Leaf* 10 - 56 ppm

No activity reported.

**TRANS-SABINOL** *Leaf tr*;

No activity reported.

**TRICYCLENE** *Leaf* 15 - 84 ppm

No activity reported.

**URS-12-EN-28-OIC-ACID** *Leaf* 14 ppm;

No activity reported.

**URSOLIC-ACID** *Leaf* 1,255 - 1,300 ppm *Stem* 200 ppm;

Analgesic; Antialzheimeran; Antiarrhythmic; Antiarthritic; Antibacterial; Anticancer;

Anticancer (Colon); Anticarcinomic; Anticariogenic; Anticholestatic 28-100 mg/kg *orl*; Anticomplement *IC100* 0.1 mM/l *gpg* *IC80-90* 0.05 mM/l *gpg*; Antidiabetic; AntiEBV; Antiedemic; Antiescherichic; Antifibrosarcomic *IC80*=10  $\mu$ M; Antihepatotoxic 5-20 mg/kg *ipr*; Antihistaminic; AntiHIV 6.7  $\mu$ M *EC50*=2.0  $\mu$ g/ml *IC50*=6.5  $\mu$ g/ml *IC85*=18  $\mu$ g/ml; Antihyperlipidemic; Antiinflammatory 1/3 *indomethacin* *IC24*=500 mg/kg; Antileishmanic *ED50*=20  $\mu$ M; Antileukemic *IC50*=2.5-17.8  $\mu$ g/ml; Antilymphomic; Antimalarial *IC50*=28-37  $\mu$ g/ml; Antimetastatic *IC80*=10  $\mu$ M; Antimutagenic *IC57-80*=80 mg/kg; Antinephritic *IC50*=6-7.5  $\mu$ M; Antiobesity?; Antioxidant *IC50*=10  $\mu$ M; Antiperoxidant *IC35*=200  $\mu$ g/ml; Antiplasmodial *IC50*=28-37  $\mu$ g/ml; Antiproliferative *IC50*=15-20  $\mu$ M; Antistaphylococcic; AntiTGF-beta *IC50*=6-7.5  $\mu$ M; Antithromboxane *IC50*=50  $\mu$ M; Antitrypanosomic; Antitumor; Antitumor (brain); Antitumor (Breast) 0.5% *diet* *IC50*=15-20  $\mu$ M; Antitumor (Cervix); Antitumor (Colon); Antitumor (Lung); Antitumor (Ovary); Antitumor (Stomach); Antitumor-Promoter; Antiulcer; Antiviral *IC85*=18  $\mu$ g/ml; Aromatase-Inhibitor; Beta-Blocker; Beta-Glucuronidase-Inhibitor ~100 mg/kg; Cancer-Preventive; Candidicide; Cardioprotective; Cardiotonic; Choleric 5-20 mg/kg *orl*; CNS-Depressant; COX-2-Inhibitor *IC50*=130  $\mu$ M; Cyclooxygenase-Inhibitor; Cytotoxic 50 ppm 7.2  $\mu$ M *ED50*=3.75  $\mu$ g/ml; Diuretic; Elastase-Inhibitor *IC50*=~15  $\mu$ M; Hepatoprotective 1-100  $\mu$ g/ml 10 mg/kg; Hypoglycemic; Hypotensive; Immunomodulator; Leucocytogenic; Lipoxygenase-Inhibitor *IC50*=0.18 mM; MMP-9-Inhibitor *IC80*=10  $\mu$ M; Ornithine-Decarboxylase-Inhibitor; Pesticide; Piscicide; Potassium-Sparing 3 mg/rat; Protease-Inhibitor *IC85*=18  $\mu$ g/ml; Protisticide; Quinone-Reductase-Inducer 5  $\mu$ g/ml; Sodium-Sparing 3 mg/rat; TOPO-2-Inhibitor; Trypanocide; Vasopressor

**UVAOL Plant:**

Antioxidant *IC47*=10  $\mu$ M; Antiproliferative *IC50*=30->30  $\mu$ M; Antitumor (Breast); Antitumor (Stomach); Cytotoxic 100-200 ppm; Lipoxygenase-Inhibitor

**VANILLIC-ACID Plant:**

Aldose-Reductase-Inhibitor 100  $\mu$ M/l; Allelopathic; Anthelmintic; Antibacterial 1.5-15 mg/ml; Anticancer; Antifatigue; Antiinflammatory; Antileukemic *IC50*=25-56  $\mu$ g/ml; Antioxidant 1/3 *BHA* *IC21*=30 ppm; Antiperoxidant *IC15-65*=100-200  $\mu$ g/ml; Antiradicular 7 x *quercetin*; Antiseptic; Antisickling; Antitumor; Antitumor-Promoter; Ascaricide; Cancer-Preventive; Choleric; Fungicide; Immunosuppressant; Laxative; Pesticide; Ubiquit

**VIRIDIFLOROL Leaf:**

Antiacetylcholinesterase *IC50*=25  $\mu$ g/ml

**WAX Plant:**

No activity reported.