

# Dr. Duke's Phytochemical and Ethnobotanical Databases

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## Chemicals and their Biological Activities in: *Mentha arvensis* *var. piperascens* MALINV. EX L. H. BAILEY (Lamiaceae) -- Cornmint, Field Mint, Japanese Mint

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### Chemicals

(+)-8-ACETOXY-CARVONE *Essential Oil*:

No activity reported.

(+)-CARVONE *Essential Oil*:

Antialzheimeran?; Anticholinesterase

(+)-ISOMENTHONE *Leaf* 240 - 7,062 ppm

No activity reported.

(+)-MENTHOFURAN *Leaf* 32 ppm;

No activity reported.

(+)-NEOMENTHOL *Leaf* 20 - 580 ppm

No activity reported.

(+)-OCTAN-3-ONE *Leaf* 9,000 - 27,000 ppm

No activity reported.

(+)-PIPERITONE *Leaf* 90 - 290 ppm

No activity reported.

(+)-PULEGONE *Plant* 25,455 ppm;

Antiacetylcholinesterase  $IC_{50}=0.9$  mM  $IC_{50}=136$  ug/ml; Irritant ZEB; Perfumery

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

(-)-Chronotropic 87 nl/ml; (-)-Inotropic; Acaricide  $LC_{100}=6$  uM; Allelopathic; Allergenic; Anesthetic; Anthelmintic; Antiacetylcholinesterase  $IC_{50}=41$  ug/ml; Antiallergic; Antibacterial 50 ppm; Antibronchitic; Anticariogenic; Anticatarrh; Anticholinesterase  $IC_{50}=50-70$ ; Antifatigue; Antihalitosis; Antiinflammatory; Antilaryngitic; Antinociceptive; Antipharyngitic; Antiplateau; Antirheumatic; Antirhinitic; Antiseptic; Antisinusitic; Antispasmodic; Antistaphylococcic 50 ppm; Antitussive; Antiulcer; Candidicide; Carcinogenic; Choloretic; 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  $IC_{50}=78$  uM;

Hypotensive; Inflammatory *inj*; Insectifuge; Irritant; Myorelaxant; Nematicide; Neurotoxic; P450-Inducer; Pediculicide  $2.3 \times \text{pyrethrin}$ ; Perfume; Pesticide; Rubefacient; Secretagogue; Sedative; Spasmogenic; Surfactant; Testosterone-Hydroxylase-Inducer; Transdermal; Trichomonicide  $LD100=1,000 \text{ ug/ml}$

**1-P-MENTHEN-3-ONE *Plant*:**

No activity reported.

**3',4',5,7-TETRAHYDROXY-FLAVONE-7-ALPHA-L-RHAMNOSYL-BETA-D-GLUCOSIDE *Shoot*:**

No activity reported.

**3',5,7-TRIHYDROXY-4'-METHOXY-FLAVONE-O-BETA-D-GLUCOSIDE *Shoot*:**

No activity reported.

**3(5',5'-DIMETHYL-TETRAHYDROFURAN-2'-YL)-BUT-CIS-2-EN-1-OL *Plant 1.4 ppm*:**

No activity reported.

**3-METHYLPENTANOL *Plant*:**

No activity reported.

**4',5,7-TRIHYDROXY-FLAVONE-7-ALPHA-L-RHAMNOSYL-BETA-D-GLUCOSIDE *Shoot*:**

No activity reported.

**4',5,7-TRIHYDROXY-FLAVONE-O-BETA-D-GLUCOSIDE *Shoot*:**

No activity reported.

**ACACETIN-7-O-BETA-D-GLUCOSIDE *Shoot*:**

No activity reported.

**ACETIC-ACID *Plant*:**

Acidulant; Antibacterial  $5,000 \text{ ppm}$ ; Antiotitic; Antisalmonella; Antivaginitic  $1-2\%$ ; Expectorant; Fungicide; Keratitigenic; Mucolytic; Osteolytic; Perfumery  $FEMA 6,000-40,000 \text{ ppm}$ ; Pesticide; Protisticide; Spermicide; Ulcerogenic; Verrucolytic

**ACETYLMENTHOL *Plant*:**

No activity reported.

**ALPHA,BETA-HEXENIC-ACID *Plant*:**

No activity reported.

**ALPHA,GAMMA-HEXENYL-PHENYL-ACETATE *Plant*:**

No activity reported.

**ALPHA-PINENE *Plant 10 - 300 ppm***

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

Sedative; Spasmogenic; Tranquilizer; Transdermal

**ALPHA-THUJENE *Plant*:**

No activity reported.

**ANISALDEHYDE *Shoot*:**

Antimutagenic; Fungicide; Insecticide; Pesticide; Tyrosinase-Inhibitor  $ID_{50}=0.32\text{ mM}$   
 $ID_{50}=320\text{ }\mu\text{M}$   $ID_{50}=380-970\text{ }\mu\text{M}$

**BETA-CAR-3-ENE *Essential Oil*:**

No activity reported.

**BETA-PHELLANDRENE *Plant*:**

Expectorant; Fungicide; Perfumery

**BETA-PINENE *Plant 10 - 1,445 ppm***

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

**CAMPHENE *Plant*:**

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

**CARVOMENTHONE *Plant*:**

No activity reported.

**CARVONE *Essential Oil: Leaf 8,100 - 26,000 ppm***

Allergenic; Antiacetylcholinesterase  $IC_{50}=1.4-1.8\text{ mM}$ ; Antiproliferative; Antiseptic  
 $1.5\text{ x phenol}$ ; Cancer-Preventive; Candidistat; Carminative; CNS-Stimulant; FLavor  
*FEMA 80-3,000*; Fungistat; Insecticide; Insectifuge; Motor-Depressant; Nematicide  
 $MLC=1\text{ mg/ml}$ ; Perfumery; Pesticide; Sedative; Trichomonicide  $LD_{100}=300\text{ }\mu\text{g/ml}$ ;  
Vermicide

**CARYOPHYLLENE *Plant*:**

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

**CHLOROPHYLL-A *Tissue Culture*:**

No activity reported.

**CHLOROPHYLL-B *Tissue Culture*:**

No activity reported.

**CINEOLE *Leaf 40 - 1,785 ppm***

No activity reported.

**CIS-ISOPULEGONE *Leaf:***

No activity reported.

**CIS-OCIMENE *Essential Oil:***

Antibacterial; Antistaphylococcic; Fungicide

**D-3-OCTANOL *Plant:***

No activity reported.

**DIOSMETIN-7-O-BETA-D-GLUCOSIDE *Shoot:***

No activity reported.

**DL-ISOMENTHONE *Plant:***

No activity reported.

**ETHYL-AMYL-CARBINOL *Plant:***

No activity reported.

**EUGENOL *Essential Oil:***

Acaricide *LD50=5.47 ug/sq cm cf DEET at 37.59 ug/sq cm*; Allergenic; Analgesic; Anesthetic *200-400*; Antiaggregant *IC50=0.3 uM*; Antiarachidonate; Antibacterial *500 ppm MBC=400 ug/ml*; Anticonvulsant; Antiedemic *100*; Antiestrogenic; Antifeedant; Antigenotoxic *50-500 mg/kg orl mus*; Antiherpetic *IC50=16.2-25.6 ug/ml*; Antiinflammatory (*11 uM IC-97=1,000 uM*); Antikeratotic *IC50=16.2-25.6 ug/ml*; Antimitotic; Antimutagenic; Antinitrosating; Antioxidant *10 uM IC65=30 ppm*; Antiprostaglandin *11 uM IC50=9.2 mM*; Antipyretic *3 ml/man/day*; Antiradicular *EC50=2 ul/l*; Antisalmonella *MIC=400 ug/ml*; Antiseptic *3 ml/man/day 400 ug/ml*; Antispasmodic; Antistaphylococcic; Antithromboxane; AntiTNF; Antitumor; Antiulcer; Antiviral *IC50=16.2-25.6 ug/ml*; Apifuge; Calcium-Antagonist *IC50=200 uM gpg IC50=224 uM*; Cancer-Preventive; Candidicide; Carcinogenic?; Carminative; Choleric; CNS-Depressant; COX-1-Inhibitor *IC97=1,000 uM*; COX-2-Inhibitor *IC50=129 uM IC>97=1,000 uM*; Cytochrome-P450-Inhibitor; Cytotoxic *25 ug/ml*; Dermatitigenic; Enterorelaxant; FLavor *FEMA 10-500*; Fungicide; Hepatoprotective *100 ppm*; Herbicide; Insecticide; Insectifuge; Irritant; Juvabional; Larvicide; Motor-Depressant; Nematicide *MLC=2,000 ug/ml*; Neurotoxic; Perfumery; Pesticide; Prostaglandin-Synthesis-Inhibitor *1 mM rbt IC50=9.2 uM*; Sedative; Termiticide *LD100=5 mg/g*; Trichomonicide *LD100=300 ug/ml*; Trichomonistat *IC50=10 ug/ml*; Trypsin-Enhancer; Ulcerogenic; Varroacide; Vasodilator; Vermifuge

**FORMIC-ACID *Plant:***

Acaricide; Antiseptic; Antisyncopic; Astringent; Corrosive; Counterirritant; FLavor *FEMA 500-2,500*; Fungistat; Fungitoxic; Irritant; Pesticide; Preservative; Toxic

**FURFURAL *Plant 2 - 5 ppm***

Antiseptic; FLavor *FEMA 1-30*; Fungicide; Insecticide; Irritant; Pesticide

**GAMMA-TERPINENE *Essential Oil:***

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

**GERMACRENE-D *Essential Oil:***

Pesticide; Pheromone

**HESPERIDIN *Plant*:**

Analgesic; Anti-LDL; Antiallergenic; Antibradykinic; Anticapillary-Fragility; AntiDNA; Antiflu; Antihistaminic; Antiinflammatory  $IC_{47}=50\text{ mg/kg scu}$   $IC_{63}=100\text{ mg/kg scu}$ ; Antileukotriene; Antioxidant  $IC_{50}=8\text{ ppm}$ ; Antiprostaglandin; AntiRNA; Antistomatitic; Antitriglyceride; Antiulcer  $100-150\text{ mg/kg ipr}$ ; Antivaccinia; Antiviral; Anxiolytic; Calcium-Antagonist  $IC_{50}=1.2\text{ uM rbt}$ ; Capillariprotective; Catabolic; Choleric; CNS-Depressant  $100-150\text{ mg/kg ipr}$ ; Cyclooxygenase-Inhibitor; Hypolipidemic; Lipoxygenase-Inhibitor; Pesticide; ProHDL; Vasopressor

**ISOMENTHOL *Essential Oil*:**

Antiacetylcholinesterase  $IC_{29}=1.2\text{ mM}$

**ISOPULEGOL *Essential Oil*:**

Antiacetylcholinesterase  $IC_{50}=2.0\text{ mM}$ ; FLavor *FEMA* 5-30; Perfumery

**ISOPULEGONE *Leaf* 240 - 770 ppm**

FLavor *FEMA* 5-15; Hepatotoxic; Perfumery; Pulmonotoxic

**ISOVALERALDEHYDE *Plant*:**

FLavor *FEMA* 0.5-5

**ISOVALERIC-ACID *Plant* 30 - 90 ppm**

FLavor *FEMA* 1-16; Irritant; Perfumery; Sedative; Tranquilizer

**KETONES *Plant* 336 - 1,008 ppm**

No activity reported.

**L-MENTHOL *Plant* 373 - 29,515 ppm**

Antiacetylcholinesterase  $IC_{38}=164\text{ ug/ml}$ ; FLavor *FEMA* 35-1,200; Perfumery 5,000-25,000

**L-MENTHYL-ACETATE *Plant* 85 - 4,200 ppm**

FLavor *FEMA* 5-25; Perfumery

**LIMONENE *Leaf*:**

Acaricide  $LC_{100}=8\text{ uM}$ ; AChE-Inhibitor; Allelochemic; Allergenic *1/20th 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  $IC_{50}=45\text{ uM}$ ; Histaminic; Immunomodulator; Insecticide  $0.37\text{ uM/fly}$ ; Insectifuge; Interleukin-6-Inhibitor; Irritant; Lipolytic; Myorelaxant  $50\text{ mg/kg}$ ; Nematicide  $IC=100\text{ ug/ml}$ ; 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 *Leaf*:**

No activity reported.

**LINALOL-ACETATE Leaf 690 - 2,215 ppm**

No activity reported.

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

**MENTHOFURAN Plant 4,200 - 12,600 ppm**

Calcium-Antagonist  $IC_{50}=441\text{ }\mu\text{M gpg}$  (*weak activity*); Hepatotoxic; Nematicide  $MLC=1\text{ mg/ml}$ ; Pesticide; Pulmonotoxic

**MENTHOFUROLACTONE Plant:**

No activity reported.

**MENTHOL Leaf 66 - 25,650 ppm**

Allergenic; Analgesic; Anesthetic  $2,000\text{ ppm}$ ; Antiacetylcholinesterase  $IC_{50}=2.0\text{ mM}$ ; Antiaggregant  $IC_{50}=750$ ; Antiallergic; Antiasthmatic; Antibacillus  $MIC=1.25\text{ mg/ml}$ ; Antibacterial  $MIC=0.625-2.5$ ; Antibronchitic; Antidandruff; Antiescherichic  $MIC=1.25\text{ mg/ml}$ ; Antihalitotic; Antihistaminic; Antiinflammatory; Antilisteria  $MIC=0.625\text{ mg/ml}$ ; Antineuralgic; Antiodontalgic; Antipruritic; Antipyretic; Antirheumatic; Antisalmonella; Antiseptic  $4\text{ x phenol}$ ; Antisinusitic; Antispasmodic  $ED_{50}=0.01\text{ mg/ml}$ ; Antistaphylococcic  $MIC=0.625\text{ mg/ml}$ ; Antistreptococcic  $MIC=0.4\text{ mg/ml}$ ; Antitartar; Antivaginitic; Antivulvitic; Bradycardic  $65\text{ mg/3 x day/woman}$ ; Bronchomucolytic; Bronchomucotropic; Bronchorrhagic; Calcium-Antagonist; Candidicide  $MIC=0.625\text{ mg/ml}$ ; Carminative; Choleric; Ciliotoxic; CNS-Depressant; CNS-Stimulant; Congestant; Convulsant; Counterirritant; Decongestant?  $11\text{ mg/man}$ ; Dermatitogenic; Diaphoretic; Enterorelaxant; Expectorant; Gastroedative; Irritant; Myorelaxant; Nematicide  $MLC=1\text{ mg/ml}$ ; Neurodepressant; Neuropathogenic  $40-100\text{ mg/day/rat}$ ; Nociceptive; Perfumery; Pesticide; Refrigerant; Rubefacient; Termiticide; Transdermal; Vibriocide

**MENTHOL-ACETATE** *Leaf 10 - 2,215 ppm*

No activity reported.

**MENTHONE** *Leaf 250 - 25,680 ppm Plant 71 - 24,000 ppm*

Acaricide; Allelopathic; Analgesic; Antiacetylcholinesterase  $IC_{50}=1.4\text{ mM}$ ; Antiaggregant  $IC_{50}=750$ ; Antiallergic; Antibacillary  $MIC=1.25\text{ mg/ml}$ ; Antibacterial  $MIC=0.625-5\text{ mg/ml}$ ; Antiescherichic  $MIC=5\text{ mg/ml}$ ; Antihistaminic; Antilisteria  $MIC=1.25\text{ mg/ml}$ ; Antisalmonella  $MIC=5\text{ mg/ml}$ ; Antiseptic  $2.25\text{ x phenol}$ ; Antispasmodic  $ED_{50}=0.044\text{ mg/ml}$ ; Antistaphylococccic  $MIC=0.625-2.5\text{ mg/ml}$ ; Cancer-Preventive; Candidicide  $MIC=2.5\text{ mg/ml}$ ; Cerebrotoxic *orl man*; Culicide  $LC_{50}=156-194\text{ mg/l}$ ; FLavor *FEMA 5-50*; Fungicide; Insecticide  $LC_{50}=156-194\text{ mg/l}$ ; Larvicide; Mutagenic; Nematicide  $MLC=1\text{ mg/ml}$ ; Perfumery; Pesticide; Psychoactive; Sedative; Trichomonicide  $LD_{100}=600\text{ ug/ml}$

**MENTHONONE** *Plant:*

No activity reported.

**MYRCENE** *Leaf 10 - 2,485 ppm*

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

**NEOISOMENTHOL** *Essential Oil:*

No activity reported.

**NEOISOPULEGONE** *Essential Oil:*

No activity reported.

**OCTAN-3-OL** *Leaf 10,200 ppm;*

No activity reported.

**P-CYMENE** *Leaf 9 - 29 ppm*

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

**P-CYMOL** *Leaf 562 - 1,800 ppm*

No activity reported.

**P-MENTHAN-TRANS-2,5-DIOL** *Plant:*

No activity reported.

**PIPERITENONE** *Plant:*

Antiacetylcholinesterase  $IC_{50}=110\text{ ug/ml}$ ; Perfumery; Toxic  $10,000/\text{man}$

**PIPERITENONE-OXIDE** *Leaf 260 - 7,320 ppm*

Insecticide; Pesticide

**PIPERITONE** *Leaf 13 - 1,285 ppm 240 - 7,700 ppm*

Antiasthmatic; FLavor *FEMA 1-2*; Herbicide  $IC_{50}=30\text{ mM}$   $IC_{50}=75\text{ uM}$ ; Insectifuge

(> *DEET*); Perfumery; Pesticide

**PIPERITONE-OXIDE** *Leaf* 320 - 5,135 ppm *Plant*:

No activity reported.

**PULEGONE** *Plant* 100 - 24,960 ppm

AChE-Inhibitor; Antiacetylcholinesterase  $IC_{50}=0.9\text{ mM}$   $IC_{50}=136\text{ ug/ml}$ ;  
Antialzheimeran?; Antibacterial; Anticholinesterase; Antihistaminic; Antipyretic;  
Avifuge; Cancer-Preventive; Candidicide; Cerebrotoxic *orl man*; Encephalopathic 80  
*mg/kg orl rat*; FLavor *FEMA* 5-30; Fungicide; Glutathionalytic; Hallucinogenic;  
Hepatotoxic; Herbicide  $IC_{50}=1.5\text{ uM}$ ; Insecticide; Insectifuge; Nephrotoxic;  
Neurotoxic; Perfumery; Pesticide; Pulifuge; Pulmonotoxic; Sedative

**RAFFINOSE** *Plant*:

Flatugenic

**ROSMARINIC-ACID** *Leaf* 71 - 228 ppm *Plant* 28,000 ppm;

ABeta-Inhibitor; Adenylate-Cyclase-Inhibitor; Aldose-Reductase-Inhibitor;  
Antiaggregant; Antiallergic; Antialzheimeran; Antianaphylactic 1-100 *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 *aspirin* 20 *mg/kg ivn*;  
Antidepressant; Antiedemic 0.316-3.16 *mg/kg ims*; Antigonadotropic; Antihemolytic  
 $IC_{70}=5-10\text{ um/l}$ ; Antihepatotoxic; Antiherpetic 50 *ug/ml EC* $50=20\text{ ug/ml}$ ; AntiHIV  
 $EC_{50}=40\text{ ug/ml}$ ; Antihyperthyroid; Antiinflammatory  $IC_{\sim 58}=1,000\text{ uM}$ ; Antiintegrase  
10 *ug/ml*; Antileukotriene; Antilipoperoxidant; Antimutagenic; Antinephritic;  
Antioxidant 10 *uM EC* $50=2.7\text{ ug/ml}$ ; Antioxidant (LDL)  $IC_{50}=0.74\text{ uM}$ ; Antiplaque;  
Antiproliferant; Antiprostaglandin 20 *mg/kg ivn*; Antiproteolytic  $IC_{50}=0.9\text{ mol l}$ ;  
Antipulmonotic; Antiradicular; Antishock; Antithyreotropic; 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; Lipoxygenase-Inhibitor; Neuroprotective;  
Pesticide; Radioprotective

**SABINENE-HYDRATE** *Leaf* 30 - 160 ppm

No activity reported.

**SANTENE** *Plant*:

No activity reported.

**SH** *Plant*:

No activity reported.

**STACHYOSE** *Plant*:

Flatugenic

**THUJONE** *Plant*:

Abortifacient; Anthelmintic; Antibacterial; Antiseptic; Antispasmodic  $ED_{50}=0.127$   
*mg/ml*; Cerebrodepressant; Convulsant 40 *mg/kg*; Counterirritant; Emmenagogue;  
Epileptigenic; Hallucinogenic; Herbicide  $IC_{50}=22\text{ mM}$ ; Neurotoxic; Perfumery;  
Pesticide; Respirainhibitor; Toxic



**TRANS-ISOPULEGONE *Leaf:***

No activity reported.

**TRANS-OCIMENE *Essential Oil:***

No activity reported.