

# Dr. Duke's Phytochemical and Ethnobotanical Databases

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## Chemicals and their Biological Activities in: *Cinnamomum verum* J. PRESL (Lauraceae) -- Ceylon Cinnamon, Cinnamon

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### Chemicals

#### **1,8-CINEOLE** *Bark 165 - 800 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; Antiplaque; 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  $IC_{50}=78 \mu M$ ; 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  $LD_{100}=1,000 \mu g/ml$

#### **2-PHENYLACETALDEHYDE** *Plant:*

No activity reported.

#### **2-PHENYLETHYL-BENZOATE** *Bark:*

No activity reported.

#### **2-VINYLPHENOL** *Bark 3 - 12 ppm*

No activity reported.

#### **3-PHENYL-PROPYL-ACETATE** *Bark 13 - 52 ppm*

FLavor FEMA 0.5-10; Perfumery

#### **ACETOEUGENOL** *Bark 16 - 64 ppm*

No activity reported.

#### **ALPHA-PINENE** *Bark 20 - 236 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  $IC_{50}=30 \mu M$ ; Insecticide 0.82  $\mu M/fly$ ; Insectifuge 50 ppm; Insectiphile; Irritant; P450-2B1-Inhibitor  $IC_{50}=0.087 \mu M$ ; Perfumery; Pesticide;

Sedative; Spasmogenic; Tranquilizer; Transdermal

**ALPHA-TERPINENE *Plant* 42 - 168 ppm**

Acaricide; ACE-Inhibitor 100 ug/ml (*weak activity*); Aldose-Reductase-Inhibitor 100 ug/ml; Antiacetylcholinesterase  $IC_{50}=1.0$  mM; Antinitrosaminic; Antispasmodic; FLavor FEMA 1-40; Insecticide 0.86 uM/fly; Insectifuge; P450-2B1-Inhibitor  $IC_{50}=0.76$  uM; Perfumery; Pesticide; Spasmogenic

**ALPHA-TERPINEOL *Bark* 40 - 264 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  $ED_{50}=240$  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  $IC_{100}=5$  mg/g; Transdermal; Vulnerary  $ED_{50}=240$  ug/g mus

**ALPHA-YLANGENE *Bark* 31 - 124 ppm**

No activity reported.

**BENZALDEHYDE *Plant* 26 - 104 ppm**

Allergenic; Anesthetic; Antibacterial; Anticancer; Antimutagenic; Antipeptic; Antiseptic; Antispasmodic; Antitumor; Candidicide; FLavor FEMA 150-800; Immunostimulant; Insecticide; Insectifuge 50 ppm; Motor-Depressant; Narcotic; Nematicide  $MLC=1$  mg/ml; Pesticide; Sedative; Termiticide  $LD_{100}=5$  mg/g; Tyrosinase-Inhibitor  $ID_{50}=0.82$  mM  $ID_{50}=820$  uM  $ID_{50}=830$  uM  $ID_{50}=87$  ug/ml

**BENZYL-ALCOHOL *Bark*:**

Allergenic; Anesthetic; Antiodontalgic; Antipruritic; Antiseptic; FLavor Fema 200-1,200; Fungicide; Pesticide; Sedative

**BENZYL-BENZOATE *Bark* 66 - 400 ppm**

Acaricide  $LD_{50}=9.22$  ug/sq cm cf DEET at 37.59 ug/sq cm; Allergenic; Antiasthmatic; Antidysmenorrhic; Antispasmodic; Antitumor  $ED_{50}=8-15$ ; Artemicide  $LC_{50}=2$  ppm; CNS-Depressant; CNS-Stimulant; FLavor FEMA 40-300; Hypotensive; Insectifuge; Irritant; Myorelaxant; Pediculicide; Pesticide; Scabicide

**BETA-PINENE *Bark* 14 - 76 ppm**

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

**BETA-SELINENE *Plant*:**

Antimalarial  $IC_{50}=>50$  ug/ml; Antiplasmodial; Perfumery

**BORNEOL *Bark* 2 - 8 ppm**

(-)-Chronotropic 29 ug/ml; (-)-Inotropic; Allelochemic; Analgesic; Antiacetylcholine; Antibacterial  $MIC=125-250$  ug/ml; Antibronchitic; Antiescherichic  $MIC=125$  ug/ml; Antifeedant; Antiinflammatory; Antiotitic; Antipyretic; Antisalmonella; Antispasmodic  $ED_{50}=0.008$  mg/ml; Antistaphylococcic  $MIC=250$  ug/ml; Antiyeast; Candidicide; Choleric; CNS-Stimulant; CNS-Toxic; FLavor FEMA <1; Fungicide; Hepatoprotective; Herbicide  $IC_{50}=470$  mM  $IC_{50}=470$  uM; Inhalant; Insect-Repellent;

Insectifuge; Irritant; Myorelaxant; Nematicide  $MLC=1\text{ mg/ml}$ ; Perfumery; Pesticide; Sedative; Tranquilizer

**BORNYL-ACETATE** *Bark* 10 - 20 ppm

(-)-Chronotropic 933  $nl/ml$ ; (-)-Inotropic; Antibacterial; Antifeedant; Antispasmodic  $ED50=0.09\text{ mg/ml}$ ; Antiviral; Expectorant; FLavor *FEMA* 70-80; Insectifuge; Myorelaxant; Pesticide; Sedative

**CALCIUM-OXALATE** *Plant*:

Emetic; Inflammatory; Laxative; Lithogenic

**CAMPHENE** *Bark* 18 - 72 ppm

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

**CAMPHOR** *Plant*:

Allelopathic; Analgesic; Anesthetic; Antiacne; Antidiarrheic 500  $ug/ml$ ; Antidysenteric; Antiemetic 100-200  $mg\ man\ orl$ ; Antifeedant  $IC50=5,000\ ppm\ diet$ ; Antifibrositic; Antineuralgic; Antipruritic; Antiseptic; Antispasmodic  $ED50=0.075\ mg/ml$ ; Cancer-Preventive; Carminative; CNS-Stimulant; Convulsant; Cosmetic; Counterirritant; Decongestant; Deliriant; Ecbolic; Emetic; Epileptogenic; Expectorant; Fungicide  $ED50=2.7\ mM$ ; Herbicide  $IC50=3.3-180\ mM$ ; Insect-Repellent; Insectifuge; Irritant; Nematicide  $MLC=1\ mg/ml$ ; Oculoirritant; P450-2B1-Inhibitor  $IC50=7.89\ uM$ ; Pesticide; Respirainhibitor; Respirastimulant; Rubefacient; Stimulant; Transdermal; Verrucolytic; Vibriocide 500  $ug/ml$

**CARYOPHYLLENE** *Bark* 135 - 1,316 ppm

Aldose-Reductase-Inhibitor; Allergenic; Analgesic; Antiacne; Antiasthmatic; Antibacterial; Anticariogenic  $MIC=>1,600\ ug/ml$ ; Antidermatitic; Antiedemic; Antifeedant 500 ppm; Antiinflammatory  $IC50=100\ uM$ ; Antileishmanic; Antionychyotic; Antiproliferant; Antispasmodic; Antistaphylococcic; Antistreptococcic; Antitumor; Antiulcer; Candidicide; FLavor *FEMA* 20-200; Fungicide; Gastroprotective; Insectifuge; Irritant; Larvicide; Mosquitocide; Perfumery; Pesticide; Sedative; Termitifuge

**CARYOPHYLLENE-OXIDE** *Plant*:

Antiedemic; Antifeedant; Antiinflammatory; Antitumor; Calcium-Antagonist  $ED50=32\ uM\ gpg$ ; Fungicide; Insecticide; Pesticide

**CINNAMALDEHYDE** *Bark* 6,000 - 30,000 ppm

Acaricide; Adrenergic; Allelochemic  $IC100=2.5\ mM$ ; Allergenic; Anesthetic; Antiaggregant 200  $uM$ ; Antibacterial  $MIC=250-1,000\ ug/ml$ ; Antienterococcic  $MIC=250\ ug/ml$ ; Antiescherichic  $MIC=500\ ug/ml$ ; Antiherpetic; Antiinflammatory; Antiklebsielllic  $MIC=1,000\ ug/ml$ ; Antileukemic; Antimutagenic; Antipneumonic; Antipseudomonic; Antipyretic; Antisalmonella  $MIC=500\ ug/ml$ ; Antispasmodic; Antistaphylococcic  $MIC=250\ ug/ml$ ; Antiulcer 500  $mg/kg/orl$ ; Antiurease; Antiviral; Cancer-Preventive; Candidicide  $MIC=16-40\ ppm$ ; Choloretic 500  $mg/kg/orl$ ; Chronotropic; Circulatory-Stimulant; CNS-Depressant; CNS-Stimulant; COX-2-Inhibitor  $IC50=245\ uM$ ; Cyclooxygenase-Inhibitor; Cytotoxic  $ED50=5-60\ ug/ml$ ; FLavor; Fungicide 1.7-250 ppm  $MIC=16-40\ ppm$ ; Herbicide; Histaminic; Hypoglycemic; Hypotensive; Hypothermic; Inotropic; Insecticide; Irritant; Lipoxygenase-Inhibitor; Monoaminergic; Mutagenic; Nematicide 100  $ug/ml$ ;

Perfumery; Pesticide; Sedative; Sprout-Inhibitor; Teratogenic; Termiticide  $LD_{100}=5$  mg/g  $LD_{96}=1$  mg/g; Tranquilizer; Tyrosinase-Inhibitor  $ID_{50}=129$  ug/ml  $ID_{50}=970$  uM; Vasodilator; Vibriocide  $MIC=250$  ug/ml

**CINNAMYL-ACETATE Bark 510 - 2,040 ppm**

FLavor *FEMA 1-18*; Nematicide  $MLC=1,000$  uM; Pesticide

**CINNAMYL-ALCOHOL Bark 26 - 104 ppm**

Allelochemic  $IC_{50}=0.68$  uM; Antimutagenic; Herbicide 2.5 mM; Nematicide  $MLC=1,000$  uM; Perfumery; Pesticide

**CINNZEYLANINE Bark:**

No activity reported.

**CINNZEYLANOL Bark:**

No activity reported.

**CINNZEYLANOL-1-ACETATE Plant:**

No activity reported.

**CIS-OCIMENE Bark 3 - 12 ppm**

Antibacterial; Antistaphylococcic; Fungicide

**CONIFERALDEHYDE Plant:**

No activity reported.

**COUMARIN Bark:**

Aldose-Reductase-Inhibitor 10 ug/ml cow (weak activity, 11% inhibition); Allelochemic  $IC_{100}=2$  mM; Analgesic; Anesthetic; Antiaggregant; Antiandrogenic; Antibrucellosic; Anticancer (Kidney) 400-7,000 mg/day; Anticancer (Prostate); Antidiuretic; Antiedemic; Antiesherichic; Antiinflammatory; Antilymphedemic; Antimelanomic 50 mg/day; Antimetastatic 50 mg/man/day; Antimitotic; Antimononucleotic; Antimutagenic; Antimycoplasmotic; Antipsittacotic; Antipsoriac; Antitoxoplasmotic; Antitumor 50 mg/day; Antitumor (GI); Antitumor (Kidney) 400-7,000 mg/day; Antitumor (Prostate); Bacteristat; Bruchiphobe; Cancer-Preventive 5-25 ug/ml; Carcinogenic 200 mg/kg orl mus; Cardiodepressant; Cardiotonic; Chemopreventive; DME-Inhibitor  $IC_{50}=57.5$  uM; Emetic; Estrogenic; Fungicide; Hemorrhagic; Hepatotoxic 0.8-1.71 mM/kg orl rat 100 mg/kg dog 2,500 ppm diet; Hypnotic; Hypoglycemic 250-1,000 mg/kg orl; Immunostimulant; Juvabional; Larvistat; Lymphocytogenic 100 mg/day; Lymphokinetic; Narcotic; Ovicide; Pesticide; Phagocytotic; Piscicide; Respirodepressant; Rodenticide; Sedative

**CUMENE Bark 66 - 264 ppm**

Narcotic

**CUMINALDEHYDE Bark 4 - 100 ppm**

Antibacterial; FLavor *FEMA <1*; Fungicide; Irritant; Larvicide; Perfumery; Pesticide; Sedative; Tyrosinase-Inhibitor  $ID_{50}=0.05$  mM; Ulcerogenic

**DELTA-3-CARENE Bark 3 - 12 ppm**

Allergenic?; Antibacterial; Antiinflammatory *ipr*; Dermatitogenic; FLavor *FEMA*; Insectifuge; Irritant; Pesticide

**DIHYDROFUMIGATIN Bark:**

No activity reported.

**ETHYL-CINNAMATE Plant:**

FLavor FEMA 4-40; Nematicide MLC=1,000  $\mu$ M

**EUGENOL Bark 220 - 3,520 ppm**

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

**EUGENOL-ACETATE Plant:**

Prostaglandin-Synthesis-Inhibitor 1 mM rbt

**FARNESOL Bark 3 - 12 ppm**

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

**FENCHONE Plant:**

Antialzheimeran?; Anticholinesterase; Counterirritant; FLavor FEMA 0.1-5; Perfumery; Secretolytic

**FURFURAL Bark 3 - 12 ppm**

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

**FURFUROL Bark:**

No activity reported.

**GAMMA-TERPINENE Bark 3 - 12 ppm**

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

**GAMMA-TERPINEOL Bark:**

No activity reported.

**GAMMA-YLANGENE Bark:**

No activity reported.

**GERANIAL Bark:**

Antibacterial; AntiEBV  $IC_{50}=16 \mu M$ ; Antiviral; Pesticide

**GERANIOL Bark 6 - 24 ppm**

Allergenic; Anthelmintic; Antibacterial  $MBC=800 \mu g/ml$   $MIC=400 \mu g/ml$   $MIC=64 \mu g/ml$ ; Anticancer (Pancreas)  $IC_{50}=265 \mu M$ ; Anticariogenic  $MIC=400 \mu g/ml$ ; Antimelanomic  $IC_{50}=150 \mu M/l$ ; Antisalmonella  $MIC=400 \mu g/ml$ ; Antiseptic 400-800  $\mu g/ml$  7 x phenol  $MIC=64 \mu g/ml$ ; Antispasmodic; Antitubercular; Antitumor; Antitumor (Pancreas)  $IC_{50}=265 \mu M$ ; Ascariocide; Cancer-Preventive; Candidicide; CNS-Stimulant; Embryotoxic; Emetic 3 x *ippecac*; Expectorant; FLavor FEMA 1-10; Fungicide  $IC_{93}=2 \text{ mM}$ ; Herbicide  $IC_{100}=2,000 \mu M$ ; Insectifuge 50 ppm; Insectiphile; Mycobactericide  $MIC=64 \mu g/ml$ ; Nematicide  $IC_{86}=100 \mu g/ml$   $MLC=1,000 \mu g/ml$ ; Perfumery; Pesticide; Sedative; Trichomonicide  $LD_{100}=300 \mu g/ml$

**GERANYL-ACETATE Bark:**

Allergenic; FLavor FEMA 1-20; Insectiphile; Perfumery; Sedative

**GUM Bark:**

No activity reported.

**HEXANOL Plant:**

Antiseptic; FLavor FEMA 0.2-25; Pesticide

**HUMULENE Bark 20 - 124 ppm**

Antimalarial  $IC_{50}=86 \mu g/ml$ ; Antiplasmodial

**HYDROCINNAMALDEHYDE Bark 40 - 160 ppm**

No activity reported.

**ISOCARYOPHYLLENE Bark:**

Perfumery

**ISOEUGENOL Bark 2 - 8 ppm**

Allergenic; Antiaggregant  $IC_{50}=0.72 \mu M$ ; Antiinflammatory; Antioxidant  $IC_{79}=30 \text{ ppm}$ ; AntiTNF; Antitumor; Bacteristat; Cancer-Preventive; Candidistat; Cytotoxic 25  $\mu g/mL$ ; Fungistat 100  $\mu g/mL$ ; Motor-Depressant; Motor-Stimulant; Pesticide; Sedative; Trichomonistat  $IC_{50}=10 \mu g/ml$

**LIMONENE Bark 46 - 184 ppm**

Acaricide  $LC_{100}=8 \mu M$ ; AChE-Inhibitor; Allelochemic; Allergenic 1/20th *carene*; Acetylcholinesterase  $IC_{22-26}=1.2 \text{ mM}$ ; 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  $IC_{50}=45 \mu M$ ; Histaminic; Immunomodulator; Insecticide  $0.37 \mu M/fly$ ; 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 Bark 230 - 956 ppm**

No activity reported.

**LINALYL-ACETATE Bark:**

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

**MANNITOL Plant:**

Allergenic; Analgesic; Anthelmintic; Antiglaucomic; Antiinflammatory; Antimutagenic; Antinephritic; Antioxidant; Antiradicular; AntiReye's; Antispasmodic; Diuretic; Emetic; Flatugenic; Laxative; Nephrotoxic; Pesticide; Sweetener

**METHYL-CHAVICOL Plant:**

Calcium-Antagonist  $IC_{50}=258 \mu M$ ; DNA-Binder; Hepatocarcinogenic; Hypothermic; Insecticide; Pesticide

**METHYL-CINNAMATE Plant:**

FLavor *FEMA 2-40*; Insecticide; Nematicide  $MLC=1 \text{ mg/ml}$ ; Perfumery; Pesticide

**METHYL-EUGENOL Bark:**

Anesthetic; Antibacterial; Anticonvulsant; Antidote (Strychnine); Antifeedant; Antioxidant  $EC_{50}=100 \text{ ul/l}$ ; Antiradicular; Antiseptic; Cancer-Preventive; Carcinogenic; FLavor *FEMA 5-15*; Fungicide; Fungistat  $100 \text{ ug/mL}$ ; Insectifuge; Myorelaxant; Narcotic; Nematicide  $MIC=1 \text{ mg/ml}$ ; Perfumery; Pesticide; Sedative

**METHYL-N-AMYLKETONE Plant:**

FLavor *FEMA 2-25*; Perfumery

**METHYL-VINYL-KETONE Bark:**

No activity reported.

**MUCILAGE Bark 20,000 - 37,000 ppm**

Cancer-Preventive; Demulcent; Hypocholesterolemic

**MYRCENE Bark 5 - 20 ppm**

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

**NEROL Plant:**

Antibacterial; Antiseptic; FLavor *FEMA 1-20*; Perfumery; Pesticide; Sedative; Trichomonicide  $ED_{100}=300 \text{ ug/ml}$

**NONYL-ALDEHYDE Bark:**

No activity reported.

**P-CYMENE Bark 55 - 448 ppm**

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

**PELARGONALDEHYDE Bark:**

No activity reported.

**PELLANDRENE Bark 63 - 252 ppm**

Hyperthermic; Irritant; Spasmogenic; Tumor-Promoter

**PHENOL Plant:**

Analgesic; Anesthetic; Antibacterial; Antihemorrhoidal; Antihydrocoele; Antiincontinence; AntiMS; Antionychogryphotic; Antiotitic; Antioxidant; Antiprostatic; Antipyruvetic; Antiseptic; Antisinusitic; Antispastic; Antiviral; Antiwrinkle; Cancer-Preventive; Carcinogenic; CNS-Depressant; Emetic; Fungicide; Hemolytic  $5,400\text{ ppm}$ ; Pesticide; Rodenticide  $LD_{50}=1,040\text{ }\mu\text{g/ml}$ ; Vasodilator

**PHENYL-ETHYL-ALCOHOL Bark 41 - 164 ppm**

No activity reported.

**PHENYLETHYL-ACETATE Bark 7 - 28 ppm**

No activity reported.

**PHENYLPROPYL-ACETATE Plant:**

No activity reported.

**PIPERITONE Plant 7 - 28 ppm**

Antiasthmatic; FLavor *FEMA 1-2*; Herbicide  $IC_{50}=30\text{ mM}$   $IC_{50}=75\text{ }\mu\text{M}$ ; Insectifuge ( $> DEET$ ); Perfumery; Pesticide

**SABINENE Bark 2 - 8 ppm**

Antibacterial; Antihelicobacter; Antiseptic; Antiulcer; Perfumery

**SACCHAROSE Plant:**

No activity reported.

**SAFROLE Plant:**

Anesthetic; Antiaggregant  $IC_{50}=110\text{ }\mu\text{M}$ ; Antibacterial; Anticonvulsant; Antiseptic; Calcium-Antagonist  $IC_{50}=57\text{ }\mu\text{M}$   $IC_{50}=58\text{ }\mu\text{M}$ ; Cancer-Preventive; Carcinogenic; Carminative; CNS-Depressant; CNS-Stimulant; Controlled; Cytochrome-P450-Inducer; Cytochrome-P488-Inducer; DNA-Binder; Hepatocarcinogenic; Hepatoregenerative; Hepatotoxic; Hypothermic; Irritant; Mutagenic; Nematicide  $MLC=1\text{ mg/ml}$ ; Neurotoxic; Pediculicide; Perfumery; Pesticide; Psychoactive; Tremorigenic

**TERPINEN-4-OL Bark 36 - 144 ppm**

Allelopathic; Antiacetylcholinesterase  $IC_{21-24}=1.2\text{ mM}$ ; Antiacne; Antiallergic; Antiasthmatic; Antibacterial; Antioxidant; Antiseptic; Antispasmodic; Antitussive; Antiulcer; Bacteriostatic; Diuretic  $0.1\text{ ml/rat}$ ; Fungicide; Herbicide  $IC_{50}=200\text{ mM}$   $IC_{50}=22\text{ }\mu\text{M}$ ; Insectifuge; Irritant; Nematicide  $MLC=1\text{ mg/ml}$ ; Pesticide; Renoirritant;



Spermicide  $ED_{100}=0.015$ ; Vulnerary

**TERPINOLENE *Bark 11 - 44 ppm***

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

**TRANS-CINNAMIC-ACID *Plant:***

No activity reported.

**TRANS-LINALOL-OXIDE *Bark 5 - 20 ppm***

No activity reported.

**TRANS-OCIMENE *Plant:***

No activity reported.

**VANILLIN *Plant:***

Allelochemic  $IC_{50}=4.26$  mM; Allergenic; Antianemic; Anticancer; Antidrepanocytic; Antiescherichic 10-100 mmol/l; Antilactobacillic; Antilisteria; Antimutagenic; Antioxidant =ascorbic acid; Antipolio; Antiradicular 7 x quercetin; Antisickling; Antitumor; Antitumor-Promoter; Antiviral; Antiyeast 8-30 mM; Bacteristat 10-40 mmol/l; Cancer-Preventive; Candidicide 8-20 mM; Choleric; FLavor *FEMA 50-20,000*; Fungicide; Immunosuppressant; Insectifuge?; Irritant; Perfumery; Pesticide