

List of All Chemicals

P Boswellia sacra (Burseraceae)

Common name(s)

Weihrauchpflanze (Ger.); Olibanum Tree; Oliban (Sp.); Olibanum; Frankincense; arbol del incensio (Sp.); Weihrauchbaum (Ger.)

How used

GRAS

*Unless otherwise noted all references are to Duke, James A. 1992. Handbook of phytochemical constituents of GRAS herbs and other economic plants. Boca Raton, FL. CRC Press.

Chemical	Part <input type="button" value="All"/>	Low PPM	High PPM	StdDev	*Reference
(S)-1-ISOPROPYL-4,8,12-TRIMETHYLCYCLOTETRADECANE,7,3,11E-TRIEN-1-OL	Plant	--	--		J.S. Glasby Dict.Pls Containing 2ndary Metabolite. 1991.
1,8-CINEOL	Resin Essent. Oil	--	1.6		Abdel Wahab, S. M., Aboutabl, E. A., El-Zalabani, S. M., Fouad, H. A., De Pooter, H. L., El-Fallaha, B. 1987. The Essential Oil of Olibanum. Plant Med. 53 (4): 382-384.
1-OCTANOL	Resin, Exudate, Sap	3810.0	12700.0		*
1-OCTYL-ACETATE	Resin, Exudate, Sap	18000.0	60000.0		*
11-KETO-ALPHA-BOSWELLIC-ACID	Plant	--	--		J.S. Glasby Dict.Pls Containing 2ndary Metabolite. 1991.
11-KETO-BETA-BOSWELLIC-ACID	Resin, Exudate, Sap	--	253.3	-1.0	Han, B. H., Kim, K. M., Park, J. H., Park, M. H., Kim, T. H., Han, Y. N. 1985. Studies on Triterpenoid Corticomimetics (III). Arch. Pharm. Res. 8 4: 213-220.
3-ACETYL-BETA-BOSWELLIC-ACID	Latex Exudate	--	--		Leung, A.Y., Encyclopedia of Common Natural Ingredients Used in Food, Drugs, and Cosmetics, John Wiley & Sons, New York, 1980.
3-ACETYL-BETA-BOSWELLIC-ACID-METHYL-ESTER	Resin, Exudate, Sap	--	--		*
4,23-DIHYDROROBURIC-ACID	Plant	--	--		J.S. Glasby Dict.Pls Containing 2ndary Metabolite. 1991.
4-O-METHYL-GLUCURONIC-ACID	Latex Exudate	--	--		*
4-O-METHYL-GLUCURONIC-ACID	Resin, Exudate, Sap	--	--		Leung, A.Y., Encyclopedia of Common Natural Ingredients Used in Food, Drugs, and Cosmetics, John Wiley & Sons, New York, 1980.
ACETYL-11-KETO-BETA-BOSWELLIC-ACID	Resin, Exudate, Sap	--	166.7		Han, B. H., Kim, K. M., Park, J. H., Park, M. H., Kim, T. H., Han, Y. N. 1985. Studies on Triterpenoid Corticomimetics (III). Arch. Pharm. Res. 8 4: 213-220.
Activities (4)					
5-Lipoxygenase-Inhibitor 2 uM	Sabinsa: A series of well documented proprietary PR booklets, e.g.Sabinsa Corps. 1998. Bronchial Asthma - Its etiology and control with traditional herbal extracts. Sabinsa Corporation. Piscataway, NJ. 49 pp.				
Antiedemic 50-200 mg/kg	Sabinsa: A series of well documented proprietary PR booklets, e.g.Sabinsa Corps. 1998. Bronchial Asthma - Its etiology and control with traditional herbal extracts. Sabinsa Corporation. Piscataway, NJ. 49 pp.				
Antiinflammatory 2 uM	Sabinsa: A series of well documented proprietary PR booklets, e.g.Sabinsa Corps. 1998. Bronchial Asthma - Its etiology and control with traditional herbal extracts. Sabinsa Corporation. Piscataway, NJ. 49 pp.				
Antileukotriene 2 uM	Sabinsa: A series of well documented proprietary PR booklets, e.g.Sabinsa Corps. 1998. Bronchial Asthma - Its etiology and control with traditional herbal extracts. Sabinsa Corporation. Piscataway, NJ. 49 pp.				
ACETYL-ALPHA-BOSWELLIC-ACID	Resin, Exudate, Sap	--	2166.7		Han, B. H., Kim, K. M., Park, J. H., Park, M. H., Kim, T. H., Han, Y. N. 1985. Studies on Triterpenoid Corticomimetics (III). Arch. Pharm. Res. 8 4: 213-220.

ACETYL-BETA-BOSWELLIC-ACID Resin, -- 4333.0 Han, B. H., Kim, K. M., Park, J. H., Park, M. H., Kim, T. H., Han, Y. N. 1985. Exudate, Sap Studies on Triterpenoid Corticomimetics (III). Arch. Pharm. Res. 8 4: 213-220.

Activities (5)

5-Lipoxygenase-Inhibitor 7 uM Sabinsa: A series of well documented proprietary PR booklets, e.g.Sabinsa Corps. 1998. Bronchial Asthma - Its etiology and control with traditional herbal extracts. Sabinsa Corporation. Piscataway, NJ. 49 pp.

Antiinflammatory 7 uM Sabinsa: A series of well documented proprietary PR booklets, e.g.Sabinsa Corps. 1998. Bronchial Asthma - Its etiology and control with traditional herbal extracts. Sabinsa Corporation. Piscataway, NJ. 49 pp.

Antileukemic

Antileukotriene 7 uM Sabinsa: A series of well documented proprietary PR booklets, e.g.Sabinsa Corps. 1998. Bronchial Asthma - Its etiology and control with traditional herbal extracts. Sabinsa Corporation. Piscataway, NJ. 49 pp.

Differentiator

ACETYL-BETA-BOSWELLIC-ACID Plant -- -- J.S. Glasby Dict.Pls Containing 2ndary Metabolite. 1991.

Activities (5)

5-Lipoxygenase-Inhibitor 7 uM Sabinsa: A series of well documented proprietary PR booklets, e.g.Sabinsa Corps. 1998. Bronchial Asthma - Its etiology and control with traditional herbal extracts. Sabinsa Corporation. Piscataway, NJ. 49 pp.

Antiinflammatory 7 uM Sabinsa: A series of well documented proprietary PR booklets, e.g.Sabinsa Corps. 1998. Bronchial Asthma - Its etiology and control with traditional herbal extracts. Sabinsa Corporation. Piscataway, NJ. 49 pp.

Antileukemic

Antileukotriene 7 uM Sabinsa: A series of well documented proprietary PR booklets, e.g.Sabinsa Corps. 1998. Bronchial Asthma - Its etiology and control with traditional herbal extracts. Sabinsa Corporation. Piscataway, NJ. 49 pp.

Differentiator

ALLO-AROMADENDRENE Essential Oil -- -- Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.

ALPHA-BOSWELLIC-ACID Resin, Exudate, Sap -- 106.7 Han, B. H., Kim, K. M., Park, J. H., Park, M. H., Kim, T. H., Han, Y. N. 1985. Studies on Triterpenoid Corticomimetics (III). Arch. Pharm. Res. 8 4: 213-220.

Activities (10)

5-Lipoxygenase-Inhibitor

AntiCrohn's

Antiallergic Sabinsa: A series of well documented proprietary PR booklets, e.g.Sabinsa Corps. 1998. Bronchial Asthma - Its etiology and control with traditional herbal extracts. Sabinsa Corporation. Piscataway, NJ. 49 pp.

Antiarthritic Bezanger-Beauquesne, L. Noveautes en Phytotherapie. Huitieme Revue. Plantes medicinales et phytotherapie, 25: 46-76, 1991.

Antiasthmatic Sabinsa: A series of well documented proprietary PR booklets, e.g.Sabinsa Corps. 1998. Bronchial Asthma - Its etiology and control with traditional herbal extracts. Sabinsa Corporation. Piscataway, NJ. 49 pp.

Anticolitic

Antiinflammatory

Antileukotriene

Antioxidant Leung, A.Y., Encyclopedia of Common Natural Ingredients Used in Food, Drugs, and Cosmetics, John Wiley & Sons, New York, 1980.

COX-2-Inhibitor

ALPHA-BOSWELLIC-ACID Latex Exudate -- -- Leung, A.Y., Encyclopedia of Common Natural Ingredients Used in Food, Drugs, and Cosmetics, John Wiley & Sons, New York, 1980.

Activities (10)

5-Lipoxygenase-Inhibitor

AntiCrohn's

Antiallergic Sabinsa: A series of well documented proprietary PR booklets, e.g.Sabinsa Corps. 1998. Bronchial Asthma - Its etiology and control with traditional herbal extracts. Sabinsa Corporation. Piscataway, NJ. 49 pp.

Antiarthritic Bezanger-Beauquesne, L. Noveautes en Phytotherapie. Huitieme Revue. Plantes medicinales et phytotherapie, 25: 46-76, 1991.

Antiasthmatic Sabinsa: A series of well documented proprietary PR booklets, e.g.Sabinsa Corps. 1998. Bronchial Asthma - Its etiology and control with traditional herbal extracts. Sabinsa Corporation. Piscataway, NJ. 49 pp.

Anticolitic

Antiinflammatory

Antileukotriene

Antioxidant Leung, A.Y., Encyclopedia of Common Natural Ingredients Used in Food, Drugs, and Cosmetics, John Wiley & Sons, New York, 1980.

COX-2-Inhibitor

ALPHA-CALACORENE Essential Oil -- -- Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.

ALPHA-COPAENE Essential Oil -- -- Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.

ALPHA-CUBEBENE Essential Oil -- -- Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.

ALPHA-GUAIENE	Essential Oil	--	--	Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
ALPHA-GURJUNENE	Essential Oil	--	--	Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
ALPHA-HUMULENE	Essential Oil	--	--	Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.

Activities (2)

- Antitumor Zheng, G-Q., Kenney, P.M., and Lam, L.K.T. Sesquiterpenes From Clove (*Eugenia caryophyllata*) As Potential Anticarcinogenic Agents. *Journal of Natural Products* 55(7): 999-1003, 1992.
- Perfumery Jeffery B. Harborne and H. Baxter, eds. 1983. *Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants.* Taylor & Frost, London. 791 pp.

ALPHA-MUUROLENE	Essential Oil	--	--	Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
ALPHA-MUUROLENE	Resin, Exudate, Sap	--	66800.0	Chiavari, G., Gtalletti, G. C., Piccaglia, R., Mohamud, M. A. 1991. Differentiation Between Resins <i>Boswellia carterii</i> and <i>Boswellia frereana</i> (Frankincense) of Somali Origin. <i>J. Essent. Oil Res.</i> 3 (3):185-186.
ALPHA-PHELLANDRENE	Resin, Exudate, Sap	--	0.6	Chiavari, G., Gtalletti, G. C., Piccaglia, R., Mohamud, M. A. 1991. Differentiation Between Resins <i>Boswellia carterii</i> and <i>Boswellia frereana</i> (Frankincense) of Somali Origin. <i>J. Essent. Oil Res.</i> 3 (3):185-186.

Activities (11)

- Antibacterial Wright, C.W. (Ed) 2002. *Medicinal & Aromatic Plants-Industrial Profiles. Artemisia. 344pp.* Maffei, M. (Ed) 2002. *Vetiveria. The Genus Vetiveria.* Taylor & Francis. NY, NY. 191pp. Southwell, I., Lowe, R. (Eds) 1999. *Tea Tree. The Genus Melaleuca.* Harwood Acad. Pub. Amsterdam, Netherlands.
- Antistaphylococcic Wright, C.W. (Ed) 2002. *Medicinal & Aromatic Plants-Industrial Profiles. Artemisia. 344pp.* Maffei, M. (Ed) 2002. *Vetiveria. The Genus Vetiveria.* Taylor & Francis. NY, NY. 191pp. Southwell, I., Lowe, R. (Eds) 1999. *Tea Tree. The Genus Melaleuca.* Harwood Acad. Pub. Amsterdam, Netherlands.
- Dermal Jeffery B. Harborne and H. Baxter, eds. 1983. *Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants.* Taylor & Frost, London. 791 pp.
- Emetic
- FLavor FEMA 10-130 Aloe Research Council - Duke writeup of non-peer reviewd book by Coats and draft by Henry
- Fungicide Hansel, R., Keller, K., Rimpler, H., and Schneider, G. eds. 1992. *Hager's Handbuch der Pharmazeutischen Praxis, Drogen (A-D), 1209 pp., 1993 (E-O), 970 pp., 1994 (P-Z), 1196 pp.* Springer-Verlag, Berlin.
- Insectiphile Pakistan Encyclopedia Planta Medica. 1986.
- Irritant Jeffery B. Harborne and H. Baxter, eds. 1983. *Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants.* Taylor & Frost, London. 791 pp.
- Laxative
- Perfumery Jeffery B. Harborne and H. Baxter, eds. 1983. *Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants.* Taylor & Frost, London. 791 pp.
- Pesticide

ALPHA-PHELLANDRENE	Essential Oil	--	24000.0	-0.13	*
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Activities (11)

- Antibacterial Wright, C.W. (Ed) 2002. *Medicinal & Aromatic Plants-Industrial Profiles. Artemisia. 344pp.* Maffei, M. (Ed) 2002. *Vetiveria. The Genus Vetiveria.* Taylor & Francis. NY, NY. 191pp. Southwell, I., Lowe, R. (Eds) 1999. *Tea Tree. The Genus Melaleuca.* Harwood Acad. Pub. Amsterdam, Netherlands.
- Antistaphylococcic Wright, C.W. (Ed) 2002. *Medicinal & Aromatic Plants-Industrial Profiles. Artemisia. 344pp.* Maffei, M. (Ed) 2002. *Vetiveria. The Genus Vetiveria.* Taylor & Francis. NY, NY. 191pp. Southwell, I., Lowe, R. (Eds) 1999. *Tea Tree. The Genus Melaleuca.* Harwood Acad. Pub. Amsterdam, Netherlands.
- Dermal Jeffery B. Harborne and H. Baxter, eds. 1983. *Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants.* Taylor & Frost, London. 791 pp.
- Emetic
- FLavor FEMA 10-130 Aloe Research Council - Duke writeup of non-peer reviewd book by Coats and draft by Henry
- Fungicide Hansel, R., Keller, K., Rimpler, H., and Schneider, G. eds. 1992. *Hager's Handbuch der Pharmazeutischen Praxis, Drogen (A-D), 1209 pp., 1993 (E-O), 970 pp., 1994 (P-Z), 1196 pp.* Springer-Verlag, Berlin.
- Insectiphile Pakistan Encyclopedia Planta Medica. 1986.
- Irritant Jeffery B. Harborne and H. Baxter, eds. 1983. *Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants.* Taylor & Frost, London. 791 pp.
- Laxative
- Perfumery Jeffery B. Harborne and H. Baxter, eds. 1983. *Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants.* Taylor & Frost, London. 791 pp.
- Pesticide

ALPHA-PINENE	Resin, Essent. Oil	--	35000.0	Abdel Wahab, S. M., Aboutabl, E. A., El-Zalabani, S. M., Fouad, H. A., De Pooter, H. L., El-Fallaha, B. 1987. The Essential Oil of <i>Olibanum</i> . <i>Plant Med.</i> 53 (4): 382-384.
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Activities (28)

Allelochemic	
Allergenic	
Antiacne	
Antibacterial	
Antifeedant	
Antiflu	Economic & Medicinal Plant Research, 5: 195.
Antiinflammatory 500 mg/kg	
Antipneumonic	
Antiseptic	
Antispasmodic	
Antistaphylococcic	
Antiviral	Economic & Medicinal Plant Research, 5: 195.
Cancer-Preventive	Stitt, P. A. Why George Should Eat Broccoli. Dougherty Co, Milwaukee, WI, 1990, 399 pp.
Coleoptophile	
Expectorant	Michael Castleman 1991. The Healing Herbs. Rodale Press, Emmaus, PA 436 pp.
FLavor FEMA 15-150	Aloe Research Council - Duke writeup of non-peer reviewd book by Coats and draft by Henry
Herbicide IC50=30 uM	Keeler, R.F. and Tu, A.T. eds. 1991. Toxicology of Plant and Fungal Compounds. (Handbook of Natural Toxins Vol. 6) Marcel Dekker, Inc. NY. 665 pp.
Insecticide 0.82 uM/fly	
Insectifuge 50 ppm	
Insectiphile	J. Stored. Prod. Res., 22:141, 1986.
Irritant	Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.
P450-2B1-Inhibitor IC50=0.087 uM	
Perfumery	Aloe Research Council - Duke writeup of non-peer reviewd book by Coats and draft by Henry
Pesticide	
Sedative	Lawrence Review of Natural Products, Jun-90.
Spasmogenic	
Tranquilizer	Lawrence Review of Natural Products, Jun-90.
Transdermal	

ALPHA-PINENE	Resin,	1050.0	71600.0	-1.01	*
	Exudate,				
	Sap				

Activities (28)

Allelochemic	
Allergenic	
Antiacne	
Antibacterial	
Antifeedant	
Antiflu	Economic & Medicinal Plant Research, 5: 195.
Antiinflammatory 500 mg/kg	
Antipneumonic	
Antiseptic	
Antispasmodic	
Antistaphylococcic	
Antiviral	Economic & Medicinal Plant Research, 5: 195.
Cancer-Preventive	Stitt, P. A. Why George Should Eat Broccoli. Dougherty Co, Milwaukee, WI, 1990, 399 pp.
Coleoptophile	
Expectorant	Michael Castleman 1991. The Healing Herbs. Rodale Press, Emmaus, PA 436 pp.
FLavor FEMA 15-150	Aloe Research Council - Duke writeup of non-peer reviewd book by Coats and draft by Henry
Herbicide IC50=30 uM	Keeler, R.F. and Tu, A.T. eds. 1991. Toxicology of Plant and Fungal Compounds. (Handbook of Natural Toxins Vol. 6) Marcel Dekker, Inc. NY. 665 pp.
Insecticide 0.82 uM/fly	
Insectifuge 50 ppm	
Insectiphile	J. Stored. Prod. Res., 22:141, 1986.
Irritant	Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.
P450-2B1-Inhibitor IC50=0.087 uM	
Perfumery	Aloe Research Council - Duke writeup of non-peer reviewd book by Coats and draft by Henry
Pesticide	
Sedative	Lawrence Review of Natural Products, Jun-90.
Spasmogenic	
Tranquilizer	Lawrence Review of Natural Products, Jun-90.
Transdermal	

ALPHA-PINENE	Essential -- Oil	410000.0	3.05	Wang, W., Zhu, Y. X., Liu, L. Z., Ling, D. K., Qin, X. L., Tian, J. G. 1993. Analysis of the Chemical Constituents of Essential Oil of <i>Boswellia carterii</i> Birdwood from Somali. <i>Yaowu Fenxi Zazhi</i> 13 3: 170-173.
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Activities (28)

Allelochemic	
Allergenic	
Antiacne	
Antibacterial	
Antifeedant	
Antiflu	Economic & Medicinal Plant Research, 5: 195.
Antiinflammatory 500 mg/kg	
Antipneumonic	
Antiseptic	
Antispasmodic	
Antistaphylococcic	
Antiviral	Economic & Medicinal Plant Research, 5: 195.
Cancer-Preventive	Stitt, P. A. Why George Should Eat Broccoli. Dougherty Co, Milwaukee, WI, 1990, 399 pp.
Coleoptophile	
Expectorant	Michael Castleman 1991. The Healing Herbs. Rodale Press, Emmaus, PA 436 pp.
FLavor FEMA 15-150	Aloe Research Council - Duke writeup of non-peer reviewd book by Coats and draft by Henry
Herbicide IC50=30 uM	Keeler, R.F. and Tu, A.T. eds. 1991. Toxicology of Plant and Fungal Compounds. (Handbook of Natural Toxins Vol. 6) Marcel Dekker, Inc. NY. 665 pp.
Insecticide 0.82 uM/fly	
Insectifuge 50 ppm	
Insectiphile	J. Stored. Prod. Res., 22:141, 1986.
Irritant	Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.
P450-2B1-Inhibitor IC50=0.087 uM	
Perfumery	Aloe Research Council - Duke writeup of non-peer reviewd book by Coats and draft by Henry
Pesticide	
Sedative	Lawrence Review of Natural Products, Jun-90.
Spasmogenic	
Tranquilizer	Lawrence Review of Natural Products, Jun-90.
Transdermal	

ALPHA-SELINENE Essential -- -- Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
Oil

Activities (3)

Antimalarial IC50=>50 ug/ml	Rukunga, G. and Simons, A. J. 2006. The Potential of Plants as a Source of Antimalarial Agents - A Review. Africa Herbal Antimalaria Meeting. PlantaPhile Publications, Berlin. 72 pp.
Antiplasmodial IC50=>50 ug/ml	Rukunga, G. and Simons, A. J. 2006. The Potential of Plants as a Source of Antimalarial Agents - A Review. Africa Herbal Antimalaria Meeting. PlantaPhile Publications, Berlin. 72 pp.
Perfumery	Aloe Research Council - Duke writeup of non-peer reviewd book by Coats and draft by Henry

ALPHA-TERPINENE Resin -- -- Abdel Wahab, S. M., Aboutabl, E. A., El-Zalabani, S. M., Fouad, H. A., De Pooter, H. L., El-Fallaha, B. 1987. The Essential Oil of Olibanum. Plant Med. 53 (4): 382-384.
Essent.
Oil

Activities (13)

ACE-Inhibitor 100 ug/ml (weak activity)	
Acaricide	
Aldose-Reductase-Inhibitor 100 ug/ml	Okamura, K., Iwakami, S., Matsunaga, T. 1992. Biological Activity of Monoterpenes from Trees. Toyama-Ken Yakuji Kenkyusho Nenpo, (20): 95-101.
Antiacetylcholinesterase IC50=1.0 mM	
Antinitrosaminic	
Antispasmodic	
FLavor FEMA 1-40	Aloe Research Council - Duke writeup of non-peer reviewd book by Coats and draft by Henry
Insecticide 0.86 uM/fly	
Insectifuge	
P450-2B1-Inhibitor IC50=0.76 uM	
Perfumery	Aloe Research Council - Duke writeup of non-peer reviewd book by Coats and draft by Henry
Pesticide	
Spasmogenic	

ALPHA-TERPINEOL Resin -- 1000.0 Abdel Wahab, S. M., Aboutabl, E. A., El-Zalabani, S. M., Fouad, H. A., De Pooter, H. L., El-Fallaha, B. 1987. The Essential Oil of Olibanum. Plant Med. 53 (4): 382-384.
Essent.
Oil

Activities (23)

ACE-Inhibitor 100 ug/ml (weak activity)	
Aldose-Reductase-Inhibitor 100 ug/ml	Okamura, K., Iwakami, S., Matsunaga, T. 1992. Biological Activity of Monoterpenes from Trees. Toyama-Ken Yakuji Kenkyusho Nenpo, (20): 95-101.
Allelopathic	Wright,C.W.(Ed)2002.Medicinal&Aromatic Plants-Industrial Profiles.Artemisia.344pp.Maffei,M.(Ed)2002.Vetiveria.The Genus Vetiveria.Taylor&Francis.NY,NY.191pp.Southwell,I.,Lowe,R.(Eds)1999.Tea Tree.The Genus Melaleuca.Harwood Acad.Pub.Amsterdam,Netherlands.
Antiacne	
Antibacterial MIC=800-1,600 ug/ml	Muroi, H. and Kubo, I. 1993. Combination Effects of Antibacterial Compounds in Green Tea Flavor against Streptococcus mutans. J. Agric. Food Chem. 41: 1102-1105.
Anticancer	Joseph, J., Nadeau, D. and Underwood, A. 2001. The Color Code. Hyperion, NY.
Anticariogenic MIC=800-1,600 ug/ml	Muroi, H. and Kubo, I. 1993. Combination Effects of Antibacterial Compounds in Green Tea Flavor against Streptococcus mutans. J. Agric. Food Chem. 41: 1102-1105.
Antiinflammatory	
Antiproliferant	
Antiseptic	Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.
Cicatrizant ED50=240 ug/g mus	
FLavor FEMA 5-40	Aloe Research Council - Duke writeup of non-peer reviewd book by Coats and draft by Henry
Insecticide 1.29 uM/fly	
Interleukin-6-Inhibitor	
Mosquitofuge > Deet	
Motor-Depressant	Buchbauer et al, e.g.Buchbauer et al,1993.Therapeutic properties of essential oils and fragrances. Chap.12 in Teranishi,R, Buttery,R.G and Sugisawa,H. Eds. Bioactive Volatile Compounds from Plants. ACS Symposium Series 525. Amer. Chem. Soc., Washington DC
Nematicide MLC=1 mg/ml	Shoyakugaku Zasshi, 44: 183.
Perfumery	Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.
Pesticide	
Sedative	Buchbauer et al, e.g.Buchbauer et al,1993.Therapeutic properties of essential oils and fragrances. Chap.12 in Teranishi,R, Buttery,R.G and Sugisawa,H. Eds. Bioactive Volatile Compounds from Plants. ACS Symposium Series 525. Amer. Chem. Soc., Washington DC
Termiticide IC100=5 mg/g	
Transdermal	
Vulnerary ED50=240 ug/g mus	

ALPHA-TERPINEOL	Essential Oil	--	29000.0	0.51	Wang, W., Zhu, Y. X., Liu, L. Z., Ling, D. K., Qin, X. L., Tian, J. G. 1993. Analysis of the Chemical Constitutents of Essential Oil of Boswellia carterii Birdwood from Somali. Yaowu Fenxi Zazhi 13 3: 170-173.
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Activities (23)

ACE-Inhibitor 100 ug/ml (weak activity)				
Aldose-Reductase-Inhibitor 100 ug/ml	Okamura, K., Iwakami, S., Matsunaga, T. 1992. Biological Activity of Monoterpenes from Trees. Toyama-Ken Yakuji Kenkyusho Nenpo, (20): 95-101.			
Allelopathic	Wright,C.W.(Ed)2002.Medicinal&Aromatic Plants-Industrial Profiles.Artemisia.344pp.Maffei,M.(Ed)2002.Vetiveria.The Genus Vetiveria.Taylor&Francis.NY,NY.191pp.Southwell,I.,Lowe,R.(Eds)1999.Tea Tree.The Genus Melaleuca.Harwood Acad.Pub.Amsterdam,Netherlands.			
Antiacne				
Antibacterial MIC=800-1,600 ug/ml	Muroi, H. and Kubo, I. 1993. Combination Effects of Antibacterial Compounds in Green Tea Flavor against Streptococcus mutans. J. Agric. Food Chem. 41: 1102-1105.			
Anticancer	Joseph, J., Nadeau, D. and Underwood, A. 2001. The Color Code. Hyperion, NY.			
Anticariogenic MIC=800-1,600 ug/ml	Muroi, H. and Kubo, I. 1993. Combination Effects of Antibacterial Compounds in Green Tea Flavor against Streptococcus mutans. J. Agric. Food Chem. 41: 1102-1105.			
Antiinflammatory				
Antiproliferant				
Antiseptic	Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.			
Cicatrizant ED50=240 ug/g mus				
FLavor FEMA 5-40	Aloe Research Council - Duke writeup of non-peer reviewd book by Coats and draft by Henry			
Insecticide 1.29 uM/fly				
Interleukin-6-Inhibitor				
Mosquitofuge > Deet				
Motor-Depressant	Buchbauer et al, e.g.Buchbauer et al,1993.Therapeutic properties of essential oils and fragrances. Chap.12 in Teranishi,R, Buttery,R.G and Sugisawa,H. Eds. Bioactive Volatile Compounds from Plants. ACS Symposium Series 525. Amer. Chem. Soc., Washington DC			
Nematicide MLC=1 mg/ml	Shoyakugaku Zasshi, 44: 183.			
Perfumery	Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.			
Pesticide				
Sedative	Buchbauer et al, e.g.Buchbauer et al,1993.Therapeutic properties of essential oils and fragrances. Chap.12 in Teranishi,R, Buttery,R.G and Sugisawa,H. Eds. Bioactive Volatile Compounds from Plants. ACS Symposium Series 525. Amer. Chem. Soc., Washington DC			
Termiticide IC100=5 mg/g				
Transdermal				
Vulnerary ED50=240 ug/g mus				

ALPHA-TERPINYL-ACETATE	Essential Oil	--	--		Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
ALPHA-THUJENE	Essential Oil	--	--		Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
ALPHA-THUJENE	Resin, Exudate, Sap	--	192300.0	1.0	Chiavari, G., Gtalletti, G. C., Piccaglia, R., Mohamud, M. A. 1991. Differentiation Between Resins Boswellia carterii and Boswellia frereana (Frankincense) of Somali Origin. J. Essent. Oil Res. 3 (3):185-186.
ALPHA-YLANGENE	Essential Oil	--	--		Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
ANISALDEHYDE	Essential Oil	--	--		Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.

Activities (7)

Antimutagenic	Economic & Medicinal Plant Research, 6: 235.			
Fungicide				
Insecticide	Newall, C. A., Anderson, L. A. and Phillipson, J. D. 1996. Herbal Medicine - A Guide for Health-care Professionals. The Pharmaceutical Press, London. 296pp.			
Pesticide				
Tyrosinase-Inhibitor ID50=320 uM				
Tyrosinase-Inhibitor ID50=0.32 mM				
Tyrosinase-Inhibitor ID50=380-970 uM				

ARABIN	Resin, Exudate, Sap	--	--		*
ARABINOSE	Latex Exudate	--	--		Leung, A.Y., Encyclopedia of Common Natural Ingredients Used in Food, Drugs, and Cosmetics, John Wiley & Sons, New York, 1980.

AROMADENDRENE	Essential Oil	--	--	Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
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Activities (3)

Antiseptic	Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.			
Cancer-Preventive	Stitt, P. A. Why George Should Eat Broccoli. Dougherty Co, Milwaukee, WI, 1990, 399 pp.			
Pesticide				

BASSORIN	Latex Exudate	50000.0	80000.0	Leung, A.Y., Encyclopedia of Common Natural Ingredients Used in Food, Drugs, and Cosmetics, John Wiley & Sons, New York, 1980.
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BETA-1-CADINENE	Essential Oil	--	--	Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
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BETA-BOSWELLIC-ACID	Resin, Exudate, Sap	--	426.7	-1.0	*
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Activities (9)

5-Lipoxygenase-Inhibitor 5 uM	Sabinsa: A series of well documented proprietary PR booklets, e.g.Sabinsa Corps. 1998. Bronchial Asthma - Its etiology and control with traditional herbal extracts. Sabinsa Corporation. Piscataway, NJ. 49 pp.			
AntiCrohn's				
Antiallergic	Sabinsa: A series of well documented proprietary PR booklets, e.g.Sabinsa Corps. 1998. Bronchial Asthma - Its etiology and control with traditional herbal extracts. Sabinsa Corporation. Piscataway, NJ. 49 pp.			
Antiarthritic	Bezanger-Beauquesne, L. Noveautes en Phytotherapie. Huitieme Revue. Plantes medicinales et phytotherapie, 25: 46-76, 1991.			
Antiasthmatic	Sabinsa: A series of well documented proprietary PR booklets, e.g.Sabinsa Corps. 1998. Bronchial Asthma - Its etiology and control with traditional herbal extracts. Sabinsa Corporation. Piscataway, NJ. 49 pp.			
Anticolitic				
Antiedemic 50-200 mg/kg	Sabinsa: A series of well documented proprietary PR booklets, e.g.Sabinsa Corps. 1998. Bronchial Asthma - Its etiology and control with traditional herbal extracts. Sabinsa Corporation. Piscataway, NJ. 49 pp.			
Antiinflammatory 5 uM	Sabinsa: A series of well documented proprietary PR booklets, e.g.Sabinsa Corps. 1998. Bronchial Asthma - Its etiology and control with traditional herbal extracts. Sabinsa Corporation. Piscataway, NJ. 49 pp.			
Antileukotriene 5 uM	Sabinsa: A series of well documented proprietary PR booklets, e.g.Sabinsa Corps. 1998. Bronchial Asthma - Its etiology and control with traditional herbal extracts. Sabinsa Corporation. Piscataway, NJ. 49 pp.			

BETA-BOURBONENE	Resin, Exudate, Sap	--	10000.0	Chiavari, G., Gtalletti, G. C., Piccaglia, R., Mohamud, M. A. 1991. Differentiation Between Resins Boswellia carterii and Boswellia frereana (Frankincense) of Somali Origin. J. Essent. Oil Res. 3 (3):185-186.
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BETA-BOURBONENE	Essential Oil	--	--	Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
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BETA-CARYOPHYLLENE	Resin, Exudate, Sap	--	49100.0	Chiavari, G., Gtalletti, G. C., Piccaglia, R., Mohamud, M. A. 1991. Differentiation Between Resins Boswellia carterii and Boswellia frereana (Frankincense) of Somali Origin. J. Essent. Oil Res. 3 (3):185-186.
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BETA-CARYOPHYLLENE	Essential Oil	--	--	*
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BETA-COPAENE	Essential Oil	--	--	Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
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BETA-ELEMENE	Essential Oil	--	--	Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
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Activities (5)

Anticancer (Cervix)	Medicinal and Poisonous Plants of the Tropics. Leeuwenberg, A.J.M., ed. Pudoc, Wageningen. 1987.			
Antigliomic				
Antiproliferant				
Antitumor (Cervix)	Medicinal and Poisonous Plants of the Tropics. Leeuwenberg, A.J.M., ed. Pudoc, Wageningen. 1987.			
Apoptotic				

BETA-GUAIENE	Essential Oil	--	--	Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
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BETA-HUMULENE	Essential Oil	--	--	Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
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BETA-PHELLANDRENE	Essential Oil	--	--	Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
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Activities (3)

Expectorant	Jeffery B. Harborne and H. Baxter, eds. 1983. <i>Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants.</i> Taylor & Frost, London. 791 pp.
Fungicide	Hansel, R., Keller, K., Rimpler, H., and Schneider, G. eds. 1992. <i>Hager's Handbuch der Pharmazeutischen Praxis, Drogen (A-D)</i> , 1209 pp., 1993 (E-O), 970 pp., 1994 (P-Z), 1196 pp. Springer-Verlag, Berlin.
Perfumery	Merck 11th Edition

BETA-PINENE	Resin -- 4000.0	Abdel Wahab, S. M., Aboutabl, E. A., El-Zalabani, S. M., Fouad, H. A., De Pooter, H. L., El-Fallaha, B. 1987. <i>The Essential Oil of Olibanum.</i> <i>Plant Med.</i> 53 (4): 382-384.
	Essent.	
	Oil	

Activities (13)

Allergenic	
Antiinflammatory	
Antiseptic	Leung, A. Y. and Foster, S. 1995. <i>Encyclopedia of Common Natural Ingredients</i> 2nd Ed. John Wiley & Sons, New York. 649 pp.
Antispasmodic	
Candidicide	
FLavor FEMA 15-600	Aloe Research Council - Duke writeup of non-peer reviewd book by Coats and draft by Henry
Herbicide	Keeler, R.F. and Tu, A.T. eds. 1991. <i>Toxicology of Plant and Fungal Compounds. (Handbook of Natural Toxins Vol. 6)</i> Marcel Dekker, Inc. NY. 665 pp.
Insectifuge	Jacobson, M., <i>Glossary of Plant-Derived Insect Deterrents</i> , CRC Press, Inc., Boca Raton, FL, 213 p, 1990.
Irritant	Zebovitz, T. C. Ed. 1989. Part VII. <i>Flavor and Fragrance Substances</i> , in Keith L. H. and Walters, D.B., eds. <i>Compendium of Safety Data Sheets for Research and Industrial Chemicals.</i> VCH Publishers, New York. 3560-4253.
Perfumery	Aloe Research Council - Duke writeup of non-peer reviewd book by Coats and draft by Henry
Pesticide	
Spasmogenic	Newall, C. A., Anderson, L. A. and Phillipson, J. D. 1996. <i>Herbal Medicine - A Guide for Health-care Professionals.</i> The Pharmaceutical Press, London. 296pp.
Transdermal	

BETA-SELINENE	Essential Oil -- --	Lawrence, B.M., <i>Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.</i>
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Activities (3)

Antimalarial IC50=>50 ug/ml	Rukunga, G. and Simons, A. J. 2006. <i>The Potential of Plants as a Source of Antimalarial Agents - A Review.</i> Africa Herbal Antimalaria Meeting. PlantaPhile Publications, Berlin. 72 pp.
Antiplasmodial IC50=>50 ug/ml	Rukunga, G. and Simons, A. J. 2006. <i>The Potential of Plants as a Source of Antimalarial Agents - A Review.</i> Africa Herbal Antimalaria Meeting. PlantaPhile Publications, Berlin. 72 pp.
Perfumery	Aloe Research Council - Duke writeup of non-peer reviewd book by Coats and draft by Henry

BETA-YLANGENE	Essential Oil -- --	Lawrence, B.M., <i>Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.</i>
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BORNEOL	Essential Oil -- --	Lawrence, B.M., <i>Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.</i>
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Activities (35)

(-)-Chronotropic 29 ug/ml	Hansel, R., Keller, K., Rimpler, H., and Schneider, G. eds. 1992. Hager's Handbuch der Pharmazeutischen Praxis, Drogen (A-D), 1209 pp., 1993 (E-O), 970 pp., 1994 (P-Z), 1196 pp. Springer-Verlag, Berlin.
(-)-Inotropic 29 ug/ml	Hansel, R., Keller, K., Rimpler, H., and Schneider, G. eds. 1992. Hager's Handbuch der Pharmazeutischen Praxis, Drogen (A-D), 1209 pp., 1993 (E-O), 970 pp., 1994 (P-Z), 1196 pp. Springer-Verlag, Berlin.
Allelochemic	
Analgesic	
Antiacetylcholine	Newall, C. A., Anderson, L. A. and Phillipson, J. D. 1996. Herbal Medicine - A Guide for Health-care Professionals. The Pharmaceutical Press, London. 296pp.
Antibacterial MIC=125-250 ug/ml	
Antibronchitic	Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.
Antiescherichic MIC=125 ug/ml	
Antifeedant	
Antiinflammatory	
Antiotitic	
Antipyretic	
Antisalmonella MIC=125 ug/ml	
Antispasmodic ED50=0.008 mg/ml	
Antistaphylococcic MIC=250 ug/ml	
Antiyeast MIC=250 ug/ml	
CNS-Stimulant	List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
CNS-Toxic	Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.
Candidicide MIC=250 ug/ml	
Choleretic	
FLavor FEMA<1	Aloe Research Council - Duke writeup of non-peer reviewd book by Coats and draft by Henry
Fungicide	
Hepatoprotective	
Herbicide IC50=470 mM	Lydon, J. & Duke, S., The potential of pesticides from plants, pp. 1-41 in Craker, L. & Simon, J., eds, Herbs, Spices & Medicinal Plants: Recent Advances in Botany, Horticulture, & Pharmacology, v. 4, Oryx Press, Phoenix, 1989, 267pp.
Herbicide IC50=470 uM	Keeler, R.F. and Tu, A.T. eds. 1991. Toxicology of Plant and Fungal Compounds. (Handbook of Natural Toxins Vol. 6) Marcel Dekker, Inc. NY. 665 pp.
Inhalant	Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.
Insect-Repellent	
Insectifuge	Jacobson, M., Glossary of Plant-Derived Insect Deterrents, CRC Press, Inc., Boca Raton, FL, 213 p, 1990.
Irritant	Rinzler, C. A. 1990. The Complete Book of Herbs, Spices and Condiments. Facts on File, New York. 199 pp.
Myorelaxant	Newall, C. A., Anderson, L. A. and Phillipson, J. D. 1996. Herbal Medicine - A Guide for Health-care Professionals. The Pharmaceutical Press, London. 296pp.
Nematicide MLC=1 mg/ml	Shoyakugaku Zasshi, 44: 183.
Perfumery	Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.
Pesticide	
Sedative	Medline (post 1990 searches filed in my computer)
Tranquilizer	

BORNEOL-ACETATE	Resin -- 1.1	Abdel Wahab, S. M., Aboutabl, E. A., El-Zalabani, S. M., Fouad, H. A., De Pooter, H. L., El-Fallaha, B. 1987. The Essential Oil of Olibanum. Plant Med. 53 (4): 382-384.
CADINENE	Essential Oil -- --	Guenther, E., The Essential Oils, 6 volumes, D. van Nostrand, New York, 1948-1952.

Activities (4)

Antifeedant	Jacobson, M., Glossary of Plant-Derived Insect Deterrents, CRC Press, Inc., Boca Raton, FL, 213 p, 1990.
FLavor FEMA 400-4,000	Aloe Research Council - Duke writeup of non-peer reviewd book by Coats and draft by Henry
Perfumery	Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.
Pesticide	

CALAMENENE	Essential Oil -- --	Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
CAMPHENE	Resin -- 0.7	Abdel Wahab, S. M., Aboutabl, E. A., El-Zalabani, S. M., Fouad, H. A., De Pooter, H. L., El-Fallaha, B. 1987. The Essential Oil of Olibanum. Plant Med. 53 (4): 382-384.

Activities (9)

Allelopathic	Wright,C.W.(Ed)2002.Medicinal&Aromatic Plants-Industrial Profiles.Artemisia.344pp.Maffei,M.(Ed)2002.Vetiveria.The Genus Vetiveria.Taylor&Francis.NY,NY.191pp.Southwell,I.,Lowe,R.(Eds)1999.Tea Tree.The Genus Melaleuca.Harwood Acad.Pub.Amsterdam,Netherlands.
Antilithic?	Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.
Antioxidant	Jim Duke's personal files.
Expectorant	Hansel, R., Keller, K., Rimpler, H., and Schneider, G. eds. 1992. Hager's Handbuch der Pharmazeutischen Praxis, Drogen (A-D), 1209 pp., 1993 (E-O), 970 pp., 1994 (P-Z), 1196 pp. Springer-Verlag, Berlin.
FLavor FEMA 15-175	Aloe Research Council - Duke writeup of non-peer reviewed book by Coats and draft by Henry
Hypocholesterolemic?	Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.
Insectifuge	Jacobson, M., Glossary of Plant-Derived Insect Deterrents, CRC Press, Inc., Boca Raton, FL, 213 p, 1990.
Pesticide	
Spasmogenic	Fitoterapia No.59-1984.

CARVONE Essential -- -- Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
Oil

Activities (19)

Allergenic	
Antiacetylcholinesterase IC50=1.4-1.8 mM	
Antiproliferative	
Antiseptic 1.5 x phenol	Wagner & Wolff, eds. 1977. New Natural Products (RS164. I56. 176)
CNS-Stimulant	
Cancer-Preventive	Stitt, P. A. Why George Should Eat Broccoli. Dougherty Co, Milwaukee, WI, 1990, 399 pp.
Candidistat	
Carminative	Yamamoto, A., Umemori, S., and Muranishi, S. 1993. Absorption Enhancement of Intrapulmonary Administered Insulin by Various Absorption Enhancers and Protease Inhibitors in Rats. J. Pharm. Pharmacol. 46: 14-18, 1994.
FLavor FEMA 80-3,000	Aloe Research Council - Duke writeup of non-peer reviewed book by Coats and draft by Henry
Fungistat	
Insecticide	Jacobson, M., Glossary of Plant-Derived Insect Deterrents, CRC Press, Inc., Boca Raton, FL, 213 p, 1990.
Insectifuge	Jacobson, M., Glossary of Plant-Derived Insect Deterrents, CRC Press, Inc., Boca Raton, FL, 213 p, 1990.
Motor-Depressant	Buchbauer et al, e.g.Buchbauer et al,1993.Therapeutic properties of essential oils and fragrances. Chap.12 in Teranishi,R, Buttery,R.G and Sugisawa,H. Eds. Bioactive Volatile Compounds from Plants. ACS Symposium Series 525. Amer. Chem. Soc., Washington DC
Nematicide MLC=1 mg/ml	Shoyakugaku Zasshi, 44: 183.
Perfumery	Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.
Pesticide	
Sedative	Buchbauer et al, e.g.Buchbauer et al,1993.Therapeutic properties of essential oils and fragrances. Chap.12 in Teranishi,R, Buttery,R.G and Sugisawa,H. Eds. Bioactive Volatile Compounds from Plants. ACS Symposium Series 525. Amer. Chem. Soc., Washington DC
Trichomonicide LD100=300 ug/ml	
Vermicide	

CARYOPHYLLENE Essential -- -- *
Oil

Activities (31)

Aldose-Reductase-Inhibitor	
Allergenic	
Analgesic	Taylor, Leslie. 2005. The Healing Power of Rainforest Herbs. SquareOne Publisher, Garden City Park, NY. 519 pp.
Antiacne	
Antiasthmatic	Leung, A. Y. and Foster, S. 1995. Encyclopedia of Common Natural Ingredients 2nd Ed. John Wiley & Sons, New York. 649 pp.
Antibacterial	
Anticariogenic MIC=>1,600 ug/ml	Muroi, H. and Kubo, I. 1993. Combination Effects of Antibacterial Compounds in Green Tea Flavor against Streptococcus mutans. J. Agric. Food Chem. 41: 1102-1105.
Antidermatitic	
Antiedemic	Shimizu,*M., et al. 1990. Anti-inflammatory Constituents of Topically Applied Crude Drugs. IV.1) Constituents and Anti-inflammatory Effect of Paraguayan Crude Drug 'Alhucema' (Lavandula latifolia Vill.)2). Chem. Pharm. Bull. 38(8): 2283-2284, 1990.
Antifeedant 500 ppm	Keeler, R.F. and Tu, A.T. eds. 1991. Toxicology of Plant and Fungal Compounds. (Handbook of Natural Toxins Vol. 6) Marcel Dekker, Inc. NY. 665 pp.
Antiinflammatory IC50=100 uM	Shimizu,*M., et al. 1990. Anti-inflammatory Constituents of Topically Applied Crude Drugs. IV.1) Constituents and Anti-inflammatory Effect of Paraguayan Crude Drug 'Alhucema' (Lavandula latifolia Vill.)2). Chem. Pharm. Bull. 38(8): 2283-2284, 1990.
Antileishmanic	
Antionychotic	Taylor, Leslie. 2005. The Healing Power of Rainforest Herbs. SquareOne Publisher, Garden City Park, NY. 519 pp.
Antiproliferant	
Antispasmodic	
Antistaphylococcic	
Antistreptococcic	
Antitumor	Zheng, G-Q., Kenney, P.M., and Lam, L.K.T. Sesquiterpenes From Clove (Eugenia caryophyllata) As Potential Anticarcinogenic Agents. Journal of Natural Products 55(7): 999-1003, 1992.
Antiulcer	Taylor, Leslie. 2005. The Healing Power of Rainforest Herbs. SquareOne Publisher, Garden City Park, NY. 519 pp.
Candidicide	
FLavor FEMA 20-200	Aloe Research Council - Duke writeup of non-peer reviewd book by Coats and draft by Henry
Fungicide	
Gastroprotective	Taylor, Leslie. 2005. The Healing Power of Rainforest Herbs. SquareOne Publisher, Garden City Park, NY. 519 pp.
Insectifuge	
Irritant	Zebovitz, T. C. Ed. 1989. Part VII. Flavor and Fragrance Substances, in Keith L. H. and Walters, D.B., eds. Compendium of Safety Data Sheets for Research and Industrial Chemicals. VCH Publishers, New York. 3560-4253.
Larvicide	
Mosquitocide	
Perfumery	Merck 11th Edition
Pesticide	
Sedative	
Termitifuge	Jacobson, M., Glossary of Plant-Derived Insect Deterrents, CRC Press, Inc., Boca Raton, FL, 213 p, 1990.

CARYOPHYLLENE-OXIDE	Resin, -- 32900.0	Chiavari, G., Gtalletti, G. C., Piccaglia, R., Mohamud, M. A. 1991. Differentiation Between Resins Boswellia carterii and Boswellia frereana (Frankincense) of Somali Origin. J. Essent. Oil Res. 3 (3):185-186.
	Exudate,	
	Sap	

Activities (8)

Antiedemic	Shimizu,*M., et al. 1990. Anti-inflammatory Constituents of Topically Applied Crude Drugs. IV.1) Constituents and Anti-inflammatory Effect of Paraguayan Crude Drug 'Alhucema' (Lavandula latifolia Vill.)2). Chem. Pharm. Bull. 38(8): 2283-2284, 1990.
Antifeedant	Bettarini, F., Borgonovi, G.E., et al. 1991. Antiparasitic Compounds from East African Plants: Isolation and Biological Activity of Anonaine, Matricarianol, Canthin-6-One and Caryophyllene Oxide. Insect Sci. Applic. 14(1): 93-99, 1993.
Antiinflammatory	Shimizu,*M., et al. 1990. Anti-inflammatory Constituents of Topically Applied Crude Drugs. IV.1) Constituents and Anti-inflammatory Effect of Paraguayan Crude Drug 'Alhucema' (Lavandula latifolia Vill.)2). Chem. Pharm. Bull. 38(8): 2283-2284, 1990.
Antitumor	Zheng, G-Q., Kenney, P.M., and Lam, L.K.T. Sesquiterpenes From Clove (Eugenia caryophyllata) As Potential Anticarcinogenic Agents. Journal of Natural Products 55(7): 999-1003, 1992.
Calcium-Antagonist ED50=32 uM gpg	
Fungicide	
Insecticide	Bettarini, F., Borgonovi, G.E., et al. 1991. Antiparasitic Compounds from East African Plants: Isolation and Biological Activity of Anonaine, Matricarianol, Canthin-6-One and Caryophyllene Oxide. Insect Sci. Applic. 14(1): 93-99, 1993.
Pesticide	

CEMBRENE	Resin -- 14000.0	Abdel Wahab, S. M., Aboutabl, E. A., El-Zalabani, S. M., Fouad, H. A., De Pooter, H. L., El-Fallaha, B. 1987. The Essential Oil of Olibanum. Plant Med. 53 (4): 382-384.
	Essent.	
	Oil	

CIS-BETA-OCIMENE	Resin -- 2000.0	Abdel Wahab, S. M., Aboutabl, E. A., El-Zalabani, S. M., Fouad, H. A., De Pooter, H. L., El-Fallaha, B. 1987. The Essential Oil of Olibanum. Plant Med. 53 (4): 382-384.
	Essent.	
	Oil	

CITRONELLOL-ACETATE	Resin -- --	Abdel Wahab, S. M., Aboutabl, E. A., El-Zalabani, S. M., Fouad, H. A., De Pooter, H. L., El-Fallaha, B. 1987. The Essential Oil of Olibanum. Plant Med. 53 (4): 382-384.
	Essent.	
	Oil	

D-BORNEOL	Essential -- --	Guenther, E., The Essential Oils, 6 volumes, D. van Nostrand, New York, 1948-1952.
	Oil	

Activities (4)

Convulsant	Zebovitz, T. C. Ed. 1989. Part VII. Flavor and Fragrance Substances, in Keith L. H. and Walters, D.B., eds. Compendium of Safety Data Sheets for Research and Industrial Chemicals. VCH Publishers, New York. 3560-4253.			
Emetic	Zebovitz, T. C. Ed. 1989. Part VII. Flavor and Fragrance Substances, in Keith L. H. and Walters, D.B., eds. Compendium of Safety Data Sheets for Research and Industrial Chemicals. VCH Publishers, New York. 3560-4253.			
Irritant	Zebovitz, T. C. Ed. 1989. Part VII. Flavor and Fragrance Substances, in Keith L. H. and Walters, D.B., eds. Compendium of Safety Data Sheets for Research and Industrial Chemicals. VCH Publishers, New York. 3560-4253.			
Perfume	Zebovitz, T. C. Ed. 1989. Part VII. Flavor and Fragrance Substances, in Keith L. H. and Walters, D.B., eds. Compendium of Safety Data Sheets for Research and Industrial Chemicals. VCH Publishers, New York. 3560-4253.			

DECAN-1-OL	Resin Essent. Oil	--	4000.0	Abdel Wahab, S. M., Aboutabl, E. A., El-Zalabani, S. M., Fouad, H. A., De Pooter, H. L., El-Fallaha, B. 1987. The Essential Oil of Olibanum. Plant Med. 53 (4): 382-384.
DECAN-1-OL-ACETATE	Resin Essent. Oil	--	3000.0	Abdel Wahab, S. M., Aboutabl, E. A., El-Zalabani, S. M., Fouad, H. A., De Pooter, H. L., El-Fallaha, B. 1987. The Essential Oil of Olibanum. Plant Med. 53 (4): 382-384.
DELTA-CADINENE	Essential Oil	--	--	Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.

Activities (9)

Aldose-Reductase-Inhibitor				
Antiacne				
Antibacterial MIC800 ug/ml	Muroi, H. and Kubo, I. 1993. Combination Effects of Antibacterial Compounds in Green Tea Flavor against Streptococcus mutans. J. Agric. Food Chem. 41: 1102-1105.			
Anticariogenic MIC800 ug/ml	Muroi, H. and Kubo, I. 1993. Combination Effects of Antibacterial Compounds in Green Tea Flavor against Streptococcus mutans. J. Agric. Food Chem. 41: 1102-1105.			
Antistreptococcic				
Cytochrome-P450-Inducer				
P450-Inducer				
Pesticide				
Testosterone-Inducer				

DELTA-ELEMENE	Essential Oil	--	--	Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
DELTA-GUAIENE	Essential Oil	--	--	Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
DIPENTENE	Essential Oil	--	3925.0	Guenther, E., The Essential Oils, 6 volumes, D. van Nostrand, New York, 1948-1952.

Activities (7)

Allergenic				
Antibacterial	Leung, A. Y. and Foster, S. 1995. Encyclopedia of Common Natural Ingredients 2nd Ed. John Wiley & Sons, New York. 649 pp.			
Antiviral	Leung, A. Y. and Foster, S. 1995. Encyclopedia of Common Natural Ingredients 2nd Ed. John Wiley & Sons, New York. 649 pp.			
Expectorant	Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.			
Irritant	Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.			
Pesticide				
Sedative	Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.			

EO	Latex Exudate	30000.0	100000.0	Leung, A.Y., Encyclopedia of Common Natural Ingredients Used in Food, Drugs, and Cosmetics, John Wiley & Sons, New York, 1980.
ETHYL-LAURATE	Essential Oil	--	--	Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.

Activities (1)

Flavor FEMA <1-40	Aloe Research Council - Duke writeup of non-peer reviewd book by Coats and draft by Henry			
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FARNESANE	Essential Oil	--	--	Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
FARNESENE	Essential Oil	--	--	Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.

Activities (2)

Pesticide				
Pheromone	Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.			

FARNESOL	Essential Oil	--	--	Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
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Activities (17)

Allergenic				
Antiadenomic				
Anticancer (Pancreas) IC50=39 uM				
Anticarcinomic (Colon)				
Anticarcinomic (Lung)				
Antileukemic				
Antimelanomic IC50=50 uM/l				
Antispasmodic				
Apoptotic				
FLavor FEMA 0.1-3				Aloe Research Council - Duke writeup of non-peer reviewd book by Coats and draft by Henry
Juvabional				Russell, G. B., Phytochemical resources for crop protection, N. Z. J. Technol., 2, 1986, 127-134.
Nematicide MLC=100 ug/ml				Shoyakugaku Zasshi, 44: 183.
Perfumery				Merck 11th Edition
Pesticide				
Pheromonal				
Sedative				
Trichomonicide LD100=100 ug/ml				

GALACTOSE	Latex	--	--	Leung, A.Y., Encyclopedia of Common Natural Ingredients Used in Food, Drugs, and Cosmetics, John Wiley & Sons, New York, 1980.
	Exudate			

Activities (1)

Sweetener 0.32 x sucrose				Martindale's 28th
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GAMMA-CADINENE	Essential Oil	--	--	Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
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GAMMA-MUUROLENE	Essential Oil	--	--	Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
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GAMMA-TERPINENE	Essential Oil	--	--	Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
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Activities (11)

ACE-Inhibitor 100 ug/ml (weak activity)				
Acaricide				
Aldose-Reductase-Inhibitor 100 ug/ml	Okamura, K., Iwakami, S., Matsunaga, T. 1992. Biological Activity of Monoterpenes from Trees. Toyama-Ken Yakuji Kenkyusho Nenpo, (20): 95-101.			
Antiacetylcholinesterase IC23=1.2 mM				
Antifeedant	Blaschek, W., Hansel, R., Keller, K., Reichling, J., Rimpler, H., and Schneider, G. eds. 1998. Hager's Handbuch der Pharmazeutischen Praxis, Auflage Band 2 (A-K), 909 pp., (L-Z), 858 pp. Springer-Verlag, Berlin.			
Antioxidant	Jim Duke's personal files.			
FLavor FEMA 1-40	Aloe Research Council - Duke writeup of non-peer reviewd book by Coats and draft by Henry			
Insectifuge	Blaschek, W., Hansel, R., Keller, K., Reichling, J., Rimpler, H., and Schneider, G. eds. 1998. Hager's Handbuch der Pharmazeutischen Praxis, Auflage Band 2 (A-K), 909 pp., (L-Z), 858 pp. Springer-Verlag, Berlin.			
Irritant	Zebovitz, T. C. Ed. 1989. Part VII. Flavor and Fragrance Substances, in Keith L. H. and Walters, D.B., eds. Compendium of Safety Data Sheets for Research and Industrial Chemicals. VCH Publishers, New York. 3560-4253.			
Perfumery	Aloe Research Council - Duke writeup of non-peer reviewd book by Coats and draft by Henry			
Pesticide				

GAMMA-TERPINENE	Resin	--	1000.0	Abdel Wahab, S. M., Aboutabl, E. A., El-Zalabani, S. M., Fouad, H. A., De Pooter, H. L., El-Fallaha, B. 1987. The Essential Oil of Olibanum. Plant Med. 53 (4): 382-384.
	Essent. Oil			

Activities (11)

ACE-Inhibitor 100 ug/ml
(weak activity)

Acaricide

Aldose-Reductase-
Inhibitor 100 ug/ml

Okamura, K., Iwakami, S., Matsunaga, T. 1992. Biological Activity of Monoterpenes from Trees. Toyama-Ken Yakuji Kenkyusho Nenpo, (20): 95-101.

Antiacetylcholinesterase
IC23=1.2 mM

Antifeedant

Blaschek, W., Hansel, R., Keller, K., Reichling, J., Rimpler, H., and Schneider, G. eds. 1998. Hager's Handbuch der Pharmazeutischen Praxis, Auflage Band 2 (A-K), 909 pp., (L-Z), 858 pp. Springer-Verlag, Berlin.

Antioxidant

Jim Duke's personal files.

FLavor FEMA 1-40

Aloe Research Council - Duke writeup of non-peer reviewed book by Coats and draft by Henry

Insectifuge

Blaschek, W., Hansel, R., Keller, K., Reichling, J., Rimpler, H., and Schneider, G. eds. 1998. Hager's Handbuch der Pharmazeutischen Praxis, Auflage Band 2 (A-K), 909 pp., (L-Z), 858 pp. Springer-Verlag, Berlin.

Irritant

Zebovitz, T. C. Ed. 1989. Part VII. Flavor and Fragrance Substances, in Keith L. H. and Walters, D.B., eds. Compendium of Safety Data Sheets for Research and Industrial Chemicals. VCH Publishers, New York. 3560-4253.

Perfumery

Aloe Research Council - Duke writeup of non-peer reviewed book by Coats and draft by Henry

Pesticide

GERANIOL-ACETATE	Resin Essent. Oil	--	3000.0	Abdel Wahab, S. M., Aboutabl, E. A., El-Zalabani, S. M., Fouad, H. A., De Pooter, H. L., El-Fallaha, B. 1987. The Essential Oil of Olibanum. Plant Med. 53 (4): 382-384.
HEXAN-1-OL-ACETATE	Resin Essent. Oil	--	1000.0	Abdel Wahab, S. M., Aboutabl, E. A., El-Zalabani, S. M., Fouad, H. A., De Pooter, H. L., El-Fallaha, B. 1987. The Essential Oil of Olibanum. Plant Med. 53 (4): 382-384.
HEXAN-1-OL-HEXANOATE	Resin Essent. Oil	--	1000.0	Abdel Wahab, S. M., Aboutabl, E. A., El-Zalabani, S. M., Fouad, H. A., De Pooter, H. L., El-Fallaha, B. 1987. The Essential Oil of Olibanum. Plant Med. 53 (4): 382-384.
HEXYL-OCTANOATE	Resin Essent. Oil	--	2000.0	Abdel Wahab, S. M., Aboutabl, E. A., El-Zalabani, S. M., Fouad, H. A., De Pooter, H. L., El-Fallaha, B. 1987. The Essential Oil of Olibanum. Plant Med. 53 (4): 382-384.
HOMOMYRCENE	Essential Oil	--	--	Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
INCENSOLE	Essential Oil	--	--	Leung, A.Y., Encyclopedia of Common Natural Ingredients Used in Food, Drugs, and Cosmetics, John Wiley & Sons, New York, 1980.
INCENSOLE	Resin Essent. Oil	--	27000.0	Abdel Wahab, S. M., Aboutabl, E. A., El-Zalabani, S. M., Fouad, H. A., De Pooter, H. L., El-Fallaha, B. 1987. The Essential Oil of Olibanum. Plant Med. 53 (4): 382-384.
INCENSOLE	Resin, Exudate, Sap	810.0	2700.0	*
INCENSOLE-ACETATE	Essential Oil	--	--	Leung, A.Y., Encyclopedia of Common Natural Ingredients Used in Food, Drugs, and Cosmetics, John Wiley & Sons, New York, 1980.
INCENSOLE-OXIDE	Resin, Exudate, Sap	--	--	*
INCENSOLE-OXIDE	Essential Oil	--	--	Leung, A.Y., Encyclopedia of Common Natural Ingredients Used in Food, Drugs, and Cosmetics, John Wiley & Sons, New York, 1980.
ISOCEMBRENE	Resin Essent. Oil	--	18000.0	Abdel Wahab, S. M., Aboutabl, E. A., El-Zalabani, S. M., Fouad, H. A., De Pooter, H. L., El-Fallaha, B. 1987. The Essential Oil of Olibanum. Plant Med. 53 (4): 382-384.
ISOINCENSOLE	Resin Essent. Oil	--	8000.0	Abdel Wahab, S. M., Aboutabl, E. A., El-Zalabani, S. M., Fouad, H. A., De Pooter, H. L., El-Fallaha, B. 1987. The Essential Oil of Olibanum. Plant Med. 53 (4): 382-384.
ISOINCENSOLE	Essential Oil	--	--	Leung, A.Y., Encyclopedia of Common Natural Ingredients Used in Food, Drugs, and Cosmetics, John Wiley & Sons, New York, 1980.
ISOINCENSOLE-OXIDE	Essential Oil	--	--	Leung, A.Y., Encyclopedia of Common Natural Ingredients Used in Food, Drugs, and Cosmetics, John Wiley & Sons, New York, 1980.
ISOINCENSOLE-OXIDE	Resin, Exudate, Sap	--	--	Forcellese, M. L., Nicoletti, R., Petrossi, U. 1972. The Structure of Isoincensole-Oxide. Tetrahedron 28: 325-.
L-ALPHA-PINENE	Essential Oil	--	--	Guenther, E., The Essential Oils, 6 volumes, D. van Nostrand, New York, 1948-1952.

LIMONENE	Resin, Exudate, Sap	--	78200.0	Chiavari, G., Gtalletti, G. C., Piccaglia, R., Mohamud, M. A. 1991. Differentiation Between Resins <i>Boswellia carterii</i> and <i>Boswellia frereana</i> (Frankincense) of Somali Origin. <i>J. Essent. Oil Res.</i> 3 (3):185-186.
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Activities (60)

AChE-Inhibitor	Grundy, D. L. and Still, C. C., Inhibition of acetylcholinesterases by pulegone-1,2-epoxide, <i>Oest. Biochem. & Physiol.</i> , 23, 1985, 383-8.
Acaricide LC100=8 uM	
Allelochemic	
Allergenic 1/20th carene	
Antiacetylcholinesterase IC22-26=1.2 mM	
Antiadenomic	
Antialzheimeran?	Grundy, D. L. and Still, C. C., Inhibition of acetylcholinesterases by pulegone-1,2-epoxide, <i>Oest. Biochem. & Physiol.</i> , 23, 1985, 383-8.
Antiasthmatic	
Antibacterial	Revista Itiliana Eppos, 12: 5, 1994.
Anticancer	
Antiesophagitic	
Antifeedant	
Antiflu	Economic & Medicinal Plant Research, 5: 195.
Antiinflammatory	
Antilithic	
Antilymphomic	
Antimetastatic (Stomach)	
Antimutagenic	Economic & Medicinal Plant Research, 6: 235.
Antiobesity	
Antiseptic	
Antispasmodic ED50=0.197 mg/ml	Fitoterapia No.59-1984.
Antitumor	
Antitumor (Breast)	
Antitumor (Colon)	
Antitumor (Pancreas)	
Antitumor (Prostate)	
Antitumor (Stomach)	
Antiviral	
Apoptotic	
Bronchoprotectant	
Cancer-Preventive	Stitt, P. A. Why George Should Eat Broccoli. Dougherty Co, Milwaukee, WI, 1990, 399 pp.
Candidistat	
Chemopreventive	
Cholesterolytic	
Detoxicant	
Enterocontractant	J. Aromatherapy 4: 22.
Expectorant	
FLavor	
Fungiphilic	J. Agric. Food Chem. 43: 2283.
Fungistat	
GST-Inducer	
Herbicide IC50=45 uM	Keeler, R.F. and Tu, A.T. eds. 1991. Toxicology of Plant and Fungal Compounds. (Handbook of Natural Toxins Vol. 6) Marcel Dekker, Inc. NY. 665 pp.
Histaminic	
Immunomodulator	
Insecticide 0.37 uM/fly	
Insectifuge	Jacobson, M., Glossary of Plant-Derived Insect Deterrents, CRC Press, Inc., Boca Raton, FL, 213 p, 1990.
Interleukin-6-Inhibitor	
Irritant	
Lipolytic	
Myorelaxant 50 mg/kg	
NO-Genic	
Nematicide IC=100 ug/ml	Nigg, H.N. and Seigler, D.S., eds. 1992. Phytochemical Resources for Medicine and Agriculture. Plenum Press, New York. 445 pp.
Ornithine-Decarboxylase-Inhibitor ~750 mg/kg (diet)	
Ozone-Scavenger	
P450-Inducer	
Peristaltic	
Pesticide	
Photosensitizer	Rinzler, C. A. 1990. The Complete Book of Herbs, Spices and Condiments. Facts on File, New York. 199 pp.
Sedative ED=1-32 mg/kg	Wagner & Wolff, eds. 1977. New Natural Products (RS164. I56. 176)
Transdermal	

LIMONENE

Resin -- 1.7
Essent.
Oil

Abdel Wahab, S. M., Aboutabl, E. A., El-Zalabani, S. M., Fouad, H. A., De Pooter, H. L., El-Fallaha, B. 1987. The Essential Oil of *Olibanum*. *Plant Med.* 53 (4): 382-384.

Activities (60)

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Antiasthmatic	
Antibacterial	Revista Itiliana Eppos, 12: 5, 1994.
Anticancer	
Antiesophagitic	
Antifeedant	
Antiflu	Economic & Medicinal Plant Research, 5: 195.
Antiinflammatory	
Antilithic	
Antilymphomic	
Antimetastatic (Stomach)	
Antimutagenic	Economic & Medicinal Plant Research, 6: 235.
Antiobesity	
Antiseptic	
Antispasmodic ED50=0.197 mg/ml	Fitoterapia No.59-1984.
Antitumor	
Antitumor (Breast)	
Antitumor (Colon)	
Antitumor (Pancreas)	
Antitumor (Prostate)	
Antitumor (Stomach)	
Antiviral	
Apoptotic	
Bronchoprotectant	
Cancer-Preventive	Stitt, P. A. Why George Should Eat Broccoli. Dougherty Co, Milwaukee, WI, 1990, 399 pp.
Candidistat	
Chemopreventive	
Cholesterolytic	
Detoxicant	
Enterocontractant	J. Aromatherapy 4: 22.
Expectorant	
FLavor	
Fungiphilic	J. Agric. Food Chem. 43: 2283.
Fungistat	
GST-Inducer	
Herbicide IC50=45 uM	Keeler, R.F. and Tu, A.T. eds. 1991. Toxicology of Plant and Fungal Compounds. (Handbook of Natural Toxins Vol. 6) Marcel Dekker, Inc. NY. 665 pp.
Histaminic	
Immunomodulator	
Insecticide 0.37 uM/fly	
Insectifuge	Jacobson, M., Glossary of Plant-Derived Insect Deterrents, CRC Press, Inc., Boca Raton, FL, 213 p, 1990.
Interleukin-6-Inhibitor	
Irritant	
Lipolytic	
Myorelaxant 50 mg/kg	
NO-Genic	
Nematicide IC=100 ug/ml	Nigg, H.N. and Seigler, D.S., eds. 1992. Phytochemical Resources for Medicine and Agriculture. Plenum Press, New York. 445 pp.
Ornithine-Decarboxylase-Inhibitor ~750 mg/kg (diet)	
Ozone-Scavenger	
P450-Inducer	
Peristaltic	
Pesticide	
Photosensitizer	Rinzler, C. A. 1990. The Complete Book of Herbs, Spices and Condiments. Facts on File, New York. 199 pp.
Sedative ED=1-32 mg/kg	Wagner & Wolff, eds. 1977. New Natural Products (RS164. I56. 176)
Transdermal	

LIMONENE

Essential --
Oil

128000.0 -0.0

*

Activities (60)

AChE-Inhibitor	Grundy, D. L. and Still, C. C., Inhibition of acetylcholinesterases by pulegone-1,2-epoxide, Oest. Biochem. & Physiol., 23, 1985, 383-8.
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Allergenic 1/20th carene	
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Antibacterial	Revista Itiliana Eppos, 12: 5, 1994.
Anticancer	
Antiesophagitic	
Antifeedant	
Antiflu	Economic & Medicinal Plant Research, 5: 195.
Antiinflammatory	
Antilithic	
Antilymphomic	
Antimetastatic (Stomach)	
Antimutagenic	Economic & Medicinal Plant Research, 6: 235.
Antiobesity	
Antiseptic	
Antispasmodic ED50=0.197 mg/ml	Fitoterapia No.59-1984.
Antitumor	
Antitumor (Breast)	
Antitumor (Colon)	
Antitumor (Pancreas)	
Antitumor (Prostate)	
Antitumor (Stomach)	
Antiviral	
Apoptotic	
Bronchoprotectant	
Cancer-Preventive	Stitt, P. A. Why George Should Eat Broccoli. Dougherty Co, Milwaukee, WI, 1990, 399 pp.
Candidistat	
Chemopreventive	
Cholesterolytic	
Detoxicant	
Enterocontractant	J. Aromatherapy 4: 22.
Expectorant	
FLavor	
Fungiphilic	J. Agric. Food Chem. 43: 2283.
Fungistat	
GST-Inducer	
Herbicide IC50=45 uM	Keeler, R.F. and Tu, A.T. eds. 1991. Toxicology of Plant and Fungal Compounds. (Handbook of Natural Toxins Vol. 6) Marcel Dekker, Inc. NY. 665 pp.
Histaminic	
Immunomodulator	
Insecticide 0.37 uM/fly	
Insectifuge	Jacobson, M., Glossary of Plant-Derived Insect Deterrents, CRC Press, Inc., Boca Raton, FL, 213 p, 1990.
Interleukin-6-Inhibitor	
Irritant	
Lipolytic	
Myorelaxant 50 mg/kg	
NO-Genic	
Nematicide IC=100 ug/ml	Nigg, H.N. and Seigler, D.S., eds. 1992. Phytochemical Resources for Medicine and Agriculture. Plenum Press, New York. 445 pp.
Ornithine-Decarboxylase-Inhibitor ~750 mg/kg (diet)	
Ozone-Scavenger	
P450-Inducer	
Peristaltic	
Pesticide	
Photosensitizer	Rinzler, C. A. 1990. The Complete Book of Herbs, Spices and Condiments. Facts on File, New York. 199 pp.
Sedative ED=1-32 mg/kg	Wagner & Wolff, eds. 1977. New Natural Products (RS164. I56. 176)
Transdermal	

LINALOOL Resin -- 20000.0 Abdel Wahab, S. M., Aboutabl, E. A., El-Zalabani, S. M., Fouad, H. A., De Pooter, H. L., El-Fallaha, B. 1987. The Essential Oil of Olibanum. *Plant Med.* 53 (4): 382-384.

Activities (53)

Acaricide C90=<15 ul/l (= <15 ppm)	
Allergenic	
Analgesic	
Anesthetic 0.01-1 ug/ml	
Antiacetylcholinesterase	
Antiallergic	Huang, K. C. 1993. <i>The Pharmacology of Chinese Herbs.</i> CRC Press, Boca Raton, FL 388 pp.
Antianaphylactic	
Antibacterial MIC=1,600 ug/ml	
Anticariogenic MIC=1,600 ug/ml	Muroi, H. and Kubo, I. 1993. Combination Effects of Antibacterial Compounds in Green Tea Flavor against <i>Streptococcus mutans</i> . <i>J. Agric. Food Chem.</i> 41: 1102-1105.
Anticolic	
Anticonvulsant 200 mg/kg ipr mus	
Antiedemic	
Antiglutamaergic	
Antihistaminic	Huang, K. C. 1993. <i>The Pharmacology of Chinese Herbs.</i> CRC Press, Boca Raton, FL 388 pp.
Antiinflammatory	
Antileukemic IC50=3.5-4.2 ug/ml	Chiang, L. C., Chiang, W., Chang, M. Y., Ng, L. T., Lin, C. C. 2003. Antileukemic activity of selected natural products in Taiwan. <i>Am J Chin Med</i> , 31(1):37-46.
Antilymphomic IC50=3.5-4.2 ug/ml	Chiang, L. C., Chiang, W., Chang, M. Y., Ng, L. T., Lin, C. C. 2003. Antileukemic activity of selected natural products in Taiwan. <i>Am J Chin Med</i> , 31(1):37-46.
Antimange	
Antimite	
Antimutagenic	
Antiseptic 5 x phenol	Wagner & Wolff, eds. 1977. <i>New Natural Products</i> (RS164. I56. 176)
Antishock	Huang, K. C. 1993. <i>The Pharmacology of Chinese Herbs.</i> CRC Press, Boca Raton, FL 388 pp.
Antispasmodic	Buchbauer, G., Jirovetz*, L., Nikiforov, A., Remberg, G., Raverdino, V. 1989. Headspace-Analysis and Aroma Compounds of Austrian Hay-Blossoms (<i>Flores Graminis</i> , <i>Graminis Flos</i>) used in Aromatherapy. <i>J. Ess. Oil Res.</i> , 2: 185-191, 1990.
Antiviral	
Barbituate-Synergist	
Bronchorelaxant	Huang, K. C. 1993. <i>The Pharmacology of Chinese Herbs.</i> CRC Press, Boca Raton, FL 388 pp.
CNS-Depressant	
Cancer-Preventive	Stitt, P. A. <i>Why George Should Eat Broccoli.</i> Dougherty Co, Milwaukee, WI, 1990, 399 pp.
Candidistat	
Carminative	
Culicide LC50=156-194 mg/l	
Cytotoxic	
Expectorant	Huang, K. C. 1993. <i>The Pharmacology of Chinese Herbs.</i> CRC Press, Boca Raton, FL 388 pp.
FLavor FEMA 2-40	Aloe Research Council - Duke writeup of non-peer reviewed book by Coats and draft by Henry
Fungicide	<i>Acta Botanica Sinica</i> , 32: 49.
GABA-nergic	
Hypnotic	
Hypothermic	
Insecticide LC50=156-194 mg/l	
Insectifuge	Jacobson, M., <i>Glossary of Plant-Derived Insect Deterrents</i> , CRC Press, Inc., Boca Raton, FL, 213 p, 1990.
Irritant	Zebovitz, T. C. Ed. 1989. Part VII. Flavor and Fragrance Substances, in Keith L. H. and Walters, D.B., eds. <i>Compendium of Safety Data Sheets for Research and Industrial Chemicals.</i> VCH Publishers, New York. 3560-4253.
Larvicide LC50=156-194 mg/l	
Mosquitofuge > Deet	
Motor-Depressant	Buchbauer et al, e.g.Buchbauer et al,1993.Therapeutic properties of essential oils and fragrances. Chap.12 in Teranishi,R, Buttery,R.G and Sugisawa,H. Eds. <i>Bioactive Volatile Compounds from Plants.</i> ACS Symposium Series 525. Amer. Chem. Soc., Washington DC
Nematicide MLC=1 mg/ml	<i>Shoyakugaku Zasshi</i> , 44: 183.
Perfumery	Merck 11th Edition
Pesticide	
Prooxidant	Charalambous, G. (Ed.). 1994. <i>Spices, Herbs and Edible Fungi.</i> Elsevier Science B. V. Amsterdam. 764 pp.
Sedative ED=1-32 mg/kg	Wagner & Wolff, eds. 1977. <i>New Natural Products</i> (RS164. I56. 176)
Sedative 200 mg/kg ipr mus (1% as active as diazepam)	
Termitifuge	Jacobson, M., <i>Glossary of Plant-Derived Insect Deterrents</i> , CRC Press, Inc., Boca Raton, FL, 213 p, 1990.
Trichomonicide LD100=600 ug/ml	
Tumor-Promoter	

MUCILAGE Resin, 120000.0 200000.0 *
 Exudate,
 Sap

Activities (3)

Cancer-Preventive Stitt, P. A. Why George Should Eat Broccoli. Dougherty Co, Milwaukee, WI, 1990, 399 pp.
 Demulcent
 Hypcholesterolemic

MUCILAGE Latex -- 120000.0 *
 Exudate

Activities (3)

Cancer-Preventive Stitt, P. A. Why George Should Eat Broccoli. Dougherty Co, Milwaukee, WI, 1990, 399 pp.
 Demulcent
 Hypcholesterolemic

MYRCENE Essential -- 36000.0 0.03 *
 Oil

Activities (22)

ACE-Inhibitor 100 ug/ml
 Aldose-Reductase-Inhibitor 100 ug/ml Okamura, K., Iwakami, S., Matsunaga, T. 1992. Biological Activity of Monoterpenes from Trees. Toyama-Ken Yakuji Kenkyusho Nenpo, (20): 95-101.
 Allergenic
 Analgesic Kauderer, B., Zamith, H., Paumgartten, F.J.R., and Speit, G. Evaluation of the Mutagenicity of B-Myrcene in Mammalian Cells In Vitro. Environmental and Molecular Mutagenesis 18: 28-34, 1991.
 Antibacterial
 Anticonvulsant
 Antimutagenic Kauderer, B., Zamith, H., Paumgartten, F.J.R., and Speit, G. Evaluation of the Mutagenicity of B-Myrcene in Mammalian Cells In Vitro. Environmental and Molecular Mutagenesis 18: 28-34, 1991.
 Antinitrosaminic
 Antinociceptive 10-20 mg/kg ipr mus Rao, V.S.N., Menezes, A.M.S., Viana, G.S.B. 1990. Effect of myrcene on nociception in mice. J. Pharm. Pharmacol. 42: 877-878, 1990.
 Antinociceptive 20-40 mg/kg scu mus Rao, V.S.N., Menezes, A.M.S., Viana, G.S.B. 1990. Effect of myrcene on nociception in mice. J. Pharm. Pharmacol. 42: 877-878, 1990.
 Antioxidant Jim Duke's personal files.
 Antispasmodic Jim Duke's personal files.
 Chemopreventive Stitt, P. A. Why George Should Eat Broccoli. Dougherty Co, Milwaukee, WI, 1990, 399 pp.
 FLavor FEMA 0.5-9 Aloe Research Council - Duke writeup of non-peer reviewed book by Coats and draft by Henry
 Fungicide Keeler, R.F. and Tu, A.T. eds. 1991. Toxicology of Plant and Fungal Compounds. (Handbook of Natural Toxins Vol. 6) Marcel Dekker, Inc. NY. 665 pp.
 Hypothermic
 Insectifuge
 Irritant Zebovitz, T. C. Ed. 1989. Part VII. Flavor and Fragrance Substances, in Keith L. H. and Walters, D.B., eds. Compendium of Safety Data Sheets for Research and Industrial Chemicals. VCH Publishers, New York. 3560-4253.
 Myorelaxant 100-200 mg/kg
 P450-2B1-Inhibitor IC50=0.14 uM
 Perfumery Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.
 Pesticide

MYRCENE Resin -- 2000.0 Abdel Wahab, S. M., Aboutabl, E. A., El-Zalabani, S. M., Fouad, H. A., De Pooter, H. L., El-Fallaha, B. 1987. The Essential Oil of Olibanum. Plant Med. 53 (4): 382-384.
 Essent.
 Oil

Activities (22)

ACE-Inhibitor 100 ug/ml

Aldose-Reductase-Inhibitor 100 ug/ml Okamura, K., Iwakami, S., Matsunaga, T. 1992. Biological Activity of Monoterpenes from Trees. Toyama-Ken Yakuji Kenkyusho Nenpo, (20): 95-101.

Allergenic

Analgesic Kauderer, B., Zamith, H., Paumgartten, F.J.R., and Speit, G. Evaluation of the Mutagenicity of B-Myrcene in Mammalian Cells In Vitro. Environmental and Molecular Mutagenesis 18: 28-34, 1991.

Antibacterial

Anticonvulsant

Antimutagenic Kauderer, B., Zamith, H., Paumgartten, F.J.R., and Speit, G. Evaluation of the Mutagenicity of B-Myrcene in Mammalian Cells In Vitro. Environmental and Molecular Mutagenesis 18: 28-34, 1991.

Antinitrosaminic

Antinociceptive 10-20 mg/kg ipr mus Rao, V.S.N., Menezes, A.M.S., Viana, G.S.B. 1990. Effect of myrcene on nociception in mice. J. Pharm. Pharmacol. 42: 877-878, 1990.

Antinociceptive 20-40 mg/kg scu mus Rao, V.S.N., Menezes, A.M.S., Viana, G.S.B. 1990. Effect of myrcene on nociception in mice. J. Pharm. Pharmacol. 42: 877-878, 1990.

Antioxidant Jim Duke's personal files.

Antispasmodic Jim Duke's personal files.

Chemopreventive Stitt, P. A. Why George Should Eat Broccoli. Dougherty Co, Milwaukee, WI, 1990, 399 pp.

FLavor FEMA 0.5-9 Aloe Research Council - Duke writeup of non-peer reviewed book by Coats and draft by Henry

Fungicide Keeler, R.F. and Tu, A.T. eds. 1991. Toxicology of Plant and Fungal Compounds. (Handbook of Natural Toxins Vol. 6) Marcel Dekker, Inc. NY. 665 pp.

Hypothermic

Insectifuge

Irritant Zebovitz, T. C. Ed. 1989. Part VII. Flavor and Fragrance Substances, in Keith L. H. and Walters, D.B., eds. Compendium of Safety Data Sheets for Research and Industrial Chemicals. VCH Publishers, New York. 3560-4253.

Myorelaxant 100-200 mg/kg

P450-2B1-Inhibitor IC50=0.14 uM

Perfumery Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.

Pesticide

NEROL-ACETATE	Resin Essent. Oil	--	--		Abdel Wahab, S. M., Aboutabl, E. A., El-Zalabani, S. M., Fouad, H. A., De Pooter, H. L., El-Fallaha, B. 1987. The Essential Oil of Olibanum. Plant Med. 53 (4): 382-384.
O-ACETYL-BETA-BOSWELLIC-ACID	Resin, Exudate, Sap	--	--		Hairfield, E. M., Hairfield Jr., H. H., McNair, H. M. 1989. GC, GC/MS, and TLC of Beta-Boswellic Acid and O-Acetyl-Beta-Boswellic Acid from B. serrata, B. cartei, and B. papyrifera. J. Chromatogr. Sci. 27 3: 127-133.
O-METHYL-ANISOLE	Resin Essent. Oil	--	--		Abdel Wahab, S. M., Aboutabl, E. A., El-Zalabani, S. M., Fouad, H. A., De Pooter, H. L., El-Fallaha, B. 1987. The Essential Oil of Olibanum. Plant Med. 53 (4): 382-384.
OCTAN-1-OL	Resin Essent. Oil	--	127000.0		Abdel Wahab, S. M., Aboutabl, E. A., El-Zalabani, S. M., Fouad, H. A., De Pooter, H. L., El-Fallaha, B. 1987. The Essential Oil of Olibanum. Plant Med. 53 (4): 382-384.
OCTAN-1-OL-ACETATE	Resin Essent. Oil	--	600000.0		Abdel Wahab, S. M., Aboutabl, E. A., El-Zalabani, S. M., Fouad, H. A., De Pooter, H. L., El-Fallaha, B. 1987. The Essential Oil of Olibanum. Plant Med. 53 (4): 382-384.
OCTANOL	Essential Oil	--	--		Leung, A.Y., Encyclopedia of Common Natural Ingredients Used in Food, Drugs, and Cosmetics, John Wiley & Sons, New York, 1980.
OCTYL-ACETATE	Essential Oil	--	--		Leung, A.Y., Encyclopedia of Common Natural Ingredients Used in Food, Drugs, and Cosmetics, John Wiley & Sons, New York, 1980.
P-CYMENE	Essential Oil	3925.0	87000.0	0.08	*

Activities (16)

Analgesic	Martindale's 28th
Antiacetylcholinesterase IC40=1.2 mM	
Antibacillary	
Antibacterial	
Antiflu	
Antirheumatalgic	Martindale's 28th
Antiviral	
FLavor FEMA 12-250	Aloe Research Council - Duke writeup of non-peer reviewd book by Coats and draft by Henry
Fungicide	Keeler, R.F. and Tu, A.T. eds. 1991. Toxicology of Plant and Fungal Compounds. (Handbook of Natural Toxins Vol. 6) Marcel Dekker, Inc. NY. 665 pp.
Herbicide IC50=50 uM	Keeler, R.F. and Tu, A.T. eds. 1991. Toxicology of Plant and Fungal Compounds. (Handbook of Natural Toxins Vol. 6) Marcel Dekker, Inc. NY. 665 pp.
Insectifuge	Blaschek, W., Hansel, R., Keller, K., Reichling, J., Rimpler, H., and Schneider, G. eds. 1998. Hager's Handbuch der Pharmazeutischen Praxis, Auflage Band 2 (A-K), 909 pp., (L-Z), 858 pp. Springer-Verlag, Berlin.
Irritant	Zebovitz, T. C. Ed. 1989. Part VII. Flavor and Fragrance Substances, in Keith L. H. and Walters, D.B., eds. Compendium of Safety Data Sheets for Research and Industrial Chemicals. VCH Publishers, New York. 3560-4253.
Laxative	Zebovitz, T. C. Ed. 1989. Part VII. Flavor and Fragrance Substances, in Keith L. H. and Walters, D.B., eds. Compendium of Safety Data Sheets for Research and Industrial Chemicals. VCH Publishers, New York. 3560-4253.
Pesticide	
Sedative	Zebovitz, T. C. Ed. 1989. Part VII. Flavor and Fragrance Substances, in Keith L. H. and Walters, D.B., eds. Compendium of Safety Data Sheets for Research and Industrial Chemicals. VCH Publishers, New York. 3560-4253.
Trichomonicide LD100=50 ug/ml	

P-CYMENE	Resin	--	0.5	Abdel Wahab, S. M., Aboutabl, E. A., El-Zalabani, S. M., Fouad, H. A., De Poeter, H. L., El-Fallaha, B. 1987. The Essential Oil of Olibanum. Plant Med. 53 (4): 382-384.
	Essent.			
	Oil			

Activities (16)

Analgesic	Martindale's 28th
Antiacetylcholinesterase IC40=1.2 mM	
Antibacillary	
Antibacterial	
Antiflu	
Antirheumatalgic	Martindale's 28th
Antiviral	
FLavor FEMA 12-250	Aloe Research Council - Duke writeup of non-peer reviewd book by Coats and draft by Henry
Fungicide	Keeler, R.F. and Tu, A.T. eds. 1991. Toxicology of Plant and Fungal Compounds. (Handbook of Natural Toxins Vol. 6) Marcel Dekker, Inc. NY. 665 pp.
Herbicide IC50=50 uM	Keeler, R.F. and Tu, A.T. eds. 1991. Toxicology of Plant and Fungal Compounds. (Handbook of Natural Toxins Vol. 6) Marcel Dekker, Inc. NY. 665 pp.
Insectifuge	Blaschek, W., Hansel, R., Keller, K., Reichling, J., Rimpler, H., and Schneider, G. eds. 1998. Hager's Handbuch der Pharmazeutischen Praxis, Auflage Band 2 (A-K), 909 pp., (L-Z), 858 pp. Springer-Verlag, Berlin.
Irritant	Zebovitz, T. C. Ed. 1989. Part VII. Flavor and Fragrance Substances, in Keith L. H. and Walters, D.B., eds. Compendium of Safety Data Sheets for Research and Industrial Chemicals. VCH Publishers, New York. 3560-4253.
Laxative	Zebovitz, T. C. Ed. 1989. Part VII. Flavor and Fragrance Substances, in Keith L. H. and Walters, D.B., eds. Compendium of Safety Data Sheets for Research and Industrial Chemicals. VCH Publishers, New York. 3560-4253.
Pesticide	
Sedative	Zebovitz, T. C. Ed. 1989. Part VII. Flavor and Fragrance Substances, in Keith L. H. and Walters, D.B., eds. Compendium of Safety Data Sheets for Research and Industrial Chemicals. VCH Publishers, New York. 3560-4253.
Trichomonicide LD100=50 ug/ml	

P-CYMENE	Resin,	--	35300.0	1.0	Chiavari, G., Gtalletti, G. C., Piccaglia, R., Mohamud, M. A. 1991. Differentiation Between Resins Boswellia carterii and Boswellia frereana (Frankincense) of Somali Origin. J. Essent. Oil Res. 3 (3):185-186.
	Exudate,				
	Sap				

Activities (16)				
Analgesic	Martindale's 28th			
Antiacetylcholinesterase IC40=1.2 mM				
Antibacillary				
Antibacterial				
Antiflu				
Antirheumatalgic	Martindale's 28th			
Antiviral				
FLavor FEMA 12-250	Aloe Research Council - Duke writeup of non-peer reviewd book by Coats and draft by Henry			
Fungicide	Keeler, R.F. and Tu, A.T. eds. 1991. Toxicology of Plant and Fungal Compounds. (Handbook of Natural Toxins Vol. 6) Marcel Dekker, Inc. NY. 665 pp.			
Herbicide IC50=50 uM	Keeler, R.F. and Tu, A.T. eds. 1991. Toxicology of Plant and Fungal Compounds. (Handbook of Natural Toxins Vol. 6) Marcel Dekker, Inc. NY. 665 pp.			
Insectifuge	Blaschek, W., Hansel, R., Keller, K., Reichling, J., Rimpler, H., and Schneider, G. eds. 1998. Hager's Handbuch der Pharmazeutischen Praxis, Auflage Band 2 (A-K), 909 pp., (L-Z), 858 pp. Springer-Verlag, Berlin.			
Irritant	Zebovitz, T. C. Ed. 1989. Part VII. Flavor and Fragrance Substances, in Keith L. H. and Walters, D.B., eds. Compendium of Safety Data Sheets for Research and Industrial Chemicals. VCH Publishers, New York. 3560-4253.			
Laxative	Zebovitz, T. C. Ed. 1989. Part VII. Flavor and Fragrance Substances, in Keith L. H. and Walters, D.B., eds. Compendium of Safety Data Sheets for Research and Industrial Chemicals. VCH Publishers, New York. 3560-4253.			
Pesticide				
Sedative	Zebovitz, T. C. Ed. 1989. Part VII. Flavor and Fragrance Substances, in Keith L. H. and Walters, D.B., eds. Compendium of Safety Data Sheets for Research and Industrial Chemicals. VCH Publishers, New York. 3560-4253.			
Trichomonicide LD100=50 ug/ml				

P-MENTHA-1,4-DIEN-8-OL	Resin, Exudate, Sap	--	--	Maupetit, P. 1985. New Constituents in Olibanum Resinoid and Essential Oil. Parfum Flavor 9 6: 19-37.
P-MENTHA-1,5-DIEN-7-OL	Essential Oil	--	--	Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
PHELLANDRENE	Essential Oil	--	--	Guenther, E., The Essential Oils, 6 volumes, D. van Nostrand, New York, 1948-1952.

Activities (4)				
Hyperthermic	HerbalGram No. 22 - Spring 1990, page 45.			
Irritant	Rinzler, C. A. 1990. The Complete Book of Herbs, Spices and Condiments. Facts on File, New York. 199 pp.			
Spasmogenic	Fitoterapia No.59-1984.			
Tumor-Promoter				

RESIN	Latex Exudate	600000.0	700000.0	0.9	Leung, A.Y., Encyclopedia of Common Natural Ingredients Used in Food, Drugs, and Cosmetics, John Wiley & Sons, New York, 1980.
SABINENE	Resin Essent. Oil	--	3000.0		Abdel Wahab, S. M., Aboutabl, E. A., El-Zalabani, S. M., Fouad, H. A., De Pooter, H. L., El-Fallaha, B. 1987. The Essential Oil of Olibanum. Plant Med. 53 (4): 382-384.

Activities (5)				
Antibacterial				
Antihelicobacter				
Antiseptic				
Antiulcer				
Perfumery	Aloe Research Council - Duke writeup of non-peer reviewd book by Coats and draft by Henry			

SABINENE	Resin, Exudate, Sap	--	94400.0		Chiavari, G., Gtalletti, G. C., Piccaglia, R., Mohamud, M. A. 1991. Differentiation Between Resins <i>Boswellia carterii</i> and <i>Boswellia frereana</i> (Frankincense) of Somali Origin. J. Essent. Oil Res. 3 (3):185-186.
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Activities (5)				
Antibacterial				
Antihelicobacter				
Antiseptic				
Antiulcer				
Perfumery	Aloe Research Council - Duke writeup of non-peer reviewd book by Coats and draft by Henry			

SABINENE	Essential Oil	--	--		Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
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Activities (5)

Antibacterial
 Antihelicobacter
 Antiseptic
 Antiulcer
 Perfumery

Aloe Research Council - Duke writeup of non-peer reviewed book by Coats and draft by Henry

SELINA-4,11-DIENE	Essential Oil	--	--	Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
SELINA-5,7(11)-DIENE	Resin, Exudate, Sap	--	--	Maupetit, P. 1985. New Constituents in Olibanum Resinoid and Essential Oil. <i>Perfum Flavor</i> 9 6: 19-37.
TERPENES	Essential Oil	--	785000.0	Guenther, E., The Essential Oils, 6 volumes, D. van Nostrand, New York, 1948-1952.
TERPINEN-4-OL	Essential Oil	--	--	Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.

Activities (23)

Allelopathic	Wright, C.W. (Ed) 2002. Medicinal & Aromatic Plants - Industrial Profiles. Artemisia. 344pp. Maffei, M. (Ed) 2002. Vetiveria. The Genus Vetiveria. Taylor & Francis. NY, NY. 191pp. Southwell, I., Lowe, R. (Eds) 1999. Tea Tree. The Genus Melaleuca. Harwood Acad. Pub. Amsterdam, Netherlands.			
Antiacetylcholinesterase IC ₂₁₋₂₄ =1.2 mM				
Antiacne				
Antiallergic				
Antiasthmatic	Chin. J. Tuber. Respir. Dis., 4:203, 1982.			
Antibacterial				
Antioxidant				
Antiseptic	Flav. & Frag. J. 9: 129.			
Antispasmodic				
Antitussive	Chin. J. Tuber. Respir. Dis.			
Antiulcer				
Bacteriostatic	Chin. J. Tuber. Respir. Dis.			
Diuretic 0.1 ml/rat				
Fungicide				
Herbicide IC ₅₀ =200 mM	Lydon, J. & Duke, S., The potential of pesticides from plants, pp. 1-41 in Craker, L. & Simon, J., eds, Herbs, Spices & Medicinal Plants: Recent Advances in Botany, Horticulture, & Pharmacology, v. 4, Oryx Press, Phoenix, 1989, 267pp.			
Herbicide IC ₅₀ =22 μM	Keeler, R.F. and Tu, A.T. eds. 1991. Toxicology of Plant and Fungal Compounds. (Handbook of Natural Toxins Vol. 6) Marcel Dekker, Inc. NY. 665 pp.			
Insectifuge				
Irritant	Newall, C. A., Anderson, L. A. and Phillipson, J. D. 1996. Herbal Medicine - A Guide for Health-care Professionals. The Pharmaceutical Press, London. 296pp.			
Nematicide MLC=1 mg/ml	Shoyakugaku Zasshi, 44: 183.			
Pesticide				
Renoirritant	Newall, C. A., Anderson, L. A. and Phillipson, J. D. 1996. Herbal Medicine - A Guide for Health-care Professionals. The Pharmaceutical Press, London. 296pp.			
Spermicide ED ₁₀₀ =0.015				
Vulnerary	Lawrence Review of Natural Products, Jan-91.			

TERPINEN-4-OL	Resin Essent. Oil	--	2000.0	Abdel Wahab, S. M., Aboutabl, E. A., El-Zalabani, S. M., Fouad, H. A., De Pooter, H. L., El-Fallaha, B. 1987. The Essential Oil of Olibanum. <i>Plant Med.</i> 53 (4): 382-384.
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Activities (23)

Allelopathic	Wright,C.W.(Ed)2002.Medicinal&Aromatic Plants-Industrial Profiles.Artemisia.344pp.Maffei,M.(Ed)2002.Vetiveria.The Genus Vetiveria.Taylor&Francis.NY,NY.191pp.Southwell,I.,Lowe,R.(Eds)1999.Tea Tree.The Genus Melaleuca.Harwood Acad.Pub.Amsterdam,Netherlands.
Antiacetylcholinesterase IC21-24=1.2 mM	
Antiacne	
Antiallergic	
Antiasthmatic	Chin. J. Tuber. Respir. Dis., 4:203, 1982.
Antibacterial	
Antioxidant	
Antiseptic	Flav. & Frag. J. 9: 129.
Antispasmodic	
Antitussive	Chin. J. Tuber. Respir. Dis.
Antiulcer	
Bacteriostatic	Chin. J. Tuber. Respir. Dis.
Diuretic 0.1 ml/rat	
Fungicide	
Herbicide IC50=200 mM	Lydon, J. & Duke, S., The potential of pesticides from plants, pp. 1-41 in Craker, L. & Simon, J., eds, Herbs, Spices & Medicinal Plants: Recent Advances in Botany, Horticulture, & Pharmacology, v. 4, Oryx Press, Phoenix, 1989, 267pp.
Herbicide IC50=22 uM	Keeler, R.F. and Tu, A.T. eds. 1991. Toxicology of Plant and Fungal Compounds. (Handbook of Natural Toxins Vol. 6) Marcel Dekker, Inc. NY. 665 pp.
Insectifuge	
Irritant	Newall, C. A., Anderson, L. A. and Phillipson, J. D. 1996. Herbal Medicine - A Guide for Health-care Professionals. The Pharmaceutical Press, London. 296pp.
Nematicide MLC=1 mg/ml	Shoyakugaku Zasshi, 44: 183.
Pesticide	
Renoirritant	Newall, C. A., Anderson, L. A. and Phillipson, J. D. 1996. Herbal Medicine - A Guide for Health-care Professionals. The Pharmaceutical Press, London. 296pp.
Spermicide ED100=0.015	
Vulnerary	Lawrence Review of Natural Products, Jan-91.

TERPINOLENE	Resin -- 1000.0	Abdel Wahab, S. M., Aboutabl, E. A., El-Zalabani, S. M., Fouad, H. A., De Pooter, H. L., El-Fallaha, B. 1987. The Essential Oil of Olibanum. Plant Med. 53 (4): 382-384.
	Essent.	
	Oil	

Activities (9)

Allelochemic	
Antifeedant	
Antinitrosaminic	
Antioxidant	
Deodorant	Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.
FLavor FEMA 15-60	Aloe Research Council - Duke writeup of non-peer reviewd book by Coats and draft by Henry
Fungicide	Keeler, R.F. and Tu, A.T. eds. 1991. Toxicology of Plant and Fungal Compounds. (Handbook of Natural Toxins Vol. 6) Marcel Dekker, Inc. NY. 665 pp.
Perfumery	Aloe Research Council - Duke writeup of non-peer reviewd book by Coats and draft by Henry
Pesticide	

TERPINOLENE	Essential -- --	Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
	Oil	

Activities (9)

Allelochemic	
Antifeedant	
Antinitrosaminic	
Antioxidant	
Deodorant	Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.
FLavor FEMA 15-60	Aloe Research Council - Duke writeup of non-peer reviewd book by Coats and draft by Henry
Fungicide	Keeler, R.F. and Tu, A.T. eds. 1991. Toxicology of Plant and Fungal Compounds. (Handbook of Natural Toxins Vol. 6) Marcel Dekker, Inc. NY. 665 pp.
Perfumery	Aloe Research Council - Duke writeup of non-peer reviewd book by Coats and draft by Henry
Pesticide	

THUJOPSENE	Essential -- --	Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
	Oil	

Activities (2)

Fumigant Jacobson, M., Glossary of Plant-Derived Insect Deterrents, CRC Press, Inc., Boca Raton, FL, 213 p, 1990.
Pesticide

TRANS-ALPHA-BERGAMOTENE	Essential Oil	--	--	Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
TRANS-BETA-OCIMENE	Resin Essent. Oil	--	13000.0	Abdel Wahab, S. M., Aboutabl, E. A., El-Zalabani, S. M., Fouad, H. A., De Pooter, H. L., El-Fallaha, B. 1987. The Essential Oil of Olibanum. Plant Med. 53 (4): 382-384.
TRANS-PINOCARVEOL	Essential Oil	--	--	Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.

Activities (2)

Antimalarial IC50=5-50 ug/ml Rukunga, G. and Simons, A. J. 2006. The Potential of Plants as a Source of Antimalarial Agents - A Review. Africa Herbal Antimalaria Meeting. PlantaPhile Publications, Berlin. 72 pp.
Antiplasmodial IC50=5-50 ug/ml Rukunga, G. and Simons, A. J. 2006. The Potential of Plants as a Source of Antimalarial Agents - A Review. Africa Herbal Antimalaria Meeting. PlantaPhile Publications, Berlin. 72 pp.

TRANS-VERBENOL	Essential Oil	--	--	Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
VERBENOL	Essential Oil	--	--	Guenther, E., The Essential Oils, 6 volumes, D. van Nostrand, New York, 1948-1952.
VERBENONE	Essential Oil	--	--	Guenther, E., The Essential Oils, 6 volumes, D. van Nostrand, New York, 1948-1952.

Activities (5)

Allelochemic
Coleopterifuge
Insectifuge
Perfumery Aloe Research Council - Duke writeup of non-peer reviewd book by Coats and draft by Henry
Pesticide