

Dr. Duke's Phytochemical and Ethnobotanical Databases

Chemicals found in *Boswellia sacra*

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	(S)-1-ISOPROPYL-4,8,12-TRIMETHYLCYCLOTETRADECANE-3E,7,11E-TRIEN-1-OL	Plant				J.S. Glasby Dict.Pls Containing 2ndary Metabolite. 1991.
0	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.
0	1-OCTANOL	Resin, Exudate, Sap	3810.0	12700.0		--
0	1-OCTYL-ACETATE	Resin, Exudate, Sap	18000.0	60000.0		--
0	11-KETO-ALPHA-BOSWELLIC-ACID	Plant				J.S. Glasby Dict.Pls Containing 2ndary Metabolite. 1991.
0	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.
0	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.
0	3-ACETYL-BETA-BOSWELLIC-ACID-METHYL-ESTER	Resin, Exudate, Sap				--
0	4,23-DIHYDROROBURIC-ACID	Plant				J.S. Glasby Dict.Pls Containing 2ndary Metabolite. 1991.
0	4-O-METHYL-GLUCURONIC-ACID	Latex Exudate				--
0	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.
4	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 Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	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.
5	ACETYL-BETA-BOSWELLIC-ACID	Resin, Exudate, Sap		4333.0		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.
5	ACETYL-BETA-BOSWELLIC-ACID	Plant				J.S. Glasby Dict.Pls Containing 2ndary Metabolite. 1991.
0	ALLO-AROMADENDRENE	Essential Oil				Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
10	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.
10	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.
0	ALPHA-CALACORENE	Essential Oil				Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
0	ALPHA-COPAENE	Essential Oil				Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
0	ALPHA-CUBEBENE	Essential Oil				Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
0	ALPHA-GUAIENE	Essential Oil				Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
0	ALPHA-GURJUNENE	Essential Oil				Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
2	ALPHA-HUMULENE	Essential Oil				Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
0	ALPHA-MUUROLENE	Essential Oil				Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
0	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. J. Essent. Oil Res. 3 (3):185-186.
11	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. J. Essent. Oil Res. 3 (3):185-186.
11	ALPHA-PHELLANDRENE	Essential Oil		24000.0	-0.1285055418541296	--
28	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> . Plant Med. 53 (4): 382-384.
28	ALPHA-PINENE	Resin, Exudate, Sap	1050.0	71600.0	-1.0059071766104755	--
28	ALPHA-PINENE	Essential Oil		410000.0	3.047713203652598	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. Yaowu Fenxi Zazhi 13 3: 170-173.
3	ALPHA-SELINENE	Essential Oil				Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
13	ALPHA-TERPINENE	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 <i>Olibanum</i> . Plant Med. 53 (4): 382-384.

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
23	ALPHA-TERPINEOL	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.
23	ALPHA-TERPINEOL	Essential Oil		29000.0	0.5112270450486063	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. Yaowu Fenxi Zazhi 13 3: 170-173.
0	ALPHA-TERPINYL-ACETATE	Essential Oil				Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
0	ALPHA-THUJENE	Essential Oil				Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
0	ALPHA-THUJENE	Resin, Exudate, Sap		192300.0	1.0	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.
0	ALPHA-YLANGENE	Essential Oil				Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
7	ANISALDEHYDE	Essential Oil				Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
0	ARABIN	Resin, Exudate, Sap				--
0	ARABINOSE	Latex Exudate				Leung, A.Y., Encyclopedia of Common Natural Ingredients Used in Food, Drugs, and Cosmetics, John Wiley & Sons, New York, 1980.
3	AROMADENDRENE	Essential Oil				Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	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.
0	BETA-1-CADINENE	Essential Oil				Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
9	BETA-BOSWELLIC-ACID	Resin, Exudate, Sap		426.7	-1.0000000000000002	--
0	BETA-BOURBONENE	Resin, Exudate, Sap		10000.0		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.
0	BETA-BOURBONENE	Essential Oil				Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
0	BETA-CARYOPHYLLENE	Resin, Exudate, Sap		49100.0		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.
0	BETA-CARYOPHYLLENE	Essential Oil				--
0	BETA-COPAENE	Essential Oil				Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
5	BETA-ELEMENE	Essential Oil				Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
0	BETA-GUAIENE	Essential Oil				Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
0	BETA-HUMULENE	Essential Oil				Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
3	BETA-PHELLANDRENE	Essential Oil				Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
13	BETA-PINENE	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.
3	BETA-SELINENE	Essential Oil				Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
0	BETA-YLANGENE	Essential Oil				Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
35	BORNEOL	Essential Oil				Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
0	BORNEOL-ACETATE	Resin Essent. Oil		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.
4	CADINENE	Essential Oil				Guenther, E., The Essential Oils, 6 volumes, D. van Nostrand, New York, 1948-1952.
0	CALAMENENE	Essential Oil				Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
9	CAMPHENE	Resin Essent. Oil		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.
19	CARVONE	Essential Oil				Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
31	CARYOPHYLLENE	Essential Oil				--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
8	CARYOPHYLLENE-OXIDE	Resin, Exudate, Sap		32900.0		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.
0	CEMBRENE	Resin Essent. Oil		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 <i>Olibanum</i> . Plant Med. 53 (4): 382-384.
0	CIS-BETA-OCIMENE	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 <i>Olibanum</i> . Plant Med. 53 (4): 382-384.
0	CITRONELLOL-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 <i>Olibanum</i> . Plant Med. 53 (4): 382-384.
4	D-BORNEOL	Essential Oil				Guenther, E., The Essential Oils, 6 volumes, D. van Nostrand, New York, 1948-1952.
0	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 <i>Olibanum</i> . Plant Med. 53 (4): 382-384.
0	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 <i>Olibanum</i> . Plant Med. 53 (4): 382-384.
9	DELTA-CADINENE	Essential Oil				Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	DELTA-ELEMENE	Essential Oil				Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
0	DELTA-GUAIENE	Essential Oil				Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
7	DIPENTENE	Essential Oil		3925.0		Guenther, E., The Essential Oils, 6 volumes, D. van Nostrand, New York, 1948-1952.
0	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.
1	ETHYL-LAURATE	Essential Oil				Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
0	FARNESANE	Essential Oil				Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
2	FARNESENE	Essential Oil				Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
17	FARNESOL	Essential Oil				Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
1	GALACTOSE	Latex Exudate				Leung, A.Y., Encyclopedia of Common Natural Ingredients Used in Food, Drugs, and Cosmetics, John Wiley & Sons, New York, 1980.
0	GAMMA-CADINENE	Essential Oil				Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
0	GAMMA-MUUROLENE	Essential Oil				Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
11	GAMMA-TERPINENE	Essential Oil				Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
11	GAMMA-TERPINENE	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.
0	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.
0	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.
0	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.
0	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.
0	HOMOMYRCENE	Essential Oil				Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
0	INCENSOLE	Essential Oil				Leung, A.Y., Encyclopedia of Common Natural Ingredients Used in Food, Drugs, and Cosmetics, John Wiley & Sons, New York, 1980.
0	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.
0	INCENSOLE	Resin, Exudate, Sap	810.0	2700.0		--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
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.
0	INCENSOLE-OXIDE	Resin, Exudate, Sap				--
0	INCENSOLE-OXIDE	Essential Oil				Leung, A.Y., Encyclopedia of Common Natural Ingredients Used in Food, Drugs, and Cosmetics, John Wiley & Sons, New York, 1980.
0	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.
0	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.
0	ISOINCENSOLE	Essential Oil				Leung, A.Y., Encyclopedia of Common Natural Ingredients Used in Food, Drugs, and Cosmetics, John Wiley & Sons, New York, 1980.
0	ISOINCENSOLE-OXIDE	Essential Oil				Leung, A.Y., Encyclopedia of Common Natural Ingredients Used in Food, Drugs, and Cosmetics, John Wiley & Sons, New York, 1980.
0	ISOINCENSOLE-OXIDE	Resin, Exudate, Sap				Forcellese, M. L., Nicoletti, R., Petrossi, U. 1972. The Structure of Isoincensole-Oxide. Tetrahedron 28: 325-.
0	L-ALPHA-PINENE	Essential Oil				Guenther, E., The Essential Oils, 6 volumes, D. van Nostrand, New York, 1948-1952.
60	LIMONENE	Resin, Exudate, Sap		78200.0		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.

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
60	LIMONENE	Resin Essent. Oil		1.7		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.
60	LIMONENE	Essential Oil		128000.0	-3.1356999051470447E-4	--
53	LINALOOL	Resin Essent. Oil		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.
3	MUCILAGE	Resin, Exudate, Sap	120000.0	200000.0		--
3	MUCILAGE	Latex Exudate		120000.0		--
22	MYRCENE	Essential Oil		36000.0	0.02796719068873602	--
22	MYRCENE	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.
0	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.
0	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 <i>B. serrata</i> , <i>B. carterii</i> , and <i>B. papyrifera</i> . J. Chromatogr. Sci. 27 3: 127-133.
0	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.

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	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.
0	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.
0	OCTANOL	Essential Oil				Leung, A.Y., Encyclopedia of Common Natural Ingredients Used in Food, Drugs, and Cosmetics, John Wiley & Sons, New York, 1980.
0	OCTYL-ACETATE	Essential Oil				Leung, A.Y., Encyclopedia of Common Natural Ingredients Used in Food, Drugs, and Cosmetics, John Wiley & Sons, New York, 1980.
16	P-CYMENE	Essential Oil	3925.0	87000.0	0.08487859835357342	--
16	P-CYMENE	Resin Essent. Oil		0.5		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.
16	P-CYMENE	Resin, Exudate, Sap		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.
0	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.
0	P-MENTHA-1,5-DIEN-7-OL	Essential Oil				Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
4	PHELLANDRENE	Essential Oil				Guenther, E., The Essential Oils, 6 volumes, D. van Nostrand, New York, 1948-1952.

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	RESIN	Latex Exudate	600000.0	700000.0	0.898643077437173	Leung, A.Y., Encyclopedia of Common Natural Ingredients Used in Food, Drugs, and Cosmetics, John Wiley & Sons, New York, 1980.
5	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.
5	SABINENE	Resin, Exudate, Sap		94400.0		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.
5	SABINENE	Essential Oil				Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
0	SELINA-4,11-DIENE	Essential Oil				Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
0	SELINA-5,7(11)-DIENE	Resin, Exudate, Sap				Maupetit, P. 1985. New Constituents in Olibanum Resinoid and Essential Oil. Parfum Flavor 9 6: 19-37.
0	TERPENES	Essential Oil		785000.0		Guenther, E., The Essential Oils, 6 volumes, D. van Nostrand, New York, 1948-1952.
23	TERPINEN-4-OL	Essential Oil				Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
23	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. Plant Med. 53 (4): 382-384.

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
9	TERPINOLENE	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.
9	TERPINOLENE	Essential Oil				Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
2	THUJOPSENE	Essential Oil				Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
0	TRANS-ALPHA-BERGAMOTENE	Essential Oil				Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
0	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.
2	TRANS-PINOCARVEOL	Essential Oil				Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
0	TRANS-VERBENOL	Essential Oil				Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
0	VERBENOL	Essential Oil				Guenther, E., The Essential Oils, 6 volumes, D. van Nostrand, New York, 1948-1952.
5	VERBENONE	Essential Oil				Guenther, E., The Essential Oils, 6 volumes, D. van Nostrand, New York, 1948-1952.