

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	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.
3	MUCILAGE	Resin, Exudate, Sap	120000.0	200000.0		--
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	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.
0	1-OCTYL-ACETATE	Resin, Exudate, Sap	18000.0	60000.0		--
16	P-CYMENE	Essential Oil	3925.0	87000.0	0.08487859835357342	--
0	1-OCTANOL	Resin, Exudate, Sap	3810.0	12700.0		--
28	ALPHA-PINENE	Resin, Exudate, Sap	1050.0	71600.0	-1.0059071766104755	--
0	INCENSOLE	Resin, Exudate, Sap	810.0	2700.0		--
0	FARNESANE	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	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.
0	INCENSOLE-OXIDE	Resin, Exudate, Sap				--
0	(S)-1-ISOPROPYL-4,8,12-TRIMETHYLCYCLOTETRADECAN-3E,7,11E-TRIEN-1-OL	Plant				J.S. Glasby Dict.Pls Containing 2ndary Metabolite. 1991.

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
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.
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	TRANS-VERBENOL	Essential Oil				Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
3	BETA-SELINENE	Essential Oil				Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
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.
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.
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	ARABINOSE	Latex Exudate				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.

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	ALPHA-CUBEBENE	Essential Oil				Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
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 Olibanum. Plant Med. 53 (4): 382-384.
0	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.
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.
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 Olibanum. Plant Med. 53 (4): 382-384.
4	PHELLANDRENE	Essential Oil				Guenther, E., The Essential Oils, 6 volumes, D. van Nostrand, New York, 1948-1952.
3	BETA-PHELLANDRENE	Essential Oil				Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
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.
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.

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
7	ANISALDEHYDE	Essential Oil				Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
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.
0	ALPHA-COPAENE	Essential Oil				Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
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 Olibanum. Plant Med. 53 (4): 382-384.
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.
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.
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 Olibanum. Plant Med. 53 (4): 382-384.
0	P-MENTHA-1,5-DIEN-7-OL	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.

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
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. <i>J. Essent. Oil Res.</i> 3 (3):185-186.
0	INCENSOLE	Essential Oil				Leung, A.Y., <i>Encyclopedia of Common Natural Ingredients Used in Food, Drugs, and Cosmetics</i> , John Wiley & Sons, New York, 1980.
0	ALPHA-YLANGENE	Essential Oil				Lawrence, B.M., <i>Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.</i>
60	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.
7	DIPENTENE	Essential Oil		3925.0		Guenther, E., <i>The Essential Oils</i> , 6 volumes, D. van Nostrand, New York, 1948-1952.
0	ALPHA-CALACORENE	Essential Oil				Lawrence, B.M., <i>Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.</i>
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-Falhaha, B. 1987. The Essential Oil of <i>Olibanum</i> . <i>Plant Med.</i> 53 (4): 382-384.
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). <i>Arch. Pharm. Res.</i> 8 4: 213-220.
0	P-MENTHA-1,4-DIEN-8-OL	Resin, Exudate, Sap				Maupetit, P. 1985. New Constituents in <i>Olibanum Resinoid</i> and Essential Oil. <i>Perfum Flavor</i> 9 6: 19-37.

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	BETA-GUAIENE	Essential Oil				Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
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	HOMOMYRCENE	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.
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.
0	DELTA-GUAIENE	Essential Oil				Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
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	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 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-ALPHA-BERGAMOTENE	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
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.
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.
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.
5	BETA-ELEMENE	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.
0	ALPHA-TERPINYL-ACETATE	Essential Oil				Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
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	DELTA-ELEMENE	Essential Oil				Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
0	ALLO-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
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.
60	LIMONENE	Essential Oil		128000.0	-3.1356999051470447E-4	--
2	THUJOPSENE	Essential Oil				Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
16	P-CYMENE	Resin, Exudate, Sap		35300.0	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	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.
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	BETA-COPAENE	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	GAMMA-MUUROLENE	Essential Oil				Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
3	ALPHA-SELINENE	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	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.
5	ACETYL-BETA-BOSWELLIC-ACID	Plant				J.S. Glasby Dict.Pls Containing 2ndary Metabolite. 1991.
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.
31	CARYOPHYLLENE	Essential Oil				--
9	TERPINOLENE	Essential Oil				Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
9	DELTA-CADINENE	Essential Oil				Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
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.
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.
22	MYRCENE	Essential Oil		36000.0	0.02796719068873602	--
0	BETA-BOURBONENE	Essential Oil				Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
0	GAMMA-CADINENE	Essential Oil				Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
11	ALPHA-PHELLANDRENE	Essential Oil		24000.0	-0.1285055418541296	--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
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.
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	4-O-METHYL-GLUCURONIC-ACID	Latex Exudate				--
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.
19	CARVONE	Essential Oil				Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
23	TERPINEN-4-OL	Essential Oil				Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
4	D-BORNEOL	Essential Oil				Guenther, E., The Essential Oils, 6 volumes, D. van Nostrand, New York, 1948-1952.
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	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	MUCILAGE	Latex Exudate		120000.0		--
9	BETA-BOSWELLIC-ACID	Resin, Exudate, Sap		426.7	-1.0000000000000002	--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
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	ALPHA-MUUROLENE	Essential Oil				Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
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	ALPHA-MUUROLENE	Resin, Exudate, Sap		66800.0		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	4,23-DIHYDROROBURIC-ACID	Plant				J.S. Glasby Dict.Pls Containing 2ndary Metabolite. 1991.
0	ARABIN	Resin, Exudate, Sap				--
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.
35	BORNEOL	Essential Oil				Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
0	TERPENES	Essential Oil		785000.0		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.

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
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.
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	L-ALPHA-PINENE	Essential Oil				Guenther, E., The Essential Oils, 6 volumes, D. van Nostrand, New York, 1948-1952.
0	BETA-1-CADINENE	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.
2	ALPHA-HUMULENE	Essential Oil				Lawrence, B.M., Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.
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	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.
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				--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
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. <i>J. Essent. Oil Res.</i> 3 (3):185-186.
5	VERBENONE	Essential Oil				Guenther, E., <i>The Essential Oils</i> , 6 volumes, D. van Nostrand, New York, 1948-1952.
0	SELINA-4,11-DIENE	Essential Oil				Lawrence, B.M., <i>Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.</i>
4	CADINENE	Essential Oil				Guenther, E., <i>The Essential Oils</i> , 6 volumes, D. van Nostrand, New York, 1948-1952.
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> . <i>J. Chromatogr. Sci.</i> 27 3: 127-133.
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 <i>Olibanum</i> . <i>Plant Med.</i> 53 (4): 382-384.
0	ISOINCENSOLE-OXIDE	Essential Oil				Leung, A.Y., <i>Encyclopedia of Common Natural Ingredients Used in Food, Drugs, and Cosmetics</i> , John Wiley & Sons, New York, 1980.
2	FARNESENE	Essential Oil				Lawrence, B.M., <i>Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.</i>
0	ALPHA-GURJUNENE	Essential Oil				Lawrence, B.M., <i>Essential Oils 1976-1977, Essential Oils 1978, Essential Oils 1979-1980.</i>

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
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	ISOINCENSOLE-OXIDE	Resin, Exudate, Sap				Forcellese, M. L., Nicoletti, R., Petrossi, U. 1972. The Structure of Isoincensole-Oxide. Tetrahedron 28: 325-.
0	11-KETO-ALPHA-BOSWELLIC-ACID	Plant				J.S. Glasby Dict.Pls Containing 2ndary Metabolite. 1991.
0	BETA-CARYOPHYLLENE	Essential Oil				--
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.
0	VERBENOL	Essential Oil				Guenther, E., The Essential Oils, 6 volumes, D. van Nostrand, New York, 1948-1952.
5	SABINENE	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.
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	ISOINCENSOLE	Essential Oil				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.