

Dr. Duke's Phytochemical and Ethnobotanical Database

Chemicals Found in *Perilla frutescens*

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
1	3',4',5,7-TETRAHYDROXYFLAVONE	Plant	--	--		
1	3,4-DIHYDROXYBENZOATE	Plant	--	--		
1	6,7-DIHYDROXYCOUMARIN	Plant	--	--		
2	ALPHA-HUMULENE	Shoot Essent. Oil	--	13000	1.096855435330446	Nguyen, X. D., La, D. M., Lu'u, D. C., Leclercq, P. A. 1995. Essential Oil Constituents from the Aerial Parts of <i>Perilla frutescens</i> (L.) Britton. <i>J. Essent. Oil Res.</i> , 7(4): 429-432.
11	ALPHA-PHELLANDRENE	Shoot Essent. Oil	--	--		Nguyen, X. D., La, D. M., Lu'u, D. C., Leclercq, P. A. 1995. Essential Oil Constituents from the Aerial Parts of <i>Perilla frutescens</i> (L.) Britton. <i>J. Essent. Oil Res.</i> , 7(4): 429-432.
28	ALPHA-PINENE	Shoot Essent. Oil	--	7000	-0.48009873288752886	Nguyen, X. D., La, D. M., Lu'u, D. C., Leclercq, P. A. 1995. Essential Oil Constituents from the Aerial Parts of <i>Perilla frutescens</i> (L.) Britton. <i>J. Essent. Oil Res.</i> , 7(4): 429-432.
28	ALPHA-PINENE	Plant	--	--		J.S. Glasby <i>Dict.Pls Containing 2ndary Metabolite</i> . 1991.
8	AMYGDALIN	Leaf	--	--		Jeffery B. Harborne and H. Baxter, eds. 1983. <i>Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants</i> . Taylor & Frost, London. 791 pp.
30	ANTHOCYANINS	Leaf	--	--		Koezuka, Y., Honda, G., Sakamoto, S., Tabata, M. 1985. Genetic Control of Anthocyanin Production in <i>Perilla frutescens</i> . <i>Shoyakugaku Zasshi</i> , 39(3): 228-231.

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
101	APIGENIN	Seed	--	--		CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
3	AROMADENDRENE	Leaf Essent. Oil	--	3000	-0.7151266946995278	Kang, R., Helms, R., Stout, M.J., Jaber, H., Chen, Z., and Nakatsu, T. 1992. Antimicrobial Activity of the Volatile Constituents of <i>Perilla frutescens</i> and Its Synergistic Effects with Polygodial. <i>J. Agric. Food Chem.</i> , 40: 2328-2330.
112	ASCORBIC-ACID	Leaf	460	3286	-0.13902116919471427	CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
112	ASCORBIC-ACID	Seed	--	200	-0.21838688378037904	CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
112	ASCORBIC-ACID	Flower	--	--		Lamparska, K. 1966. Studies on Vitamin C Dynamics in <i>Perilla ocymoides</i> and in <i>Calendula officinalis</i> Grown in Short and Long Day Conditions. <i>Zesz Nauk Uniw Mikolaja Kopernika Toruniu Biol</i> , 8: 69-.
24	BENZALDEHYDE	Leaf Essent. Oil	--	16000	0.718924077170524	Kang, R., Helms, R., Stout, M.J., Jaber, H., Chen, Z., and Nakatsu, T. 1992. Antimicrobial Activity of the Volatile Constituents of <i>Perilla frutescens</i> and Its Synergistic Effects with Polygodial. <i>J. Agric. Food Chem.</i> , 40: 2328-2330.
24	BENZALDEHYDE	Shoot Essent. Oil	--	--		Nguyen, X. D., La, D. M., Lu'u, D. C., Leclercq, P. A. 1995. Essential Oil Constituents from the Aerial Parts of <i>Perilla frutescens</i> (L.) Britton. <i>J. Essent. Oil Res.</i> , 7(4): 429-432.
53	BETA-CAROTENE	Leaf	44	313	0.22515910945857653	CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
53	BETA-CAROTENE	Seed	7	66	3.696302803889577	CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
5	BETA-ELEMENE	Shoot Essent. Oil	--	4000	-0.6678588061133466	Nguyen, X. D., La, D. M., Lu'u, D. C., Leclercq, P. A. 1995. Essential Oil Constituents from the Aerial Parts of <i>Perilla frutescens</i> (L.) Britton. <i>J. Essent. Oil Res.</i> , 7(4): 429-432.
13	BETA-PINENE	Shoot Essent. Oil	--	8000	0.7175248073400797	Nguyen, X. D., La, D. M., Lu'u, D. C., Leclercq, P. A. 1995. Essential Oil Constituents from the Aerial Parts of <i>Perilla frutescens</i> (L.) Britton. <i>J. Essent. Oil Res.</i> , 7(4): 429-432.
13	BETA-PINENE	Leaf Essent. Oil	--	6000	-0.7343330725461312	Kang, R., Helms, R., Stout, M.J., Jaber, H., Chen, Z., and Nakatsu, T. 1992. Antimicrobial Activity of the Volatile Constituents of <i>Perilla frutescens</i> and Its Synergistic Effects with Polygodial. <i>J. Agric. Food Chem.</i> , 40: 2328-2330.
47	BETA-SITOSTEROL	Seed	--	--		Endo, S., Ishizaki, T., Kimata, M. 1993. Fatty Acid and Sterol Compositions in the Seeds of <i>Perilla frutescens</i> and <i>Linum Usitatissimum</i> . <i>Takyo Gakugei Daigaku Kiyo Dai-4-Bumon</i> , 45: 27-32.
47	BETA-SITOSTEROL	Plant	--	--		Han, J. S. 1978. A Study on Sterol in <i>Perilla frutescens</i> . <i>Yongnam Taehakkyo Nonmumjip Chayon Kwahak Pyon</i> , 11: 211-215.
47	BETA-SITOSTEROL	Shoot	--	--		Manandhar, M. D. 1981. Constituents of <i>Perilla ocimoides</i> Linn. <i>J. Nep. Chem. Soc.</i> , 1(1): 18-20.
102	CAFFEIC-ACID	Plant	--	--		J.S. Glasby <i>Dict.Pls Containing 2ndary Metabolite</i> . 1991.
28	CALCIUM	Plant	12670	12670	-0.09834434415922177	Suziki, A., Morimoto, I., and Okitsu, T., Elution of Metals from Crude Drugs, <i>Shoykugaku Zasshi</i> 36(3):190-195.
28	CALCIUM	Seed	1400	3500	-0.11871991446123692	CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
28	CALCIUM	Leaf	1970	14071	-0.29833084281945965	CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
2	CAMPESTEROL	Plant	--	--		Han, J. S. 1978. A Study on Sterol in Perilla frutescens. Yongnam Taehakkyo Nonmumjip Chayon Kwahak Pyon, 11: 211-215.
9	CAMPHENE	Shoot Essent. Oil	--	2000	-0.7130808318988705	Nguyen, X. D., La, D. M., Lu'u, D. C., Leclercq, P. A. 1995. Essential Oil Constituents from the Aerial Parts of Perilla frutescens (L.) Britton. J. Essent. Oil Res., 7(4): 429-432.
19	CARVONE	Shoot Essent. Oil	--	11000	-0.7470311717738904	Nguyen, X. D., La, D. M., Lu'u, D. C., Leclercq, P. A. 1995. Essential Oil Constituents from the Aerial Parts of Perilla frutescens (L.) Britton. J. Essent. Oil Res., 7(4): 429-432.
8	CARYOPHYLLENE-OXIDE	Shoot Essent. Oil	--	21000		Nguyen, X. D., La, D. M., Lu'u, D. C., Leclercq, P. A. 1995. Essential Oil Constituents from the Aerial Parts of Perilla frutescens (L.) Britton. J. Essent. Oil Res., 7(4): 429-432.
53	CITRAL	Plant	--	--		Chemical Constituents of Oriental Herbs (3 diff. books)
53	CITRAL	Essential Oil	--	200000	-0.0890530595558191	
12	COPPER	Plant	17	17	0.33037825900684764	Suziki, A., Morimoto, I., and Okitsu, T., Elution of Metals from Crude Drugs, Shoykugaku Zasshi 36(3):190-195.
9	DELPHINIDIN	Leaf	--	--		ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes.

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
9	DELTA-CADINENE	Shoot Essent. Oil	--	8000	-1	Nguyen, X. D., La, D. M., Lu'u, D. C., Leclercq, P. A. 1995. Essential Oil Constituents from the Aerial Parts of <i>Perilla frutescens</i> (L.) Britton. <i>J. Essent. Oil Res.</i> , 7(4): 429-432.
6	DILLAPIOL	Leaf	2200	3400		<i>Phytochemistry</i> , 25: 2085.
16	ELEMICIN	Leaf	2500	3200	1.7086208067564062	<i>Phytochemistry</i> , 25: 2085.
12	ESTRAGOLE	Essential Oil	--	--		Hoang Van Phiet, Hoang Thanh Huong. 1978. Chemical Composition of the Essential Oil of <i>Perilla ocymoides</i> L. <i>Tap San Hoa Hoc</i> 16(2): 24-28.
8	ESTRONE	Sprout Seedling	--	--		Kopcewicz, J. 1972. Estrogens in the Short-Day Plants <i>Perilla ocimoides</i> and <i>Chenopodium rubrum</i> Grown Under Inductive and Non-Inductive Light Conditions. <i>Z. Pflanzenphysiol</i> , 67(4): 373-376.
2	FARNESENE	Leaf Essent. Oil	--	1000		Kang, R., Helms, R., Stout, M.J., Jaber, H., Chen, Z., and Nakatsu, T. 1992. Antimicrobial Activity of the Volatile Constituents of <i>Perilla frutescens</i> and Its Synergistic Effects with Polygodial. <i>J. Agric. Food Chem.</i> , 40: 2328-2330.
15	FIBER	Leaf	15000	15000	-1.8120723253222295	CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
15	FIBER	Seed	37000	280000	1.1466912185840736	CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
13	GERANIAL	Leaf Essent. Oil	--	--		Honda, G., Yuba, A., Nishizawa, A., Tabata, M. 1994. Genetic Control of Geranial Formation in <i>Perilla frutescens</i> . <i>Biochem. Genet</i> , 32(5/6): 155-160.

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
2	GERMACRENE-D	Shoot Essent. Oil	--	58000	0.11262888752353756	Nguyen, X. D., La, D. M., Lu'u, D. C., Leclercq, P. A. 1995. Essential Oil Constituents from the Aerial Parts of <i>Perilla frutescens</i> (L.) Britton. <i>J. Essent. Oil Res.</i> , 7(4): 429-432.
7	GLUCOSE	Leaf	--	--		ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes.
6	IRON	Leaf	67	479	0.2935611332946958	CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
6	IRON	Plant	460	460	-0.19659048716406988	Suzuki, A., Morimoto, I., and Okitsu, T., Elution of Metals from Crude Drugs, <i>Shoykugaku Zasshi</i> 36(3):190-195.
6	IRON	Seed	13	135	-0.07337959709340161	CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
16	ISOEUGENOL	Leaf Essent. Oil	--	2500		Kang, R., Helms, R., Stout, M.J., Jaber, H., Chen, Z., and Nakatsu, T. 1992. Antimicrobial Activity of the Volatile Constituents of <i>Perilla frutescens</i> and Its Synergistic Effects with Polygodial. <i>J. Agric. Food Chem.</i> , 40: 2328-2330.
60	LIMONENE	Plant	--	--		
60	LIMONENE	Leaf Essent. Oil	--	128000	-0.11241708734618	Kang, R., Helms, R., Stout, M.J., Jaber, H., Chen, Z., and Nakatsu, T. 1992. Antimicrobial Activity of the Volatile Constituents of <i>Perilla frutescens</i> and Its Synergistic Effects with Polygodial. <i>J. Agric. Food Chem.</i> , 40: 2328-2330.
60	LIMONENE	Shoot Essent. Oil	--	284000	2.030292143160805	Nguyen, X. D., La, D. M., Lu'u, D. C., Leclercq, P. A. 1995. Essential Oil Constituents from the Aerial Parts of <i>Perilla frutescens</i> (L.) Britton. <i>J. Essent. Oil Res.</i> , 7(4): 429-432.

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
4	LIMONENE-OXIDE	Leaf Essent. Oil	--	1000		Kang, R., Helms, R., Stout, M.J., Jaber, H., Chen, Z., and Nakatsu, T. 1992. Antimicrobial Activity of the Volatile Constituents of <i>Perilla frutescens</i> and Its Synergistic Effects with Polygodial. <i>J. Agric. Food Chem.</i> , 40: 2328-2330.
53	LINALOOL	Leaf Essent. Oil	--	26000	-0.5312142938477685	Kang, R., Helms, R., Stout, M.J., Jaber, H., Chen, Z., and Nakatsu, T. 1992. Antimicrobial Activity of the Volatile Constituents of <i>Perilla frutescens</i> and Its Synergistic Effects with Polygodial. <i>J. Agric. Food Chem.</i> , 40: 2328-2330.
53	LINALOOL	Shoot Essent. Oil	--	35000	-1.3522910858907715	Nguyen, X. D., La, D. M., Lu'u, D. C., Leclercq, P. A. 1995. Essential Oil Constituents from the Aerial Parts of <i>Perilla frutescens</i> (L.) Britton. <i>J. Essent. Oil Res.</i> , 7(4): 429-432.
53	LINALOOL	Plant	--	--		Kang, R., Helms, R., Stout, M.J., Jaber, H., Chen, Z., and Nakatsu, T. 1992. Antimicrobial Activity of the Volatile Constituents of <i>Perilla frutescens</i> and Its Synergistic Effects with Polygodial. <i>J. Agric. Food Chem.</i> , 40: 2328-2330.
27	LINOLEIC-ACID	Seed Oil	--	176000	-0.8459319745212549	Longyah, T., Deosthale, Y. G. 1991. Chemical and Nutritional Studies on Hanshi (<i>Perilla frutescens</i>), a Traditional Oilseed from Northeast India. <i>J. Amer. Oil Chem. Soc.</i> , 68(10): 781-784.
27	LINOLEIC-ACID	Seed	--	--		Endo, S., Ishizaki, T., Kimata, M. 1993. Fatty Acid and Sterol Compositions in the Seeds of <i>Perilla frutescens</i> and <i>Linum Usitatissimum</i> . <i>Takyo Gakugei Daigaku Kiyō Dai-4-Bumon</i> , 45: 27-32.
78	LUTEOLIN	Leaf	--	--		Abstract (See species file)

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
78	LUTEOLIN	Seed	--	--		CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
65	MAGNESIUM	Plant	3830	3830	-0.0733534208991365	Suziki, A., Morimoto, I., and Okitsu, T., Elution of Metals from Crude Drugs, Shoykugaku Zasshi 36(3):190-195.
14	MANGANESE	Plant	180	180	0.595188569647348	Suziki, A., Morimoto, I., and Okitsu, T., Elution of Metals from Crude Drugs, Shoykugaku Zasshi 36(3):190-195.
1	METHYL-3,4-DIHYDROXYBENZOATE	Plant	--	--		
1	METHYL-CAFFEATE	Plant	--	--		
22	MYRCENE	Leaf Essent. Oil	--	--		Kang, R., Helms, R., Stout, M.J., Jaber, H., Chen, Z., and Nakatsu, T. 1992. Antimicrobial Activity of the Volatile Constituents of Perilla frutescens and Its Synergistic Effects with Polygodial. J. Agric. Food Chem., 40: 2328-2330.
22	MYRCENE	Shoot Essent. Oil	--	9000	-0.5369369886865792	Nguyen, X. D., La, D. M., Lu'u, D. C., Leclercq, P. A. 1995. Essential Oil Constituents from the Aerial Parts of Perilla frutescens (L.) Britton. J. Essent. Oil Res., 7(4): 429-432.
31	MYRISTICIN	Leaf	300	3800	1.7019136604462037	Phytochemistry, 25: 2085.
39	NIACIN	Leaf	8	57	-0.49263472226862703	CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
39	NIACIN	Seed	5	42	-0.026523101321419173	CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
2	OCIMENE	Leaf Essent. Oil	--	4500	1	Kang, R., Helms, R., Stout, M.J., Jaber, H., Chen, Z., and Nakatsu, T. 1992. Antimicrobial Activity of the Volatile Constituents of <i>Perilla frutescens</i> and Its Synergistic Effects with Polygodial. <i>J. Agric. Food Chem.</i> , 40: 2328-2330.
18	OLEIC-ACID	Seed	--	--		Endo, S., Ishizaki, T., Kimata, M. 1993. Fatty Acid and Sterol Compositions in the Seeds of <i>Perilla frutescens</i> and <i>Linum Usitatissimum</i> . <i>Takyo Gakugei Daigaku Kiyō Dai-4-Bumon</i> , 45: 27-32.
16	P-CYMENE	Shoot Essent. Oil	--	--		Nguyen, X. D., La, D. M., Lu'u, D. C., Leclercq, P. A. 1995. Essential Oil Constituents from the Aerial Parts of <i>Perilla frutescens</i> (L.) Britton. <i>J. Essent. Oil Res.</i> , 7(4): 429-432.
4	PERILLAKETONE	Inflorescence	--	--		Mathela, C. S., Shah, G. C., Melkani, A. B., Joshi, P. 1989. 3-Substituted-Furanyl Compounds of <i>Perilla ocimoides</i> . <i>J. Indian Chem. Soc.</i> , 66(3): 183-184.
4	PERILLAKETONE	Stem	--	--		Wilson, B. J. 1977. <i>Perilla</i> Ketone: A Potent Lung Toxin from the Mint Plant, <i>Perilla frutescens</i> . <i>Science</i> , 197: 573-574.
4	PERILLAKETONE	Leaf	--	--		Koezuka, Y., Honda, G., Tabata, M. 1985. An Intestinal Propulsion Promoting Substance from <i>Perilla frutescens</i> and its Mechanism of Action. <i>Plant Medica</i> , 6: 480-482.
4	PERILLAKETONE	Shoot	--	1120		Takano, I., Yasuda, I., Hamano, T., Seto, T., Akiyama, K. 1990. Determination of <i>Perilla</i> Ketone in <i>Perilla</i> Herb by Capillary Gas Chromatography/Mass Spectrometry. <i>Eisei Kagaku</i> , 36(4): 320-325.
11	PERILLALDEHYDE	Plant	400	825	-1	

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
14	PERILLYL-ALCOHOL	Leaf Essent. Oil	2600	128000		Kang, R., Helms, R., Stout, M.J., Jaber, H., Chen, Z., and Nakatsu, T. 1992. Antimicrobial Activity of the Volatile Constituents of <i>Perilla frutescens</i> and Its Synergistic Effects with Polygodial. <i>J. Agric. Food Chem.</i> , 40: 2328-2330.
4	PHOSPHORUS	Leaf	730	5214	0.044625204965614285	CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
4	PHOSPHORUS	Seed	330	5339	-0.00379302813674132	CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
1	PHYTOL	Leaf	--	--		Lee, K. I., Rhee, S. H., Park, K. Y., Kim, J. O. 1992. Antimutagenic Compounds Identified from <i>Perilla</i> Leaf. <i>Han'guk Yongyang Siklyong Hakhoe Chi</i> , 21(3): 302-307.
7	PIPERITONE	Shoot Essent. Oil	--	259000	1	Nguyen, X. D., La, D. M., Lu'u, D. C., Leclercq, P. A. 1995. Essential Oil Constituents from the Aerial Parts of <i>Perilla frutescens</i> (L.) Britton. <i>J. Essent. Oil Res.</i> , 7(4): 429-432.
14	POTASSIUM	Leaf	6500	46429	0.7102742427136326	CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
14	POTASSIUM	Plant	26100	26100	0.3000714315576286	Suzuki, A., Morimoto, I., and Okitsu, T., Elution of Metals from Crude Drugs, <i>Shoykugaku Zasshi</i> 36(3):190-195.
43	PROTOCATECHUIC-ACID	Leaf	--	--		ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes.
2	PRUNASIN	Leaf	--	--		Jeffery B. Harborne and H. Baxter, eds. 1983. <i>Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants.</i> Taylor & Frost, London. 791 pp.

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
28	PULEGONE	Leaf Essent. Oil	--	9000		Kang, R., Helms, R., Stout, M.J., Jaber, H., Chen, Z., and Nakatsu, T. 1992. Antimicrobial Activity of the Volatile Constituents of <i>Perilla frutescens</i> and Its Synergistic Effects with Polygodial. <i>J. Agric. Food Chem.</i> , 40: 2328-2330.
176	QUERCETIN	Leaf	--	--		Abstract (See species file)
15	RIBOFLAVIN	Leaf	3	23	-0.07004935403039353	CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
15	RIBOFLAVIN	Seed	1	8	1.7153626421987014	CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
57	ROSMARINIC-ACID	Stem	2900	2900	1.3699298069795482	Yakugaku Zasshi, 106: 1108.
57	ROSMARINIC-ACID	Leaf	10300	12100	0.6058460455474213	Yakugaku Zasshi, 106: 1108.
57	ROSMARINIC-ACID	Seed	2300	2300		Yakugaku Zasshi, 106: 1108.
5	SABINENE	Shoot Essent. Oil	--	--		Nguyen, X. D., La, D. M., Lu'u, D. C., Leclercq, P. A. 1995. Essential Oil Constituents from the Aerial Parts of <i>Perilla frutescens</i> (L.) Britton. <i>J. Essent. Oil Res.</i> , 7(4): 429-432.
5	SABINENE	Leaf Essent. Oil	--	4000	-0.5730180688260574	Kang, R., Helms, R., Stout, M.J., Jaber, H., Chen, Z., and Nakatsu, T. 1992. Antimicrobial Activity of the Volatile Constituents of <i>Perilla frutescens</i> and Its Synergistic Effects with Polygodial. <i>J. Agric. Food Chem.</i> , 40: 2328-2330.
14	SHIKIMIC-ACID	Plant	--	--		Phytochemistry, 25: 859.
1	SODIUM	Leaf	20	1429	-0.39348467026361145	CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
1	SODIUM	Plant	204	204	-0.29278537696213475	Suziki, A., Morimoto, I., and Okitsu, T., Elution of Metals from Crude Drugs, Shoykugaku Zasshi 36(3):190-195.
12	STIGMASTEROL	Plant	--	--		Han, J. S. 1978. A Study on Sterol in Perilla frutescens. Yongnam Taehakkyo Nonmumjip Chayon Kwahak Pyon, 11: 211-215.
9	TERPINOLENE	Leaf Essent. Oil	--	1000	-0.6903955924748107	Kang, R., Helms, R., Stout, M.J., Jaber, H., Chen, Z., and Nakatsu, T. 1992. Antimicrobial Activity of the Volatile Constituents of Perilla frutescens and Its Synergistic Effects with Polygodial. J. Agric. Food Chem., 40: 2328-2330.
31	THIAMIN	Leaf	1	5	-0.688703330240956	CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
31	THIAMIN	Seed	1	7	0.09921569102976133	CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
1	TRANS-P-MENTH-8-EN-7-YL-CAFFEATE	Plant	--	--		
1	VINYL-CAFFEATE	Plant	--	--		
77	ZINC	Plant	50	50	-0.021143645527329686	Suziki, A., Morimoto, I., and Okitsu, T., Elution of Metals from Crude Drugs, Shoykugaku Zasshi 36(3):190-195.