

Dr. Duke's Phytochemical and Ethnobotanical Databases

Chemicals found in *Allium cepa*

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	1(F)-BETA-FRUCTOSYL-SUCROSE	Bulb				Bacon, J. S. D. 1959. Trisaccharide Fraction of Some Monocotyledons. <i>Biochem. J.</i> , 73: 507-514.
1	1-(METHYLSULFINYL)-PROPYL-METHYL-DISULFIDE	Bulb				--
0	1-(PROPYL-DITHIO)-PROPANE	Essential Oil				Albrand, M., Dubois, P., Etievant, P., Gelin, R., Tokarska, B. 1980. Identification of a New Volatile Compound in Onion ( <i>Allium cepa</i> ) and Leek ( <i>Allium porum</i> ): 3,4-dimethyl-2,5-dioxo-2,5-dihydrothiophene. <i>J. Agric. Food Chem.</i> , 28(5): 1037-1038.
0	1-METHYLDITHIO-PROPANE	Essential Oil				Albrand, M., Dubois, P., Etievant, P., Gelin, R., Tokarska, B. 1980. Identification of a New Volatile Compound in Onion ( <i>Allium cepa</i> ) and Leek ( <i>Allium porum</i> ): 3,4-dimethyl-2,5-dioxo-2,5-dihydrothiophene. <i>J. Agric. Food Chem.</i> , 28(5): 1037-1038.
0	1-METHYLTRITHIO-PROPANE	Essential Oil				Albrand, M., Dubois, P., Etievant, P., Gelin, R., Tokarska, B. 1980. Identification of a New Volatile Compound in Onion ( <i>Allium cepa</i> ) and Leek ( <i>Allium porum</i> ): 3,4-dimethyl-2,5-dioxo-2,5-dihydrothiophene. <i>J. Agric. Food Chem.</i> , 28(5): 1037-1038.
0	1-O-CAFFELOYL-BETA-D-GLUCOSE	Leaf				--
0	1-O-FERULOYL-BETA-D-GLUCOSE	Leaf				--
0	1-O-P-COUMAROYL-BETA-D-GLUCOSE	Leaf				--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	1-PROPYLTRITHIO-PROPANE	Essential Oil				Albrand, M., Dubois, P., Etievant, P., Gelin, R., Tokarska, B. 1980. Identification of a New Volatile Compound in Onion ( <i>Allium cepa</i> ) and Leek ( <i>Allium porum</i> ): 3,4-dimethyl-2,5-dioxo-2,5-dihydrothiophene. <i>J. Agric. Food Chem.</i> , 28(5): 1037-1038.
0	2,3-DIMETHYL-(DL)-BUTANE-CIS-1-CIS-DITHIAL-S,S'-DIOXIDE	Bulb				Block, R., Bayer, T. 1990. (z,z)-d-1,2,3-dimethyl-1,4-butanedithial-s,s'-dioxide: A Novel Biologically Active Organosulfur Compound from Onion. <i>J. Amer. Chem. Soc.</i> , 112(11): 4584-4585.
0	2,3-DIMETHYL-5,6-DITHIA-BICYCLO(2,2,1)HEXANE-5-OXIDE	Bulb				--
0	2,3-DIMETHYLTHIOPHENE	Bulb				Kimura, K., Nishimura, H., Kimura, I., Iwata, I., Mizutani, J. 1984. Flavor Components of Roasted Onion. I. Changes in Flavor Components of Onion by Roasting. <i>Nippon Eiyo Shokuryo Gakkaishi</i> , 37(4): 343-347.
0	2,4-DIMETHYLTHIOPHENE	Essential Oil				Albrand, M., Dubois, P., Etievant, P., Gelin, R., Tokarska, B. 1980. Identification of a New Volatile Compound in Onion ( <i>Allium cepa</i> ) and Leek ( <i>Allium porum</i> ): 3,4-dimethyl-2,5-dioxo-2,5-dihydrothiophene. <i>J. Agric. Food Chem.</i> , 28(5): 1037-1038.
0	2,4-DIMETHYLTHIOPHENE	Bulb				Kimura, K., Nishimura, H., Kimura, I., Iwata, I., Mizutani, J. 1984. Flavor Components of Roasted Onion. I. Changes in Flavor Components of Onion by Roasting. <i>Nippon Eiyo Shokuryo Gakkaishi</i> , 37(4): 343-347.
0	2,5-DIMETHYLTHIOPHENE	Bulb				--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	2,5-DIMETHYLTHIOPHENE	Essential Oil				Albrand, M., Dubois, P., Etievant, P., Gelin, R., Tokarska, B. 1980. Identification of a New Volatile Compound in Onion ( <i>Allium cepa</i> ) and Leek ( <i>Allium porum</i> ): 3,4-dimethyl-2,5-dioxo-2,5-dihydrothiophene. <i>J. Agric. Food Chem.</i> , 28(5): 1037-1038.
0	2-METHYL-BUT-2-EN-1-AL	Bulb				Wilkins, W. F. 1962. The Isolation and Identification of the Lachrymogenic Compound of Onion. <i>Diss. Abstr. Int. B</i> , 22: 3978.
0	2-METHYL-BUT-2-EN-1-AL	Essential Oil				Albrand, M., Dubois, P., Etievant, P., Gelin, R., Tokarska, B. 1980. Identification of a New Volatile Compound in Onion ( <i>Allium cepa</i> ) and Leek ( <i>Allium porum</i> ): 3,4-dimethyl-2,5-dioxo-2,5-dihydrothiophene. <i>J. Agric. Food Chem.</i> , 28(5): 1037-1038.
0	2-METHYL-BUTYR-2-ALDEHYDE	Bulb				Wilkins, W. F. 1964. Isolation and Identification of the Lachrymogenic Compound of Onion. <i>Cornell Univ., Agr. Expt. Sta. Mem. No.</i> , 385: 31 pp.
0	2-METHYL-PENT-2-EN-1-AL	Essential Oil				Albrand, M., Dubois, P., Etievant, P., Gelin, R., Tokarska, B. 1980. Identification of a New Volatile Compound in Onion ( <i>Allium cepa</i> ) and Leek ( <i>Allium porum</i> ): 3,4-dimethyl-2,5-dioxo-2,5-dihydrothiophene. <i>J. Agric. Food Chem.</i> , 28(5): 1037-1038.
0	2-PROPENYL-L-CYSTEINE-SULFOXIDE	Bulb				Thomas, D. J., Parkin, K. L. 1994. Quantification of Alk(en)yl-L-Cysteine Sulfoxides and Related Amino Acids in Alliums by High-Performance Liquid Chromatography. <i>J. Agr. Food Chem.</i> , 42(8): 1632-1638.

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
5	24-METHYLENE-CYCLOARTANOL	Bulb				Itoh, T., Tamura, T., Mitsuhashi, T., Matsumoto, T. 1977. Sterols of Liliaceae. <i>Phytochemistry</i> , 16: 140-141.
0	24-METHYLENE-CYCLOARTENOL	Bulb				--
0	28-ISOFUCOSTEROL	Bulb				Itoh, T., Tamura, T., Mitsuhashi, T., Matsumoto, T. 1977. Sterols of Liliaceae. <i>Phytochemistry</i> , 16: 140-141.
0	3,4-DIMETHYL-2,5-DIOXO-2,5-DIHYDROTHIOPHENE	Essential Oil				Albrand, M., Dubois, P., Etievant, P., Gelin, R., Tokarska, B. 1980. Identification of a New Volatile Compound in Onion ( <i>Allium cepa</i> ) and Leek ( <i>Allium porum</i> ): 3,4-dimethyl-2,5-dioxo-2,5-dihydrothiophene. <i>J. Agric. Food Chem.</i> , 28(5): 1037-1038.
0	3,4-DIMETHYL-2,5-DIOXO-2,5-DIHYDROTHIOPHENE	Bulb				--
0	3,4-DIMETHYLTHIOPHENE	Essential Oil				Albrand, M., Dubois, P., Etievant, P., Gelin, R., Tokarska, B. 1980. Identification of a New Volatile Compound in Onion ( <i>Allium cepa</i> ) and Leek ( <i>Allium porum</i> ): 3,4-dimethyl-2,5-dioxo-2,5-dihydrothiophene. <i>J. Agric. Food Chem.</i> , 28(5): 1037-1038.
0	3,4-DIMETHYLTHIOPHENE	Bulb				Leung, A.Y., <i>Encyclopedia of Common Natural Ingredients Used in Food, Drugs, and Cosmetics</i> , John Wiley & Sons, New York, 1980.
0	31-NORCYCLOARTENOL	Bulb				Itoh, T., Tamura, T., Mitsuhashi, T., Matsumoto, T. 1977. Sterols of Liliaceae. <i>Phytochemistry</i> , 16: 140-141.
0	31-NORLANOSTENOL	Bulb				Itoh, T., Tamura, T., Mitsuhashi, T., Matsumoto, T. 1977. Sterols of Liliaceae. <i>Phytochemistry</i> , 16: 140-141.
0	4-ALPHA-METHYL-ZYMOSTENOL	Bulb				Itoh, T., Tamura, T., Mitsuhashi, T., Matsumoto, T. 1977. Sterols of Liliaceae. <i>Phytochemistry</i> , 16: 140-141.

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	4-HYDROXY-BENZOIC-ACID	Root				Das, V. S. R., Rao, J. V. S. 1964. Phenolic Acids of Onion Plant. Curr. Sci., 33(15): 471-472.
0	4-HYDROXY-BENZOIC-ACID	Bulb				Das, V. S. R., Rao, J. V. S. 1964. Phenolic Acids of Onion Plant. Curr. Sci., 33(15): 471-472.
0	4-HYDROXY-BENZOIC-ACID	Leaf				Das, V. S. R., Rao, J. V. S. 1964. Phenolic Acids of Onion Plant. Curr. Sci., 33(15): 471-472.
0	5-DEHYDRO-AVENASTEROL	Seed				Kintia, P. K., Degtiaryova, L. P., Balashova, N. N., Shvets, S. A. 1987. Sterols and Steroidal Glycosides of Bulb Onion Seeds. Fecs. Int. Conf. Chem. Biotechol. Biol. Act. Nat. Prod., (Proc.) 3rd: 166-170.
2	5-HEXYL-CYCLOPENTA-1,3-DIONE	Bulb				--
0	5-METHYL-2-N-HEXYL-2,3-DIHYDROFURAN-3-ONE	Bulb				Wealth of India.
2	5-OCTYL-CYCLOPENTA-1,3-DIONE	Bulb				--
0	6(G)-BETA-FRUCTOSYL-SUCROSE	Bulb				Bacon, J. S. D. 1959. Trisaccharide Fraction of Some Monocotyledons. Biochem. J., 73: 507-514.
0	9,10,13-TRIHYDROXY-OCTADEC-11-ENOIC-ACID	Bulb				--
0	9,12,13-TRIHYDROXY-OCTADEC-10-ENOIC-ACID	Bulb				--
0	9,10,13-TRIHYDROXY-OCTADEC-11-ENOIC-ACID	Bulb				--
0	ABSCISIC-ACID	Bulb				Karmelyuk, L. V., Fel'dman, A. L., Gusar, Z. D., Markh, A. T., Korableva, N. P. 1982. Determination of Absciscic Acid in Common Onion Tissues. Fiziol Biokhim Kul't Rast, 14: 295-298.
3	ABSCISSIC-ACID	Bulb				--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	ACE-AMP-1	Seed				Tassin, S., et. al. 1998. Solution Structure of Ace-Amp1, a Potent Antimicrobial Protein Extracted from Onion Seeds. Structural Analogies with Plant Nonspecific Lipid Transfer Proteins. <i>Biochemistry</i> , 37(11): 3623-3637.
0	ACETAL	Bulb				Wilkins, W. F. 1962. The Isolation and Identification of the Lachrymogenic Compound of Onion. <i>Diss. Abstr. Int. B</i> , 22: 3978.
16	ACETIC-ACID	Bulb				Wilkins, W. F. 1964. Isolation and Identification of the Lachrymogenic Compound of Onion. <i>Cornell Univ., Agr. Expt. Sta. Mem. No.</i> , 385: 31 pp.
28	ADENOSINE	Bulb				--
3	ALANINE	Bulb	330.0	8597.0	1.0	USDA's Ag Handbook 8 and sequelae)
67	ALLICIN	Bulb				--
21	ALLIIN	Bulb				--
21	ALLIIN	Essential Oil				Bekdairova, K. Z., Klyshev, L. K. 1982. Garlic Essential Oil and its Quantitative Analysis. <i>Izv Akad Nauk Kaz Ssr Ser Biol</i> , 1: 6-11.
0	ALLIIN-GAMMA-GLUTAMYL-PEPTIDE	Bulb				Ueda, Y., Taubuku, T., Miyajima, R. 1994. Composition of Sulfur-Containing Components in Onion and Their Flavor Characters. <i>Biosci. Biotech. Biochem.</i> , 58(1): 108-110.
0	ALLIOFUROSIDE-A	Pericarp		220.0		--
0	ALLIOSPIROSIDE-A	Pericarp		4600.0		--
0	ALLIOSPIROSIDE-B	Fruit		500.0		Kravets, S.D., Vollner, Y.S., Gorovits, M.B., Shashkov, A.S., Abubakirov, N.K. 1987. Steroid of the Spirostand and Furostan Series from Plants of the Genus <i>Allium</i> . II. The Structure of Alliospiroside B from <i>Allium cepa</i> . <i>Chem. Nat. Comp.</i> , 22(5): 553-556.

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	ALLIOSPIROSIDE-C	Fruit		491.0		Kravets, S. D., et. al. 1988. Steroids of the Spirostan and Furostan Series of Plants of the Allium Genus. XXIII. Structure of Cepagenin and of Alliospirosides C and D from Allium cepa. Chem. Nat. Comp., 23(6): 700-706.
0	ALLIOSPIROSIDE-D	Fruit		71.0		Kravets, S. D., et. al. 1988. Steroids of the Spirostan and Furostan Series of Plants of the Allium Genus. XXIII. Structure of Cepagenin and of Alliospirosides C and D from Allium cepa. Chem. Nat. Comp., 23(6): 700-706.
0	ALLIUM-CEPA-POLYSACCHARIDE	Bulb				Schnabl, H. 1977. Isolation and Identification of Soluble Polysaccharides in Epidermal Tissue of Allium cepa. Planta, 135: 307-.
0	ALLOSIDE-B	Bulb				Aizikov, M. I., Kravets, S. D., Prokhorova, I. R., Kurmukov, A. G. 1995. Structure and Hypolipidemic Activity of Alloside B Isolated from Onion. Khim Farm ZH, 29(8): 34-35.
2	ALLYL-METHYL-DISULFIDE	Bulb				Wealth of India.
0	ALLYL-PROPENYL-DISULFIDE	Bulb				Leung, A.Y., Encyclopedia of Common Natural Ingredients Used in Food, Drugs, and Cosmetics, John Wiley & Sons, New York, 1980.
3	ALLYL-PROPYL-DISULFIDE	Bulb				--
3	ALLYL-PROPYL-DISULFIDE	Essential Oil				Wilcox, B. F., Joseph, P. K., Augusti, K. T. 1984. Effects of Allylpropyl Disulphide Isolated from Allium cepa Linn. on High-Fat Fed Rats. Indian J. Biochem. Biophys., 21(3): 214-216.
2	ALLYLMETHYLSULFIDE	Bulb				Wealth of India.
0	ALLYLPROPYL-SULFIDE	Bulb				Wealth of India.
0	ALLYLTHIOL-SULFIDE	Bulb				Wealth of India.

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
10	ALPHA-AMYRIN	Bulb				Smocziewiczowa, A., Nitschke, D. 1978. Study of Saponins and Sapogenins in Onions. Zesz Nauk Akad Ekon Poznaniu Ser, 1(73): 40-43.
15	ALPHA-LINOLENIC-ACID	Bulb				Ustunes, L., Claeys, M., Laekeman, G., Herman, A.G., Vlietinck, A.J., Ozer, A. 1985. Isolation and Identification of Two Isomeric Trihydroxy Octadecenoic Acids with Prostaglandin E-Like Activity from Onion Bulbs( <i>Allium cepa</i> ). Prostaglandins, 29(5):847-865
0	ALPHA-SITOSTEROL	Bulb				Smocziewiczowa, A., Nitschke, D. 1978. Study of Saponins and Sapogenins in Onions. Zesz Nauk Akad Ekon Poznaniu Ser, 1(73): 40-43.
32	ALPHA-TOCOPHEROL	Bulb	0.4	30.0	1.0	--
32	ALPHA-TOCOPHEROL	Seed Oil				Grujic-Injac, B., Basarevic-Dinic, L., Lajsic, S., Stefanovic, D. 1985. Chemical Analysis of Seed Oil of the Onion ( <i>Allium cepa</i> ). Hrana Ishrana, 25: 167-169 (Inst Ishr Vet Fak Belgrade, Yugoslavia)
5	ALUMINUM	Bulb	0.3	385.0	1.0	--
30	ANTHOCYANINS	Bulb				Leung, A. Y. and Foster, S. 1995. Encyclopedia of Common Natural Ingredients 2nd Ed. John Wiley & Sons, New York. 649 pp.
0	ARABINOSE	Bulb				Sinha, A. 1959. Chemical Examination of <i>Allium cepa</i> . I. Glycosidic and Sugar Fractions. Indian J. Appl. Chem., 22: 89-91.
0	ARACHIDIC-ACID	Seed Oil				Reddy, P. N., Azeemoddin, G., Rao, S. D. T. 1989. Processing and Analysis of Onionseed ( <i>Allium cepa</i> ) and its Fixed Oil. J. Amer. Oil Chem. Soc., 66(3): 365.
0	ARACHIDIC-ACID	Seed				--
14	ARGININE	Bulb	1580.0	17222.0	-1.0	USDA's Ag Handbook 8 and sequelae)



Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
2	ARSENIC	Bulb	0.002	0.076		--
112	ASCORBIC-ACID	Leaf	390.0	5000.0	0.020016189970703997	--
112	ASCORBIC-ACID	Bulb				--
0	ASH	Leaf	7000.0	90000.0	-0.5083313983755301	CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
0	ASH	Bulb	4000.0	63000.0	-1.0	--
2	ASPARAGINE	Bulb				--
3	ASPARTIC-ACID	Bulb	640.0	6967.0	-1.0	USDA's Ag Handbook 8 and sequelae)
0	BARIUM	Bulb	4.0	28.0		--
20	BENZYL-ISOTHIOCYANATE	Bulb				Dorsch, W., Adam, O., Weber, J., Ziegeltrum, T. 1985. Antiasthmatic Effects of Onion Extracts - Detection of Benzyl- and Other Isothiocyanates (Mustard Oils) as Antiasthmatic Compounds of Plant Origin. Eur. J. Pharmacol., 107(1): 17-24.
53	BETA-CAROTENE	Bulb	0.0	52.0	0.9999999999999998	--
53	BETA-CAROTENE	Leaf	12.0	158.0	-0.4498575995747604	CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
53	BETA-CAROTENE	Flower		28.0	-0.18921282459251038	--
47	BETA-SITOSTEROL	Seed				Kintia, P. K., Degtiaryova, L. P., Balashova, N. N., Shvets, S. A. 1987. Sterols and Steroidal Glycosides of Bulb Onion Seeds. Feccs. Int. Conf. Chem. Biotechol. Biol. Act. Nat. Prod., (Proc.) 3rd: 166-170.
47	BETA-SITOSTEROL	Bulb	120.0	510.0	-1.0	--
47	BETA-SITOSTEROL	Seed Oil				Grujic-Injac, B., Basarevic-Dinic, L., Lajsic, S., Stefanovic, D. 1985. Chemical Analysis of Seed Oil of the Onion (Allium cepa). Hrana Ishrana, 25: 167-169 (Inst Ishr Vet Fak Belgrade, Yugoslavia)

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	BETA-TOCOPHEROL	Seed Oil				Grujic-Injac, B., Basarevic-Dinic, L., Lajsic, S., Stefanovic, D. 1985. Chemical Analysis of Seed Oil of the Onion ( <i>Allium cepa</i> ). <i>Hrana Ishrana</i> , 25: 167-169 (Inst Ishr Vet Fak Belgrade, Yugoslavia)
0	BETA-TOCOPHEROL	Seed				--
4	BORON	Bulb	1.0	45.0	1.0	--
0	BRASSICASTEROL	Seed				Kintia, P. K., Degtiarova, L. P., Balashova, N. N., Shvets, S. A. 1987. Sterols and Steroidal Glycosides of Bulb Onion Seeds. <i>Fecs. Int. Conf. Chem. Biotechol. Biol. Act. Nat. Prod.</i> , (Proc.) 3rd: 166-170.
0	BROMINE	Bulb	1.0	15.0		ACTA AGRIC SCAND SUPPL 22: 1980
3	CADMIUM	Bulb	0.005	0.38		--
102	CAFFEIC-ACID	Bulb				--
102	CAFFEIC-ACID	Root				Das, V. S. R., Rao, J. V. S. 1964. Phenolic Acids of Onion Plant. <i>Curr. Sci.</i> , 33(15): 471-472.
102	CAFFEIC-ACID	Leaf				Das, V. S. R., Rao, J. V. S. 1964. Phenolic Acids of Onion Plant. <i>Curr. Sci.</i> , 33(15): 471-472.
28	CALCIUM	Leaf	420.0	5385.0	-0.8918247706535197	CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
28	CALCIUM	Bulb	200.0	3008.0	0.11970003608893207	--
4	CALCIUM-OXALATE	Bulb				Walter-Levy, L., Strauss, R. 1954. Inorganic Deposits in Plants. <i>C. R. Acad. Sci.</i> , 239: 897-
2	CAMPESTEROL	Seed				Kintia, P. K., Degtiarova, L. P., Balashova, N. N., Shvets, S. A. 1987. Sterols and Steroidal Glycosides of Bulb Onion Seeds. <i>Fecs. Int. Conf. Chem. Biotechol. Biol. Act. Nat. Prod.</i> , (Proc.) 3rd: 166-170.
2	CAMPESTEROL	Bulb	10.0	50.0	-1.0	--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	CARBOHYDRATES	Leaf	47000.0	603000.0	-0.07037799270480313	CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
0	CARBOHYDRATES	Bulb	73200.0	798000.0	-1.0	--
0	CAROTENE	Flower		28.0		Krylova, M. I. 1967. Carotenoids in the Reproductive Organs of Fertile and Sterile Onion Plants, <i>Allium cepa</i> . Bot. ZH., 52(9): 1340-1341.
22	CATECHOL	Bulb				Link, K. P., Walker, J. C. 1933. The Isolation of Catechol from Pigmented Onion Scales and its Significance in Relation to Disease Resistance in Onions. J. Biol. Chem., 100: 379-383.
0	CEPAENE-1	Bulb				--
0	CEPAENE-2-A	Bulb				Bayer, T., Wagner, H., Wray, V., Dorsch, W. 1988. Inhibitors of Cyclo-Oxygenase and Lipoxygenase in Onions. Lancet, 8616: 906.
0	CEPAENE-2-B	Bulb				Bayer, T., Wagner, H., Wray, V., Dorsch, W. 1988. Inhibitors of Cyclo-Oxygenase and Lipoxygenase in Onions. Lancet, 8616: 906.
0	CEPAENE-3	Bulb				Bayer, T., Wagner, H., Wray, V., Dorsch, W. 1988. Inhibitors of Cyclo-Oxygenase and Lipoxygenase in Onions. Lancet, 8616: 906.
0	CEPAENE-4-A	Bulb				Bayer, T., Wagner, H., Wray, V., Dorsch, W. 1988. Inhibitors of Cyclo-Oxygenase and Lipoxygenase in Onions. Lancet, 8616: 906.
0	CEPAENE-4-B	Bulb				Bayer, T., Wagner, H., Wray, V., Dorsch, W. 1988. Inhibitors of Cyclo-Oxygenase and Lipoxygenase in Onions. Lancet, 8616: 906.
0	CEPAENES	Bulb				--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	CEPANONE	Bulb				Wealth of India.
0	CEPOSIDE-D	Seed				--
0	CHOLEST-7-EN-3-BETA-OL	Bulb				Itoh, T., Tamura, T., Mitsuhashi, T., Matsumoto, T. 1977. Sterols of Liliaceae. Phytochemistry, 16: 140-141.
1	CHOLESTEROL	Bulb				--
1	CHOLESTEROL	Seed				Kintia, P. K., Degtiaryova, L. P., Balashova, N. N., Shvets, S. A. 1987. Sterols and Steroidal Glycosides of Bulb Onion Seeds. Fecs. Int. Conf. Chem. Biotechnol. Biol. Act. Nat. Prod., (Proc.) 3rd: 166-170.
20	CHOLINE	Bulb		830.0		Dakshinamurti, K. 1955. Choline Content of South Indian Foods. Curr. Sci., 24: 194-195.
24	CHROMIUM	Seed		4.8	0.016797185555398934	--
24	CHROMIUM	Bulb	0.057	4.0	1.0	--
0	CIS-1-(PROPENYL-DITHIO)-PROPANE	Essential Oil				Albrand, M., Dubois, P., Etievant, P., Gelin, R., Tokarska, B. 1980. Identification of a New Volatile Compound in Onion ( <i>Allium cepa</i> ) and Leek ( <i>Allium porum</i> ): 3,4-dimethyl-2,5-dioxo-2,5-dihydrothiophene. J. Agric. Food Chem., 28(5): 1037-1038.
0	CIS-2,3-DIMETHYL-5,6-DITHIA-CYCLO(2,2,1)HEPTANE-5-OXIDE	Bulb				Dorsch, W., et al. 1988. Anti-Asthmatic Effects of Onions. Alk(en)ylsulfinothioic Acid Alk(en)yl-Esters Inhib. Histamine Rel. Leukotriene & Thromboxane Biosyn. in Vitro and Counteract PAF & Allergen-Ind. Bronch. Obst. in Vivo. Biochem. Pharmacol., 37:4479-4486.
0	CIS-3,5-DIETHYL-1,2,4-TRITHIOLANE	Leaf				Chemical Constituents of Oriental Herbs (3 diff. books)
4	CIS-METHYLSULPHINOTHIOIC-ACID-S-1-PROPENYLESTER	Bulb				--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
4	CIS-N-PROPYLSULPHINOTHIOIC-ACID-S-1-PROPENYLESTER	Bulb				--
0	CIS-PROPANETHIAL-S-OXIDE	Bulb				Block, E., Penn, R. E., Reville, L. K. 1979. Structure and Origin of the Onion Lachrymatory Factor. A Microwave Study. J. Amer. Chem. Soc., 101: 2200-2201.
0	CIS-PROPANETHIOL-S-OXIDE	Bulb				--
0	CIS-ZWEIBELANE	Bulb				Calvey, E. M., Matusik, J. E., White, K. D., Betz, J. M., Block, E., Littlejohn, M. H., Naganathan, S., Putman, D. 1994. Off-Line Supercritical Fluid Extraction of Thiosulfinates from Garlic and Onion. J. Agric. Food Chem., 42(6): 1335-1341.
23	CITRIC-ACID	Bulb				Soldatenkov, S. V., Mazurova, T. A., Ranteleev, A. N. 1960. Organic Acids of Onion and Spinach. Trudy Petergof Biol. Inst., Leningrad Gosudarst Univ Im AA Zhdanova, 18: 55-61.
23	CITRIC-ACID	Leaf				Soldatenkov, S. V., Mazurova, T. A., Ranteleev, A. N. 1960. Organic Acids of Onion and Spinach. Trudy Petergof Biol. Inst., Leningrad Gosudarst Univ Im AA Zhdanova, 18: 55-61.
2	COBALT	Seed		2.5	-0.0975154003240051	--
2	COBALT	Bulb	0.001	0.2	-1.0000000000000002	--
12	COPPER	Seed		18.2	0.3070837559561808	--
12	COPPER	Bulb	0.3	11.0	0.10619884881071792	--
0	CYANIDIN-3-O-BETA-D-DIGLYCOSIDE	Bulb				--
0	CYANIDIN-3-O-LAMINARIBIOSIDE	Bulb				--
0	CYANIDIN-3-O-LAMINARIOBIOSIDE	Bulb				Du, C. T., Wang, P. L., Francis, F. J. 1974. Cyanidin-3-Laminariobioside in Spanish Red Onion ( <i>Allium cepa</i> ). J. Food Science, 39: 1265-.

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	CYANIDIN-BIOSIDE	Bulb				Fuleki, T. 1969. The Anthocyanins of Strawberry, Rhubarb, Radish, and Onion. J. Food Sci., 34(4): 365-369.
0	CYANIDIN-DIGLYCOSIDE	Bulb				Fuleki, T. 1969. The Anthocyanins of Strawberry, Rhubarb, Radish, and Onion. J. Food Sci., 34(4): 365-369.
0	CYANIDIN-MONOGLYCOSIDE	Bulb				Fuleki, T. 1969. The Anthocyanins of Strawberry, Rhubarb, Radish, and Onion. J. Food Sci., 34(4): 365-369.
3	CYCLOALLIIN	Bulb				--
0	CYCLOARTANOL	Bulb				Itoh, T., Tamura, T., Mitsuhashi, T., Matsumoto, T. 1977. Sterols of Liliaceae. Phytochemistry, 16: 140-141.
7	CYCLOARTENOL	Bulb				Itoh, T., Tamura, T., Mitsuhashi, T., Matsumoto, T. 1977. Sterols of Liliaceae. Phytochemistry, 16: 140-141.
3	CYCLOEUCALENOL	Bulb				Itoh, T., Tamura, T., Mitsuhashi, T., Matsumoto, T. 1977. Sterols of Liliaceae. Phytochemistry, 16: 140-141.
13	CYSTEINE	Bulb				Ueda, Y., Taubuku, T., Miyajima, R. 1994. Composition of Sulfur-Containing Components in Onion and Their Flavor Characters. Biosci. Biotech. Biochem., 58(1): 108-110.
2	CYSTINE	Bulb	210.0	2289.0	1.0	USDA's Ag Handbook 8 and sequelae)
0	D-MANNITOL	Bulb				--
3	DI-N-PROPYL-DISULFIDE	Bulb				Wilkens, W. F. 1962. The Isolation and Identification of the Lachrymogenic Compound of Onion. Diss. Abstr. Int. B, 22: 3978.
26	DIALLYL-DISULFIDE	Essential Oil				Schultz, O. E., Mohrmann, H. L. 1965. Analysis of Constituents of Garlic Allium sativum. II. Gas Chromatography of Garlic Oil. Pharmazie, 20(7): 441-447.

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
25	DIALLYL-SULFIDE	Essential Oil				Schultz, O. E., Mohrmann, H. L. 1965. Analysis of Constituents of Garlic <i>Allium sativum</i> . II. Gas Chromatography of Garlic Oil. <i>Pharmazie</i> , 20(7): 441-447.
28	DIALLYL-TRISULFIDE	Essential Oil				Schultz, O. E., Mohrmann, H. L. 1965. Analysis of Constituents of Garlic <i>Allium sativum</i> . II. Gas Chromatography of Garlic Oil. <i>Pharmazie</i> , 20(7): 441-447.
0	DIHYDROALLIIN	Bulb				Leung, A.Y., <i>Encyclopedia of Common Natural Ingredients Used in Food, Drugs, and Cosmetics</i> , John Wiley & Sons, New York, 1980.
0	DIISOPROPYL-TRISULFIDE	Bulb				Wealth of India.
2	DIMETHYL-DISULFIDE	Essential Oil				Jirovetz, L., Koch, H. P., Jager, W., Remberg, G. 1992. Investigations of German Onion Oil by GC-FID, GC-MS and GC-FTIR. <i>Pharmazie</i> , 47(6): 455-456.
2	DIMETHYL-DISULFIDE	Bulb				--
0	DIMETHYL-FURAN	Essential Oil				Wealth of India.
0	DIMETHYL-PENTASULFIDE	Essential Oil				Jirovetz, L., Koch, H. P., Jager, W., Remberg, G. 1992. Investigations of German Onion Oil by GC-FID, GC-MS and GC-FTIR. <i>Pharmazie</i> , 47(6): 455-456.
2	DIMETHYL-SULFIDE	Essential Oil				Schultz, O. E., Mohrmann, H. L. 1965. Analysis of Constituents of Garlic <i>Allium sativum</i> . II. Gas Chromatography of Garlic Oil. <i>Pharmazie</i> , 20(7): 441-447.
0	DIMETHYL-TRISULFIDE	Bulb				Carson, J. F., Wong, F. F. 1961. The Volatile Flavor Components of Onions. <i>J. Agric. Food Chem.</i> , 9(2): 140-143.
0	DIMETHYL-TRISULFIDE	Essential Oil				Jirovetz, L., Koch, H. P., Jager, W., Remberg, G. 1992. Investigations of German Onion Oil by GC-FID, GC-MS and GC-FTIR. <i>Pharmazie</i> , 47(6): 455-456.
0	DIMETHYLTETRASULFIDE	Essential Oil				--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
3	DIPHENYLAMINE	Plant		500.0		Karawy, M. S., Ehayyal, A. S. E., Farrag, N. M., Ayad, M. M. 1986. Screening of Diphenylamine as an Antihyperglycaemic Agent in Certain Edible Plant Organs. Acta. Pharm. Hung, 56: 55-58.
3	DIPHENYLAMINE	Bulb		23000.0		--
0	DIPROPENYL-DISULPHIDE	Bulb				Wealth of India.
0	DIPROPENYL-SULFIDE	Bulb				Wealth of India.
4	DIPROPYL-DISULFIDE	Bulb				--
0	DIPROPYL-DISULPHIDE	Bulb				--
0	DIPROPYL-TRISULFIDE	Bulb				--
0	DIPROPYL-TRISULFIDE	Essential Oil				Jirovetz, L., Koch, H. P., Jager, W., Remberg, G. 1992. Investigations of German Onion Oil by GC-FID, GC-MS and GC-FTIR. Pharmazie, 47(6): 455-456.
0	DIPROPYLTETRASULFIDE	Essential Oil				Jirovetz, L., Koch, H. P., Jager, W., Remberg, G. 1992. Investigations of German Onion Oil by GC-FID, GC-MS and GC-FTIR. Pharmazie, 47(6): 455-456.
0	EICOSEN-1-OL	Seed				--
3	ENDOLYSIN	Leaf		0.3	-1.0	LAWSON in Koch, H. P. and Lawson, L. D., eds. 1996. Garlic- The Science and therapeutic application of Allium sativum L. and related species. Williams & Wilkins, Baltimore. 329 pp.
3	ENDOLYSIN	Bulb		0.033	-1.0	LAWSON in Koch, H. P. and Lawson, L. D., eds. 1996. Garlic- The Science and therapeutic application of Allium sativum L. and related species. Williams & Wilkins, Baltimore. 329 pp.



Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	EO	Bulb	50.0	150.0	-1.2862606900150364	List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
24	ETHANOL	Bulb				--
1	ETHYLENE	Bulb				LAWSON in Koch, H. P. and Lawson, L. D., eds. 1996. Garlic- The Science and Therapeutic application of Allium sativum L. and related species. Williams & Wilkins, Baltimore. 329 pp.
0	FAT	Leaf	6000.0	77000.0	0.4092541682128573	CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
0	FAT	Bulb	1000.0	36079.0	1.0	--
61	FERULIC-ACID	Leaf				Das, V. S. R., Rao, J. V. S. 1964. Phenolic Acids of Onion Plant. Curr. Sci., 33(15): 471-472.
61	FERULIC-ACID	Bulb		0.5	-1.0	--
61	FERULIC-ACID	Root				Das, V. S. R., Rao, J. V. S. 1964. Phenolic Acids of Onion Plant. Curr. Sci., 33(15): 471-472.
15	FIBER	Leaf	11000.0	141000.0	-0.2539378373860592	CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
15	FIBER	Bulb	4400.0	126000.0	1.0	--
0	FLUORINE	Bulb	0.04	0.8		ACTA AGRIC SCAND SUPPL 22: 1980
0	FRUCTOSAN	Bulb	100000.0	400000.0	1.0	--
8	FRUCTOSE	Bulb				Osman, S. A. 1980. Chemical and Biological Studies of Onion and Garlic in an Attempt to Isolate a Hypoclycaemic Extract. Abstr. 4th Asian Symp. Med. Plants Spices Bangkok, Thailand, September 15-19: 117.

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
8	FRUCTOSE	Leaf				Osman, S. A. 1980. Chemical and Biological Studies of Onion and Garlic in an Attempt to Isolate a Hypoclycaemic Extract. Abstr. 4th Asian Symp. Med. Plants Spices Bangkok, Thailand, September 15-19: 117.
7	FUMARIC-ACID	Bulb				--
0	GAMMA-GLUTAMYL-LEUCINE	Bulb				Virtanen, A. I., Matikkala, B. J. 1961. New gamma-l-glutamyl Petides in Onion ( <i>Allium cepa</i> ). III. Suomen Kemistilehti, 34B: 53-54.
0	GAMMA-GLUTAMYL-PHENYLALANINE	Bulb				--
0	GAMMA-GLUTAMYL-PHENYLALANINE-ETHYL-ESTER	Bulb				--
0	GAMMA-GLUTAMYL-S-BETA-CARBOXY-BETA-METHYL-ETHYL-CYSTEINYL-GLYCINE	Bulb				Virtanen, A. I., Matikkala, E. J. 1960. New Gamma-Glutamyl Peptides in Onion ( <i>Allium cepa</i> ). I. Gamma-glutamylphenylalanine and gamma-glutamyl-s-(beta-carboxy-beta-methylethyl)-cysteinylglycine. Suomen Kemistilehti, 33B: 83-84.
0	GAMMA-GLUTAMYL-S-METHYL-CYSTEINE	Plant				J.S. Glasby Dict.Pls Containing 2ndary Metabolite. 1991.
0	GAMMA-L-GLUTAMYL-ARGININE	Bulb				--
0	GAMMA-L-GLUTAMYL-CYSTEINE	Bulb				Virtanen, A. I., Matikkala, B. J. 1961. New gamma-l-glutamyl Petides in Onion ( <i>Allium cepa</i> ). III. Suomen Kemistilehti, 34B: 53-54.
0	GAMMA-L-GLUTAMYL-ISOLEUCINE	Bulb				--
0	GAMMA-L-GLUTAMYL-L-ARGININE	Bulb				Matikkala, E. J., Virtanen, A. I. 1970. Isolation of gamma-l-glutamy-l-arginine and gamma-l-glutamyl-s-(2-carboxy-n-propyl)-l-cysteine from <i>Allium cepa</i> (Onion). Suomen Kemistilehti, 43(11): 435-438.

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	GAMMA-L-GLUTAMYL-L-VALINE	Bulb				Virtanen, A. I., Matikkala, B. J. 1961. New gamma-l-glutamyl Petides in Onion ( <i>Allium cepa</i> ). III. Suomen Kemistilehti, 34B: 53-54.
0	GAMMA-L-GLUTAMYL-S-(2-CARBOXY-N-PROPYL)L-CYSTEINE	Bulb				--
0	GAMMA-L-GLUTAMYL-S-(1-PROPENYL)-CYSTEINE-SULFOXIDE	Bulb				Virtanen, A. I., Matikkala, E. J. 1961. Structure of the Gamma-Glutamyl Peptide 4 Isolated from Onion ( <i>Allium cepa</i> )-gamma-l-glutamyl-s-(1-propenyl)-cysteine sulfoxide. Suomen Kemistilehti, 34B: 84.
0	GAMMA-L-GLUTAMYL-S-(1-PROPENYL)L-CYSTEINE-SULFOXIDE	Bulb				--
0	GAMMA-L-GLUTAMYL-S-(2-CARBOXY-BETA-METHYLETHYL)-CYSTEINYL-GLYCINE	Bulb				--
0	GAMMA-L-GLUTAMYL-S-(2-CARBOXY-BETA-METHYLETHYL)-CYSTEINYL-GLYCINE-ETHYL-ESTER	Bulb				--
0	GAMMA-L-GLUTAMYL-VALINE	Bulb				--
0	GIBBERELLIN-A-4	Root				Das, V. S. R., Rao, J. V. S. 1965. Onion Root Gibberellins. Curr. Sci., 34(1): 28.
0	GLUCOFRUCTAN	Bulb				Osman, S. A. 1980. Chemical and Biological Studies of Onion and Garlic in an Attempt to Isolate a Hypoclycaemic Extract. Abstr. 4th Asian Symp. Med. Plants Spices Bangkok, Thailand, September 15-19: 117.
0	GLUCOFRUCTAN	Leaf				Osman, S. A. 1980. Chemical and Biological Studies of Onion and Garlic in an Attempt to Isolate a Hypoclycaemic Extract. Abstr. 4th Asian Symp. Med. Plants Spices Bangkok, Thailand, September 15-19: 117.

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
7	GLUCOSE	Bulb				Osman, S. A. 1980. Chemical and Biological Studies of Onion and Garlic in an Attempt to Isolate a Hypoclycaemic Extract. Abstr. 4th Asian Symp. Med. Plants Spices Bangkok, Thailand, September 15-19: 117.
7	GLUCOSE	Leaf				Osman, S. A. 1980. Chemical and Biological Studies of Onion and Garlic in an Attempt to Isolate a Hypoclycaemic Extract. Abstr. 4th Asian Symp. Med. Plants Spices Bangkok, Thailand, September 15-19: 117.
8	GLUTAMIC-ACID	Bulb				Thomas, D. J., Parkin, K. L. 1994. Quantification of Alk(en)yl-L-Cysteine Sulfoxides and Related Amino Acids in Alliums by High-Performance Liquid Chromatography. J. Agr. Food Chem., 42(8): 1632-1638.
5	GLUTAMINE	Bulb				--
0	GLUTAN	Bulb				--
7	GLUTATHIONE	Bulb				Ueda, Y., Taubuku, T., Miyajima, R. 1994. Composition of Sulfur-Containing Components in Onion and Their Flavor Characters. Biosci. Biotech. Biochem., 58(1): 108-110.
12	GLYCINE	Bulb	490.0	5341.0	1.0	--
4	GLYCOLIC-ACID	Bulb				Balansard, J., Arnoux, M. 1951. A Study of the Hepato-Renaldiuretics. III. The Active Principle of Onion Juice. Med. Trop. (Marseille), 11: 632-634.
0	GRAMISTEROL	Bulb				Itoh, T., Tamura, T., Mitsuhashi, T., Matsumoto, T. 1977. Sterols of Liliaceae. Phytochemistry, 16: 140-141.
0	HEXADECEN-1-OL	Seed				--
7	HISTIDINE	Bulb	190.0	2071.0	-1.0	USDA's Ag Handbook 8 and sequelae)

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
6	IRON	Seed		235.0	0.3912510395242066	--
6	IRON	Leaf	34.0	436.0	0.18456741976079077	CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
6	IRON	Bulb	2.0	135.0	0.7831452902858658	--
3	ISOLEUCINE	Bulb	420.0	4578.0	-1.0	USDA's Ag Handbook 8 and sequelae)
0	ISOPROPYL-PROPYL-DISULFIDE	Bulb				Wealth of India.
0	ISOPROPYL-PROPYL-TRISULFIDE	Bulb				Wealth of India.
22	ISOQUERCITRIN	Bulb				Kiviranta, J., Huovinen, K., Hiltunen, R. 1986. Variation of Flavonoids in <i>Allium cepa</i> . <i>Planta Medica</i> , 6: 517-518.
11	ISORHAMNETIN	Bulb				Park, Y. K., Lee, C. Y. 1996. Identification of Isorhamnetin 4'-Glucoside in Onions. <i>J. Agric. Food Chem.</i> , 44(1): 34-36.
1	ISORHAMNETIN-3-GLUCOSIDE	Bulb				--
75	KAEMPFEROL	Bulb		2.0		--
0	KAEMPFEROL-3,4'-DI-O-BETA-D-GLUCOSIDE	Bulb				Tissut, M., Ravanel, P. 1980. Assessment of Flavonols in Adult Leaves of Several Vegetative Vacuoles. <i>Phytochemistry</i> , 19: 2077-2081.
0	KAEMPFEROL-3-O-SOPHOROSIDE-7-O-GLUCURONIDE	Epidermis				Urushibara, S. I., Kitayama, Y., Watanabe, T., Okuno, T., Watarai, A., Matsumoto, T. 1992. New Flavonol Glycosides, Major Determinants Inducing the Green Fluorescence in the Guard Cells of <i>Allium cepa</i> . <i>Tetrahedron Lett.</i> , 33(9): 1213-1216.
0	KAEMPFEROL-4',7-DI-O-BETA-D-GLUCOSIDE	Bulb				Tissut, M., Ravanel, P. 1980. Assessment of Flavonols in Adult Leaves of Several Vegetative Vacuoles. <i>Phytochemistry</i> , 19: 2077-2081.
0	KAEMPFEROL-4'-O-BETA-D-GLUCOSIDE	Bulb				--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	KILOCALORIES	Leaf	260.0	3330.0	0.5027842271594564	CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
0	KILOCALORIES	Bulb	380.0	3750.0	1.0	CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
0	LEAD	Bulb	0.01	1.4		--
2	LEUCINE	Bulb	410.0	4469.0	-1.0	USDA's Ag Handbook 8 and sequelae)
27	LINOLEIC-ACID	Seed	103500.0	106200.0	-0.00790147227328753	Wealth of India.
27	LINOLEIC-ACID	Bulb				Osman, S. A. 1980. Chemical and Biological Studies of Onion and Garlic in an Attempt to Isolate a Hypoclycaemic Extract. Abstr. 4th Asian Symp. Med. Plants Spices Bangkok, Thailand, September 15-19: 117.
27	LINOLEIC-ACID	Seed Oil	575000.0	590600.0	0.7844920848789769	--
11	LITHIUM	Bulb	0.152	0.324		--
0	LOPHENOL	Bulb				Itoh, T., Tamura, T., Mitsuhashi, T., Matsumoto, T. 1977. Sterols of Liliaceae. Phytochemistry, 16: 140-141.
15	LUTEIN	Bulb		0.02		Granado, F., Olmedilla, B., Blanco, I., Rojas-Hidalgo, E. 1992. Carotenoid Composition in Raw and Cooked Spanish Vegetables. J. Agr. Food Chem., 40(11): 2135-2140.
4	LYSINE	Bulb	560.0	6104.0	-1.0	USDA's Ag Handbook 8 and sequelae)
65	MAGNESIUM	Bulb	76.0	1230.0	0.7319115529256467	--
15	MALIC-ACID	Leaf				Soldatenkov, S. V., Mazurova, T. A., Ranteleev, A. N. 1960. Organic Acids of Onion and Spinach. Trudy Petergof Biol. Inst., Leningrad Gosudarst Univ Im AA Zhdanova, 18: 55-61.

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
15	MALIC-ACID	Bulb				Soldatenkov, S. V., Mazurova, T. A., Ranteleev, A. N. 1960. Organic Acids of Onion and Spinach. Trudy Petergof Biol. Inst., Leningrad Gosudarst Univ Im AA Zhdanova, 18: 55-61.
14	MANGANESE	Seed		19.4	-0.425040968734703	--
14	MANGANESE	Bulb	1.0	38.0	1.4045726642160135	--
23	MELATONIN	Bulb				Hattori, A., et. al. 1995. Identification of Melatonin in Plants and its Effects on Plasma Melatonin Levels and Binding to Melatonin Receptors in Vertebrates. Biochem. Mol. Biol. Int., 35(3): 627-634.
1	MERCURY	Bulb		0.001	-1.0	--
0	METHANETHIOL	Bulb				Wealth of India.
2	METHANOL	Bulb				--
2	METHANOL	Leaf				Burtsev, A. F., Pashchenko, T. W., Rik, G. R. 1974. Mass-Spectrometric Analysis of Volatile Phytonocide Substances of Cucumber and Common Onion Leaves. Fiziol Biokhim Kul't Rast, 6: 516-.
15	METHIONINE	Bulb	100.0	1090.0	-1.0	--
0	METHIONINE-METHYLSULFONIUM	Plant				--
0	METHIONINE-METHYLSULFONIUM-SALT	Bulb				Renis, H. E., Henze, R. E. 1957. Studies on Sulfur Compounds from Onion. Diss. Abstr. Int. B, 17: 1456-1457.
0	METHIONINE-SULFONE	Bulb				Renis, H. E., Henze, R. E. 1957. Studies on Sulfur Compounds from Onion. Diss. Abstr. Int. B, 17: 1456-1457.

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	METHYL-ALLIIN	Bulb				Williamson, E. M. and Evans, F. J., Potter's New Cyclopaedia of Botanical Drugs and Preparations, Revised Ed., Saffron Walden, the C. W. Daniel Co., Ltd., Essex UK, 362 pp, 1988, reprint 1989.
0	METHYL-CIS-PROPENYL-DISULFIDE	Bulb				Wealth of India.
0	METHYL-CIS-PROPENYL-DISULFIDE	Plant				--
0	METHYL-CIS-PROPENYL-TRISULFIDE	Bulb				--
0	METHYL-DITHIO-METHANE	Essential Oil				Albrand, M., Dubois, P., Etievant, P., Gelin, R., Tokarska, B. 1980. Identification of a New Volatile Compound in Onion ( <i>Allium cepa</i> ) and Leek ( <i>Allium porum</i> ): 3,4-dimethyl-2,5-dioxo-2,5-dihydrothiophene. J. Agric. Food Chem., 28(5): 1037-1038.
0	METHYL-METHANE-THIOSULFINATE	Fruit Juice				Schmidt, N. E., et. al. 1996. Rapid Extraction Method of Quantitating the Lachrymatory Factor of Onion Using Gas Chromatography. J. Agric. Food Chem., 44(9): 2690-2693.
0	METHYL-N-PROPANE-THIOSULFINATE	Fruit Juice				Schmidt, N. E., et. al. 1996. Rapid Extraction Method of Quantitating the Lachrymatory Factor of Onion Using Gas Chromatography. J. Agric. Food Chem., 44(9): 2690-2693.
0	METHYL-PROPENYL-TRISULFIDE	Plant				--
0	METHYL-PROPYL-DISULFIDE	Essential Oil				Jirovetz, L., Koch, H. P., Jager, W., Remberg, G. 1992. Investigations of German Onion Oil by GC-FID, GC-MS and GC-FTIR. Pharmazie, 47(6): 455-456.
0	METHYL-PROPYL-DISULFIDE	Bulb				--



Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	METHYL-PROPYL-TETRASULFIDE	Essential Oil				Jirovetz, L., Koch, H. P., Jager, W., Remberg, G. 1992. Investigations of German Onion Oil by GC-FID, GC-MS and GC-FTIR. Pharmazie, 47(6): 455-456.
0	METHYL-TRANS-PROPENYL-DISULFIDE	Bulb				Wealth of India.
0	METHYL-TRANS-PROPENYL-TRISULFIDE	Bulb				Wealth of India.
0	METHYLPROPYL-TRISULFIDE	Bulb				--
0	METHYLPROPYL-TRISULFIDE	Essential Oil				Jirovetz, L., Koch, H. P., Jager, W., Remberg, G. 1992. Investigations of German Onion Oil by GC-FID, GC-MS and GC-FTIR. Pharmazie, 47(6): 455-456.
0	MEVALONIC-ACID	Bulb		0.5		Wills, R. B. H., Scurr, E. V. 1975. Mevalonic Acid Concentrations in Fruit and Vegetable Tissues. Phytochemistry, 14: 1643.
2	MOLYBDENUM	Bulb	0.1	2.3	1.0000000000000002	--
13	MUFA	Bulb	230.0	2230.0		USDA's Ag Handbook 8 and sequelae)
3	MURAMIDASE	Leaf		0.3		LAWSON in Koch, H. P. and Lawson, L. D., eds. 1996. Garlic- The Science and therapeutic application of Allium sativum L. and related species. Williams & Wilkins, Baltimore. 329 pp.
3	MURAMIDASE	Bulb		0.033	-1.0	LAWSON in Koch, H. P. and Lawson, L. D., eds. 1996. Garlic- The Science and therapeutic application of Allium sativum L. and related species. Williams & Wilkins, Baltimore. 329 pp.
6	MYRISTIC-ACID	Seed Oil				Reddy, P. N., Azeemoddin, G., Rao, S. D. T. 1989. Processing and Analysis of Onionseed (Allium cepa) and its Fixed Oil. J. Amer. Oil Chem. Soc., 66(3): 365.
6	MYRISTIC-ACID	Bulb	10.0	100.0	-1.0	USDA's Ag Handbook 8 and sequelae)
0	MYROSINASE	Bulb				--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
1	N-PROPYL-MERCAPTAN	Bulb				Nishimura, H., Mizutani, J. 1975. Effect of Gamma-Irradiation on Development of Lachrymator of Onion. Agric. Biol. Chem., 39: 2245-.
0	N-PROPYL-METHANE-THIOSULFINATE	Fruit Juice				Schmidt, N. E., et. al. 1996. Rapid Extraction Method of Quantitating the Lachrymatory Factor of Onion Using Gas Chromatography. J. Agric. Food Chem., 44(9): 2690-2693.
0	N-PROPYL-N-PROPANE-THIOSULFINATE	Fruit Juice				Schmidt, N. E., et. al. 1996. Rapid Extraction Method of Quantitating the Lachrymatory Factor of Onion Using Gas Chromatography. J. Agric. Food Chem., 44(9): 2690-2693.
4	N-PROPYLSULPHINOTHIOIC-ACID-S-N-PROPYLESTER	Bulb				--
0	NEODECANOIC-ACID	Bulb				Wealth of India.
39	NIACIN	Leaf	7.0	90.0	-0.09123627617407809	CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
39	NIACIN	Bulb	1.0	75.0	1.0	--
3	NICKEL	Seed	0.03	4.0	-0.14389814511946067	--
3	NICKEL	Bulb	0.05	2.5	0.9999999999999996	--
0	NITROGEN	Bulb	1700.0	17690.0		ACTA AGRIC SCAND SUPPL 22: 1980
0	NONADECANOIC-ACID	Bulb				Gilbert, M. D., Maylin, G. A., Lisk, D. J. 1976. Gas Chromatographic Analysis of Neodecanoic Acids in Onions. J. Agr. Food Chem., 24(1): 194-.
0	NORCEPANONE	Bulb				Wealth of India.
64	OLEANOLIC-ACID	Bulb				--
18	OLEIC-ACID	Seed		46800.0	-0.5943767329474172	Wealth of India.
18	OLEIC-ACID	Seed Oil	260000.0	292900.0	-0.1478289753657865	--
18	OLEIC-ACID	Bulb	230.0	2230.0	1.0	--
9	OXALIC-ACID	Bulb		10.0		--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
9	OXALIC-ACID	Leaf				Gad, S. S., Esmat El-Zalaki, M., Hohamed, M. S., Mohasseb, S. Z. 1982. Oxalate Content of Some Leafy Vegetables and Dry Legumes Consumed Widely in Egypt. Food Chem., 8(3): 169-177. (Coll. Agric. Alexandria Univ. Ale.)
25	P-COUMARIC-ACID	Root				Das, V. S. R., Rao, J. V. S. 1964. Phenolic Acids of Onion Plant. Curr. Sci., 33(15): 471-472.
25	P-COUMARIC-ACID	Bulb				--
25	P-COUMARIC-ACID	Leaf				Das, V. S. R., Rao, J. V. S. 1964. Phenolic Acids of Onion Plant. Curr. Sci., 33(15): 471-472.
16	P-CYMENE	Fruit Juice				Schmidt, N. E., et. al. 1996. Rapid Extraction Method of Quantitating the Lachrymatory Factor of Onion Using Gas Chromatography. J. Agric. Food Chem., 44(9): 2690-2693.
13	P-HYDROXY-BENZOIC-ACID	Bulb		107.0	1.0	--
0	P-HYDROXYBANZOIC-ACID	Bulb		107.0		--
0	PAEONIDIN-GLYCOSIDE	Bulb				Williamson, E. M. and Evans, F. J., Potter's New Cyclopaedia of Botanical Drugs and Preparations, Revised Ed., Saffron Walden, the C. W. Daniel Co., Ltd., Essex UK, 362 pp, 1988, reprint 1989.
13	PALMITIC-ACID	Seed		13140.0	-0.4284802139449916	Wealth of India.
13	PALMITIC-ACID	Bulb	240.0	2325.0	-1.0	--
13	PALMITIC-ACID	Seed Oil		73000.0	-0.723771059427567	--
11	PANTOTHENIC-ACID	Bulb	1.0	16.0	1.0	USDA's Ag Handbook 8 and sequelae)
24	PECTIN	Bulb				Leung, A. Y. and Foster, S. 1995. Encyclopedia of Common Natural Ingredients 2nd Ed. John Wiley & Sons, New York. 649 pp.

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	PELARGONIDIN-MONOGLYCOSIDE	Bulb				Fuleki, T. 1969. The Anthocyanins of Strawberry, Rhubarb, Radish, and Onion. J. Food Sci., 34(4): 365-369.
0	PENTOSAN	Bulb				--
0	PEROXIDASE	Bulb				--
7	PHENYLALANINE	Bulb	300.0	3270.0	-1.0	USDA's Ag Handbook 8 and sequelae)
8	PHLOROGLUCINOL	Bulb		100.0		--
0	PHLOROGLUCINOL-CARBOXYLIC-ACID	Bulb		100.0		Hermann, K. 1958. Flavonols and Phenols of the Onion ( <i>Allium cepa</i> ). Arch. Pharm. (Weinheim), 291: 238-247.
4	PHOSPHORUS	Leaf	310.0	5513.0	0.09963731108701822	--
4	PHOSPHORUS	Bulb	275.0	4038.0	-1.0	--
0	PHYTOHORMONE	Bulb				--
2	PHYTOSTEROLS	Bulb	150.0	1455.0	1.0	--
0	POLYSACCHARIDES	Bulb	100000.0	400000.0		--
14	POTASSIUM	Bulb	1514.0	22164.0	1.0	--
0	PROLINE	Bulb	370.0	4033.0	-1.0	USDA's Ag Handbook 8 and sequelae)
0	PROP-CIS-ENYL-PROPYL-DISULFIDE	Bulb				Kimura, K., Nishimura, H., Kimura, I., Iwata, I., Mizutani, J. 1984. Flavor Components of Roasted Onion. I. Changes in Flavor Components of Onion by Roasting. Nippon Eiyo Shokuryo Gakkaishi, 37(4): 343-347.
0	PROP-CIS-ENYL-PROPYL-TRISULFIDE	Bulb				Kimura, K., Nishimura, H., Kimura, I., Iwata, I., Mizutani, J. 1984. Flavor Components of Roasted Onion. I. Changes in Flavor Components of Onion by Roasting. Nippon Eiyo Shokuryo Gakkaishi, 37(4): 343-347.
0	PROP-TRANS-ENYL-PROPYL-DISULFIDE	Bulb				Kimura, K., Nishimura, H., Kimura, I., Iwata, I., Mizutani, J. 1984. Flavor Components of Roasted Onion. I. Changes in Flavor Components of Onion by Roasting. Nippon Eiyo Shokuryo Gakkaishi, 37(4): 343-347.

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	PROP-TRANS-ENYL-PROPYL-TRISULFIDE	Bulb				Kimura, K., Nishimura, H., Kimura, I., Iwata, I., Mizutani, J. 1984. Flavor Components of Roasted Onion. I. Changes in Flavor Components of Onion by Roasting. Nippon Eiyō Shokuryō Gakkaishi, 37(4): 343-347.
0	PROPAN-1-OL	Bulb				--
0	PROPANAL	Bulb				Wealth of India.
0	PROPANE-1-THIOL	Bulb				Wilkens, W. F. 1962. The Isolation and Identification of the Lachrymogenic Compound of Onion. Diss. Abstr. Int. B, 22: 3978.
0	PROPIONAL	Bulb				Wilkens, W. F. 1962. The Isolation and Identification of the Lachrymogenic Compound of Onion. Diss. Abstr. Int. B, 22: 3978.
2	PROPIONALDEHYDE	Leaf				Burtsev, A. F., Pashchenko, T. W., Rik, G. R. 1974. Mass-Spectrometric Analysis of Volatile Phytonocide Substances of Cucumber and Common Onion Leaves. Fiziol Biokhim Kul't Rast, 6: 516-.
2	PROPIONALDEHYDE	Bulb				Wilkens, W. F. 1964. Isolation and Identification of the Lachrymogenic Compound of Onion. Cornell Univ., Agr. Expt. Sta. Mem. No., 385: 31 pp.
0	PROSTAGLANDIN-A	Bulb				Pobozsny, K., Tetenyi, P., Hethelyi, I., Kocsar, L., Mann, V. 1979. Biologically Active Substances: Investigations into the Prostaglandin Content of Allium Species. I. Herba Hung, 18(2): 71-81.
2	PROSTAGLANDIN-A-1	Bulb		1.0		--
0	PROSTAGLANDIN-B	Bulb				Pobozsny, K., Tetenyi, P., Hethelyi, I., Kocsar, L., Mann, V. 1979. Biologically Active Substances: Investigations into the Prostaglandin Content of Allium Species. I. Herba Hung, 18(2): 71-81.

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
2	PROSTAGLANDIN-E-1	Bulb				Ustunes, L., Claeys, M., Laekeman, G., Herman, A.G., Vlietinck, A.J., Ozer, A. 1985. Isolation and Identification of Two Isomeric Trihydroxy Octadecenoic Acids with Prostaglandin E-Like Activity from Onion Bulbs( <i>Allium cepa</i> ). <i>Prostaglandins</i> , 29(5):847-865
0	PROSTAGLANDIN-F	Bulb				Pobozsny, K., Tetenyi, P., Hethelyi, I., Kocsar, L., Mann, V. 1979. Biologically Active Substances: Investigations into the Prostaglandin Content of <i>Allium</i> Species. I. <i>Herba Hung</i> , 18(2): 71-81.
0	PROTEIN	Leaf	18000.0	231000.0	0.19108914041232994	CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
0	PROTEIN	Bulb	10940.0	162000.0	-1.0	--
43	PROTocatechuic-acid	Bulb	4500.0	17540.0		--
43	PROTocatechuic-acid	Leaf				Das, V. S. R., Rao, J. V. S. 1964. Phenolic Acids of Onion Plant. <i>Curr. Sci.</i> , 33(15): 471-472.
4	PUFA	Bulb	620.0	6005.0		USDA's Ag Handbook 8 and sequelae)
12	PYROcatechol	Bulb				Hermann, K. 1958. Flavonols and Phenols of the Onion ( <i>Allium cepa</i> ). <i>Arch. Pharm. (Weinheim)</i> , 291: 238-247.
1	PYRUVIC-ACID	Fruit Juice		1034.0		Morgan, E. J. 1946. Pyruvic Acid in the Juice of Onion ( <i>Allium cepa</i> ). <i>Nature (London)</i> , 157: 512.
1	PYRUVIC-ACID	Fruit		1034.0		--
1	PYRUVIC-ACID	Bulb				Malkki, Y., Nikkila, O. E., Aalto, M. 1978. The Composition and Aroma of Onions and Influencing Factors. <i>J. Sci. Agr. Soc. Finland</i> , 50: 103-.
176	QUERCETIN	Bulb	0.0	48100.0	1.0	--
0	QUERCETIN-3,4'-DI-O-BETA-D-GLUCOSIDE	Bulb	1700.0	5600.0		--
2	QUERCETIN-3,4'-DIGLUCOSIDE	Bulb				--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
2	QUERCETIN-3-O-BETA-D-GLUCOSIDE	Bulb	0.0	40.0		Abstract (See species file)
0	QUERCETIN-3-O-SOPHOROSIDE-7-O-GLUCURONIDE	Epidermis				Urushibara, S. I., Kitayama, Y., Watanabe, T., Okuno, T., Watarai, A., Matsumoto, T. 1992. New Flavonol Glycosides, Major Determinants Inducing the Green Fluorescence in the Guard Cells of <i>Allium cepa</i> . <i>Tetrahedron Lett.</i> , 33(9): 1213-1216.
0	QUERCETIN-4',7-DI-O-BETA-D-GLUCOSIDE	Bulb	0.0	160.0		--
0	QUERCETIN-4-O-BETA-D-GLUCOSIDE	Bulb	100.0	800.0		--
1	QUINIC-ACID	Bulb				--
1	RAFFINOSE	Bulb				Osman, S. A. 1980. Chemical and Biological Studies of Onion and Garlic in an Attempt to Isolate a Hypoclycaemic Extract. <i>Abstr. 4th Asian Symp. Med. Plants Spices Bangkok, Thailand, September 15-19: 117.</i>
1	RAFFINOSE	Leaf				Osman, S. A. 1980. Chemical and Biological Studies of Onion and Garlic in an Attempt to Isolate a Hypoclycaemic Extract. <i>Abstr. 4th Asian Symp. Med. Plants Spices Bangkok, Thailand, September 15-19: 117.</i>
0	RHAMNOSE	Bulb				Sinha, A. 1959. Chemical Examination of <i>Allium cepa</i> . I. Glycosidic and Sugar Fractions. <i>Indian J. Appl. Chem.</i> , 22: 89-91.
15	RIBOFLAVIN	Bulb	0.4	15.0	1.0	--
0	RIBOSE	Bulb				Sinha, A. 1959. Chemical Examination of <i>Allium cepa</i> . I. Glycosidic and Sugar Fractions. <i>Indian J. Appl. Chem.</i> , 22: 89-91.
0	RUBIDIUM	Bulb	0.14	6.6		ACTA AGRIC SCAND SUPPL 22: 1980
87	RUTIN	Bulb		14000.0		--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	S-(2-CARBOXY-PROPYL)-GLUTATHIONE	Bulb		125.0	-1.0	Tsuboi, S., Kishimoto, S., Ohmori, S. 1989. S-(2-carboxypropyl)glutathione in Vegetables in Liliflorae. J. Agric. Food Chem. 37(3): 611-615.
0	S-(BETA-CARBOXY-BETA-METHYL-ETHYL)-CYSTEINE	Bulb				Virtamen, A. I., Matikkala, E. J. 1960. New Gamma-Glutamyl Peptides in Onion ( <i>Allium cepa</i> ). I. Gamma-glutamylphenylalanine and gamma-glutamyl-s-(beta-carboxy-beta-methylethyl)-cysteinyglycine. Suomen Kemistilehti, 33B: 83-84.
0	S-(BETA-CARBOXYBETA-METHYL-ETHER)-CYSTEINE	Bulb				--
0	S-ALLYL-CYSTEINE	Bulb				Renis, H. E., Henze, R. E. 1957. Studies on Sulfur Compounds from Onion. Diss. Abstr. Int. B, 17: 1456-1457.
0	S-METHYL-CYSTEINE	Bulb				Williamson, E. M. and Evans, F. J., Potter's New Cyclopaedia of Botanical Drugs and Preparations, Revised Ed., Saffron Walden, the C. W. Daniel Co., Ltd., Essex UK, 362 pp, 1988, reprint 1989.
2	S-METHYL-CYSTEINE-SULFOXIDE	Bulb				Kumari, K., Augusti, K. T. 1995. Antidiabetic Effects of S-Methylcysteine Sulphoxide on Alloxan Diabetes. Planta Medica, 61(1): 72-74.
0	S-PROP-1-ENYL-CYSTEINE-S-OXIDE	Bulb		26.0		--
0	S-PROPYL-CYSTEINE-SULFOXIDE	Bulb				Renis, H. E., Henze, R. E. 1957. Studies on Sulfur Compounds from Onion. Diss. Abstr. Int. B, 17: 1456-1457.
7	SALICYLATES	Bulb	1.0	20.0	1.0	--
0	SAPONIN	Bulb				--
5	SAPONINS	Bulb				Leung, A. Y. and Foster, S. 1995. Encyclopedia of Common Natural Ingredients 2nd Ed. John Wiley & Sons, New York. 649 pp.



Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	SATIOMEM	Bulb				Upreti, R. K., Ahmad, S., Shukla, S., Kidwai, A. M. 1994. Experimental Anorexigenic Effect of a Membrane Proteoglycan Isolated from Plants. J. Ethnopharmacology, 42(1): 53-61.
60	SELENIUM	Bulb	0.001	0.003	-1.0000000000000002	--
0	SELENO-HOME-CYSTINE	Plant				--
0	SELENO-HOMOCYSTINE	Plant				Hamilton, J. W. 1975. Chemical Examination of Seleniferous Onions, Allium cepa. Adv. Front Plant Sci., 30: 189-.
0	SELENO-METHIONINE	Plant				Hamilton, J. W. 1975. Chemical Examination of Seleniferous Onions, Allium cepa. Adv. Front Plant Sci., 30: 189-.
0	SELENO-METHIONINE	Bulb				--
0	SELENO-METHYL-SELENOCYSTEINE	Bulb				--
0	SELENO-METHYL-SELENOCYSTEINE	Plant				Hamilton, J. W. 1975. Chemical Examination of Seleniferous Onions, Allium cepa. Adv. Front Plant Sci., 30: 189-.
0	SELENO-METHYL-SELENOMETHIONINE	Bulb				--
0	SELENO-METHYL-SELENOMETHIONINE	Plant				Hamilton, J. W. 1975. Chemical Examination of Seleniferous Onions, Allium cepa. Adv. Front Plant Sci., 30: 189-.
0	SELENOSIDE	Plant				--
1	SERINE	Bulb	350.0	3815.0	-1.0	USDA's Ag Handbook 8 and sequelae)
0	SFA	Bulb	260.0	2520.0		USDA's Ag Handbook 8 and sequelae)
4	SILICON	Bulb	1.0	75.0		ACTA AGRIC SCAND SUPPL 22: 1980
3	SILVER	Bulb	0.038	0.054		--
9	SINAPIC-ACID	Bulb				Das, V. S. R., Rao, J. V. S. 1964. Phenolic Acids of Onion Plant. Curr. Sci., 33(15): 471-472.

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
9	SINAPIC-ACID	Root				Das, V. S. R., Rao, J. V. S. 1964. Phenolic Acids of Onion Plant. Curr. Sci., 33(15): 471-472.
9	SINAPIC-ACID	Leaf				Das, V. S. R., Rao, J. V. S. 1964. Phenolic Acids of Onion Plant. Curr. Sci., 33(15): 471-472.
1	SODIUM	Bulb	8.0	2052.0	1.4085638338778703	--
0	SODIUM-PROP-CIS-1-ENYL-THIOSULFATE	Bulb				Yamato, O., Yoshihara, T., Ichihara, A., Maede, Y. 1994. Novel Heinz Body Hemolysis Factors in Onion (Allium cepa). Biosci. Biotech. Biochem., 58(1): 221-222.
0	SODIUM-PROP-TRANS-1-ENYL-THIOSULFATE	Bulb				Yamato, O., Yoshihara, T., Ichihara, A., Maede, Y. 1994. Novel Heinz Body Hemolysis Factors in Onion (Allium cepa). Biosci. Biotech. Biochem., 58(1): 221-222.
0	SODIUM-PROPYL-THIOSULFATE	Bulb				Yamato, O., Yoshihara, T., Ichihara, A., Maede, Y. 1994. Novel Heinz Body Hemolysis Factors in Onion (Allium cepa). Biosci. Biotech. Biochem., 58(1): 221-222.
4	SPIRAEOSIDE	Epidermis				Ito, Y., Ono, M., Masuoka, C., Yahara, S., Nohara, T. 1995. Hyaluronidase Inhibitors of Onion (Allium cepa L.) Skin. Kyushu Tokai Daigaku Nogakubu Kiyo, 14: 43-48.
4	SPIRAEOSIDE	Bulb	10000.0	11300.0		--
8	STEARIC-ACID	Bulb	20.0	195.0		--
8	STEARIC-ACID	Seed		6300.0	-0.4287014331879593	Wealth of India.
8	STEARIC-ACID	Seed Oil		35000.0	-0.6541098145281985	--
0	STIGMAST-7-EN-3-BETA-OL	Seed				Kintia, P. K., Degtiaryova, L. P., Balashova, N. N., Shvets, S. A. 1987. Sterols and Steroidal Glycosides of Bulb Onion Seeds. Fecs. Int. Conf. Chem. Biotechol. Biol. Act. Nat. Prod., (Proc.) 3rd: 166-170.
12	STIGMASTEROL	Bulb		40.0		--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
12	STIGMASTEROL	Seed				Kintia, P. K., Degtiaryova, L. P., Balashova, N. N., Shvets, S. A. 1987. Sterols and Steroidal Glycosides of Bulb Onion Seeds. Fecs. Int. Conf. Chem. Biotechol. Biol. Act. Nat. Prod., (Proc.) 3rd: 166-170.
12	STIGMASTEROL	Seed Oil				Grujic-Injac, B., Basarevic-Dinic, L., Lajsic, S., Stefanovic, D. 1985. Chemical Analysis of Seed Oil of the Onion ( <i>Allium cepa</i> ). Hrana Ishrana, 25: 167-169 (Inst Ishr Vet Fak Belgrade, Yugoslavia)
0	STRONTIUM	Bulb	57.0	162.0		--
7	SUCCINIC-ACID	Bulb				Soldatenkov, S. V., Mazurova, T. A., Ranteleev, A. N. 1960. Organic Acids of Onion and Spinach. Trudy Petergof Biol. Inst., Leningrad Gosudarst Univ Im AA Zhdanova, 18: 55-61.
7	SUCCINIC-ACID	Leaf				Soldatenkov, S. V., Mazurova, T. A., Ranteleev, A. N. 1960. Organic Acids of Onion and Spinach. Trudy Petergof Biol. Inst., Leningrad Gosudarst Univ Im AA Zhdanova, 18: 55-61.
14	SUCROSE	Bulb				Osman, S. A. 1980. Chemical and Biological Studies of Onion and Garlic in an Attempt to Isolate a Hypoclycaemic Extract. Abstr. 4th Asian Symp. Med. Plants Spices Bangkok, Thailand, September 15-19: 117.
14	SUCROSE	Leaf				Osman, S. A. 1980. Chemical and Biological Studies of Onion and Garlic in an Attempt to Isolate a Hypoclycaemic Extract. Abstr. 4th Asian Symp. Med. Plants Spices Bangkok, Thailand, September 15-19: 117.

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	SUGARS	Bulb				Malkki, Y., Nikkila, O. E., Aalto, M. 1978. The Composition and Aroma of Onions and Influencing Factors. J. Sci. Agr. Soc. Finland, 50: 103-.
14	SULFUR	Bulb	80.0	4075.0	-1.0	--
6	TARTARIC-ACID	Bulb				--
31	THIAMIN	Leaf	0.5	6.4	-0.39693808734805064	CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
31	THIAMIN	Bulb	0.3	6.0	-1.0	--
0	THIOPROPANAL-S-OXIDE	Bulb				--
0	THIOPROPIONAL-S-OXIDE	Bulb				--
4	THREONINE	Bulb	280.0	3052.0	-1.0	USDA's Ag Handbook 8 and sequelae)
0	TITANIUM	Bulb	0.38	11.0		USDA's Ag Handbook 8 and sequelae)
0	TRANS-1-(1-PROPENYL-DITHIO)-PROPANE	Essential Oil				Albrand, M., Dubois, P., Etievant, P., Gelin, R., Tokarska, B. 1980. Identification of a New Volatile Compound in Onion ( <i>Allium cepa</i> ) and Leek ( <i>Allium porum</i> ): 3,4-dimethyl-2,5-dioxo-2,5-dihydrothiophene. J. Agric. Food Chem., 28(5): 1037-1038.
0	TRANS-1-(PROPENYL-DITHIO)-PROPANE	Essential Oil				--
0	TRANS-2,3-DIMETHYL-5,6-DITHIA-CYCLO(2,2,1)HEPTANE-5-OXIDE	Bulb				Dorsch,W.,et.al.1988.Anti-Asthmatic Effects of Onions. Alk(en)ylsufinothioic Acid Alk(en)yl-Esters Inhib. Histamine Rel. Leukotriene & Thromboxane Biosyn. in Vitro and Counteract PAF & Allergen-Ind. Bronch. Obst. in Vivo. Biochem. Pharmacol., 37:4479-4486.
0	TRANS-3,5-DIETHYL-1,2,4,-TRITHIOLANE	Leaf				Chemical Constituents of Oriental Herbs (3 diff. books)
4	TRANS-5-ETHYL-4,6,7-TRITHIA-2-DECENE-4-S-OXIDE	Bulb				--

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	TRANS-CIS-5-ETHYL-4,6,7-TRITHIA-2,8-DECADIENE-4-S-OXIDE	Bulb				--
4	TRANS-METHYLSULPHINOTHIOIC-ACID-S-1-PROPENYLESTER	Bulb				--
4	TRANS-N-PROPYLSULPHINOTHIOIC-ACID-S-1-PROPENYLESTER	Bulb				--
0	TRANS-S-(1-PROPENYL)-CYSTEINE-SULFOXIDE	Bulb				Williamson, E. M. and Evans, F. J., Potter's New Cyclopaedia of Botanical Drugs and Preparations, Revised Ed., Saffron Walden, the C. W. Daniel Co., Ltd., Essex UK, 362 pp, 1988, reprint 1989.
4	TRANS-TRANS-5-ETHYL-4,6,7-TRITHIA-2,8-DECADIENE-4-S-OXIDE	Bulb				--
0	TRIDECAN-2-ONE	Bulb				Wealth of India.
15	TRIGONELLINE	Seed		13.0	-0.46591212987573255	Evans, L. S., Tramontano, W. A. 1984. Trigonelline and Promotion of Cell Arrest in G2 of Various Legumes. Phytochemistry, 23(9): 1837-1840.
29	TRYPTOPHAN	Bulb	170.0	1853.0	1.0	USDA's Ag Handbook 8 and sequelae)
0	TSEPOSIDES	Seed				Kintia, P. K., Degtiaryova, L. P., Balashova, N. N., Shvets, S. A. 1987. Sterols and Steroidal Glycosides of Bulb Onion Seeds. Fecs. Int. Conf. Chem. Biotechol. Biol. Act. Nat. Prod., (Proc.) 3rd: 166-170.
1	TULIPOSIDE-A	Root				Slob, A., Jekel, B., De Jong, B., Schlatmann, E. 1975. On the Occurrence of Tuliposides in the Liliiflorae. Phytochemistry, 14: 1997-2005.
0	TULIPOSIDE-B	Root				Slob, A., Jekel, B., De Jong, B., Schlatmann, E. 1975. On the Occurrence of Tuliposides in the Liliiflorae. Phytochemistry, 14: 1997-2005.

Activities Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
8	TYROSINE	Bulb	290.0	3161.0	-1.0	USDA's Ag Handbook 8 and sequelae)
3	VALINE	Bulb	270.0	2943.0	-1.0	--
24	VANILLIC-ACID	Bulb		258.0	1.0	--
0	VIT-B-6	Bulb	1.0	18.0		USDA's Ag Handbook 8 and sequelae)
0	WATER	Leaf		922000.0	0.5705515493442906	CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
0	WATER	Bulb	866000.0	918000.0	0.778867813617976	--
10	XYLITOL	Bulb				Counsell, J. N., Robertson, D. J. 1976. Xylitol-A Sweetener Which is Kind to the Teeth. Food Process Ind., 45(54): 24-26.
3	XYLOSE	Bulb				Sinha, A. 1959. Chemical Examination of Allium cepa. I. Glycosidic and Sugar Fractions. Indian J. Appl. Chem., 22: 89-91.
5	ZEAXANTHIN	Bulb				Granado, F., Olmedilla, B., Blanco, I., Rojas-Hidalgo, E. 1992. Carotenoid Composition in Raw and Cooked Spanish Vegetables. J. Agr. Food Chem., 40(11): 2135-2140.
77	ZINC	Seed		34.0	-0.31604114389068755	--
77	ZINC	Bulb	2.0	53.0	1.4104984605249231	--
0	ZIRCONIUM	Bulb	0.76	1.0		--