

# P Allium cepa

## Common Name(s)

Onion, Shallot

## How Used

F

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. Biochem. J., 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 (Allium cepa) and Leek (Allium porum): 3,4-dimethyl-2,5-dioxo-2,5-dihydrothiophene. J. Agric. Food Chem., 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 (Allium cepa) and Leek (Allium porum): 3,4-dimethyl-2,5-dioxo-2,5-dihydrothiophene. J. Agric. Food Chem., 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 (Allium cepa) and Leek (Allium porum): 3,4-dimethyl-2,5-dioxo-2,5-dihydrothiophene. J. Agric. Food Chem., 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	--	--	
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 (Allium cepa) and Leek (Allium porum): 3,4-dimethyl-2,5-dioxo-2,5-dihydrothiophene. J. Agric. Food Chem., 28(5): 1037-1038.

Chemical Plant Part		Low PPM	High PPM	StdDev	Reference Citation
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. J. Amer. Chem. Soc., 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. Nippon Eiyo Shokuryo Gakkaishi, 37(4): 343-347.
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. Nippon Eiyo Shokuryo Gakkaishi, 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. J. Agric. Food Chem., 28(5): 1037-1038.
0	2,5-DIMETHYLTHIOPHENE	Bulb	--	--	
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. J. Agric. Food Chem., 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. Diss. Abstr. Int. B, 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. J. Agric. Food Chem., 28(5): 1037-1038.
0	2-METHYL-BUTYR-2-ALDEHYDE	Bulb	--	--	Wilkins, W. F. 1964. Isolation and Identification of the Lachrymogenic Compound of Onion. Cornell Univ., Agr. Expt. Sta. Mem. No., 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. J. Agric. Food Chem., 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. J. Agr. Food Chem., 42(8): 1632-1638.
5	24-METHYLENE-CYCLOARTANOL	Bulb	--	--	Itoh, T., Tamura, T., Mitsuhashi, T., Matsumoto, T. 1977. Sterols of Liliaceae. Phytochemistry, 16: 140-141.
0	24-METHYLENE-CYCLOARTENOL	Bulb	--	--	

Chemical Plant Part		Low PPM	High PPM	StdDev	Reference Citation
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	Bulb	--	--	
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-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	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	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.
0	4-HYDROXY-BENZOIC-ACID	Leaf	--	--	Das, V. S. R., Rao, J. V. S. 1964. Phenolic Acids of Onion Plant. <i>Curr. Sci.</i> , 33(15): 471-472.
0	4-HYDROXY-BENZOIC-ACID	Bulb	--	--	Das, V. S. R., Rao, J. V. S. 1964. Phenolic Acids of Onion Plant. <i>Curr. Sci.</i> , 33(15): 471-472.
0	4-HYDROXY-BENZOIC-ACID	Root	--	--	Das, V. S. R., Rao, J. V. S. 1964. Phenolic Acids of Onion Plant. <i>Curr. Sci.</i> , 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. <i>Fecs. Int. Conf. Chem. Biotechol. Biol. Act. Nat. Prod.</i> , (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. <i>Biochem. J.</i> , 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	--	--	

Chemical Plant Part		Low PPM	High PPM	StdDev	Reference Citation
0	ABSCISIC-ACID	Bulb	--	--	Karmelyuk, L. V., Fel'dman, A. L., Gusar, Z. D., Markh, A. T., Korableva, N. P. 1982. Determination of Abscisic Acid in Common Onion Tissues. Fiziol Biokhim Kul't Rast, 14: 295-298.
3	ABSCISSIC-ACID	Bulb	--	--	
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. Biochemistry, 37(11): 3623-3637.
0	ACETAL	Bulb	--	--	Wilkens, W. F. 1962. The Isolation and Identification of the Lachrymogenic Compound of Onion. Diss. Abstr. Int. B, 22: 3978.
16	ACETIC-ACID	Bulb	--	--	Wilkens, W. F. 1964. Isolation and Identification of the Lachrymogenic Compound of Onion. Cornell Univ., Agr. Expt. Sta. Mem. No., 385: 31 pp.
28	ADENOSINE	Bulb	--	--	
3	ALANINE	Bulb	330	8597 1	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. Izv Akad Nauk Kaz Ssr Ser Biol, 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. Biosci. Biotech. Biochem., 58(1): 108-110.
0	ALLIOFUROSIDE-A	Pericarp	220	220	
0	ALLIOSPIROSIDE-A	Pericarp	4600	4600	
0	ALLIOSPIROSIDE-B	Fruit	500	500	Kravets, S.D., Vollerner, Y.S., Gorovits, M.B., Shashkov, A.S., Abubakirov, N.K. 1987. Steroid of the Spirostan and Furostan Series from Plants of the Genus Allium. II. The Structure of Alliospiroside B from Allium cepa. Chem. Nat. Comp., 22(5): 553-556.
0	ALLIOSPIROSIDE-C	Fruit	491	491	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	71	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.

Chemical Plant Part		Low PPM	High PPM	StdDev	Reference Citation
0	ALLIUM-CEPA-POLYSACCHARIDE	Bulb	--	--	Schnabl, H. 1977. Isolation and Identification of Soluble Polysaccharides in Epidermal Tissue of Allium cepa. <i>Planta</i> , 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. <i>Khim Farm ZH</i> , 29(8): 34-35.
2	ALLYL-METHYL-DISULFIDE	Bulb	--	--	Wealth of India.
0	ALLYL-PROPENYL-DISULFIDE	Bulb	--	--	Leung, A.Y., <i>Encyclopedia of Common Natural Ingredients Used in Food, Drugs, and Cosmetics</i> , 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. <i>Indian J. Biochem. Biophys.</i> , 21(3): 214-216.
2	ALLYLMETHYLSULFIDE	Bulb	--	--	Wealth of India.
0	ALLYLPROPYL-SULFIDE	Bulb	--	--	Wealth of India.
0	ALLYLTHIOL-SULFIDE	Bulb	--	--	Wealth of India.
10	ALPHA-AMYRIN	Bulb	--	--	Smoczewiczowa, A., Nitschke, D. 1978. Study of Saponins and Sapogenins in Onions. <i>Zesz Nauk Akad Ekon Poznaniu Ser</i> , 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> ). <i>Prostaglandins</i> , 29(5):847-865
0	ALPHA-SITOSTEROL	Bulb	--	--	Smoczewiczowa, A., Nitschke, D. 1978. Study of Saponins and Sapogenins in Onions. <i>Zesz Nauk Akad Ekon Poznaniu Ser</i> , 1(73): 40-43.
32	ALPHA-TOCOPHEROL	Bulb	0.4	30	1
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> ). <i>Hrana Ishrana</i> , 25: 167-169 (Inst Ishr Vet Fak Belgrade, Yugoslavia)
5	ALUMINUM	Bulb	0.3	385	1
30	ANTHOCYANINS	Bulb	--	--	Leung, A. Y. and Foster, S. 1995. <i>Encyclopedia of Common Natural Ingredients</i> 2nd Ed. John Wiley & Sons, New York. 649 pp.
0	ARABINOSE	Bulb	--	--	Sinha, A. 1959. Chemical Examination of Allium cepa. I. Glycosidic and Sugar Fractions. <i>Indian J. Appl. Chem.</i> , 22: 89-91.
0	ARACHIDIC-ACID	Seed	--	--	

Chemical Plant Part		Low PPM	High PPM	StdDev	Reference Citation	
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. <i>J. Amer. Oil Chem. Soc.</i> , 66(3): 365.	
14	ARGININE	Bulb	1580	17222	-1	USDA's Ag Handbook 8 and sequelae)
2	ARSENIC	Bulb	0.002	0.076		
112	ASCORBIC-ACID	Bulb	60	2703		
112	ASCORBIC-ACID	Leaf	390	5000	0.020016189970703997	
0	ASH	Bulb	4000	63000	-1	
0	ASH	Leaf	7000	90000	-0.5083313983755301	CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
2	ASPARAGINE	Bulb	--	--		
3	ASPARTIC-ACID	Bulb	640	6967	-1	USDA's Ag Handbook 8 and sequelae)
0	BARIUM	Bulb	4	28		
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. <i>Eur. J. Pharmacol.</i> , 107(1): 17-24.
53	BETA-CAROTENE	Bulb	--	52	0.9999999999999998	
53	BETA-CAROTENE	Flower	28	28	-0.18921282459251038	
53	BETA-CAROTENE	Leaf	12	158	-0.4498575995747604	CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
47	BETA-SITOSTEROL	Bulb	120	510	-1	
47	BETA-SITOSTEROL	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)
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. <i>Fecs. Int. Conf. Chem. Biotechnol. Biol. Act. Nat. Prod.</i> , (Proc.) 3rd: 166-170.
0	BETA-TOCOPHEROL	Seed	--	--		
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)
4	BORON	Bulb	1	45	1	

Chemical Plant Part		Low PPM	High PPM	StdDev	Reference Citation	
0	BRASSICASTEROL	Seed	--	--	Kintia, P. K., Degtiaryova, L. P., Balashova, N. N., Shvets, S. A. 1987. Sterols and Steroidal Glycosides of Bulb Onion Seeds. <i>Fecs. Int. Conf. Chem. Biotechnol. Biol. Act. Nat. Prod., (Proc.)</i> 3rd: 166-170.	
0	BROMINE	Bulb	1	15	ACTA AGRIC SCAND SUPPL 22: 1980	
3	CADMIUM	Bulb	0.005	0.38		
102	CAFFEIC-ACID	Bulb	--	--		
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.	
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.	
28	CALCIUM	Bulb	200	3008	0.11970003608893207	
28	CALCIUM	Leaf	420	5385	-0.8918247706535197	CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
4	CALCIUM-OXALATE	Bulb	--	--	Walter-Levy, L., Strauss, R. 1954. Inorganic Deposits in Plants. <i>C. R. Acad. Sci.,</i> 239: 897-.	
2	CAMPESTEROL	Bulb	10	50	-1	
2	CAMPESTEROL	Seed	--	--	Kintia, P. K., Degtiaryova, L. P., Balashova, N. N., Shvets, S. A. 1987. Sterols and Steroidal Glycosides of Bulb Onion Seeds. <i>Fecs. Int. Conf. Chem. Biotechnol. Biol. Act. Nat. Prod., (Proc.)</i> 3rd: 166-170.	
0	CARBOHYDRATES	Bulb	73200	798000	-1	
0	CARBOHYDRATES	Leaf	47000	603000	-0.07037799270480313	CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
0	CAROTENE	Flower	--	28		
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. <i>J. Biol. Chem.,</i> 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. <i>Lancet,</i> 8616: 906.	
0	CEPAENE-2-B	Bulb	--	--	Bayer, T., Wagner, H., Wray, V., Dorsch, W. 1988. Inhibitors of Cyclo-Oxygenase and Lipoxygenase in Onions. <i>Lancet,</i> 8616: 906.	
0	CEPAENE-3	Bulb	--	--	Bayer, T., Wagner, H., Wray, V., Dorsch, W. 1988. Inhibitors of Cyclo-Oxygenase and Lipoxygenase in Onions. <i>Lancet,</i> 8616: 906.	
0	CEPAENE-4-A	Bulb	--	--	Bayer, T., Wagner, H., Wray, V., Dorsch, W. 1988. Inhibitors of Cyclo-Oxygenase and Lipoxygenase in Onions. <i>Lancet,</i> 8616: 906.	

Chemical Plant Part		Low PPM	High PPM	StdDev	Reference Citation
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	--	--	
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. Biotechol. Biol. Act. Nat. Prod., (Proc.) 3rd: 166-170.
20	CHOLINE	Bulb	830	830	Dakshinamurti, K. 1955. Choline Content of South Indian Foods. Curr. Sci., 24: 194-195.
24	CHROMIUM	Bulb	0.057	4	1
24	CHROMIUM	Seed	4.8	4.8	0.016797185555398934
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	--	--	
4	CIS-N-PROPYLSULPHINOTHIOIC-ACID-S-1-PROPENYLESTER	Bulb	--	--	
0	CIS-PROPANETHIAL-S-OXIDE	Bulb	--	--	Block, E., Penn, R. E., Revelle, 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.



Chemical Plant Part		Low PPM	High PPM	StdDev	Reference Citation	
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	Bulb	0.001	0.2	-1.0000000000000002	
2	COBALT	Seed	2.5	2.5	-0.0975154003240051	
12	COPPER	Bulb	0.3	11	0.10619884881071792	
12	COPPER	Seed	18.2	18.2	0.3070837559561808	
0	CYANIDIN-3-O-BETA-D-DIGLYCOSIDE	Bulb	--	--		
0	CYANIDIN-3-O-LAMINARIBIOSIDE	Bulb	--	--		
0	CYANIDIN-3-O-LAMINARIBIOSIDE	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-.	
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., Mitsushashi, T., Matsumoto, T. 1977. Sterols of Liliaceae. Phytochemistry, 16: 140-141.	
7	CYCLOARTENOL	Bulb	--	--	Itoh, T., Tamura, T., Mitsushashi, T., Matsumoto, T. 1977. Sterols of Liliaceae. Phytochemistry, 16: 140-141.	
3	CYCLOEUCALENOL	Bulb	--	--	Itoh, T., Tamura, T., Mitsushashi, 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	2289	1	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.	

Chemical Plant Part		Low PPM	High PPM	StdDev	Reference Citation
26	DIALLYL-DISULFIDE	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.
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	Bulb	--	--	
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.
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	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	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-TETRASULFIDE	Essential Oil	--	--	
3	DIPHENYLAMINE	Bulb	14	11000	
3	DIPHENYLAMINE	Plant	--	500	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. <i>Acta. Pharm. Hung</i> , 56: 55-58.
0	DIPROPENYL-DISULPHIDE	Bulb	--	--	Wealth of India.
0	DIPROPENYL-SULFIDE	Bulb	--	--	Wealth of India.

Chemical Plant Part		Low PPM	High PPM	StdDev	Reference Citation
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	Bulb	--	0.033	-1 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	Leaf	--	0.3	-1 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	EO	Bulb	50	150	-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	Bulb	1000	36079	1
0	FAT	Leaf	6000	77000	0.4092541682128573 CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
61	FERULIC-ACID	Bulb	--	0.5	-1
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	Root	--	--	Das, V. S. R., Rao, J. V. S. 1964. Phenolic Acids of Onion Plant. Curr. Sci., 33(15): 471-472.
15	FIBER	Bulb	4400	126000	1
15	FIBER	Leaf	11000	141000	-0.2539378373860592 CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
0	FLUORINE	Bulb	0.04	0.8	ACTA AGRIC SCAND SUPPL 22: 1980
0	FRUCTOSAN	Bulb	100000	400000	1

Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
8	FRUCTOSE	Bulb	65600	162600	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	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-glutamyl-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.
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-METHYL-ETHYL)-CYSTEINYL-GLYCINE	Bulb	--	--	
0	GAMMA-L-GLUTAMYL-S-(2-CARBOXY-BETA-METHYL-ETHYL)-CYSTEINYL-GLYCINE-ETHYL-ESTER	Bulb	--	--	
0	GAMMA-L-GLUTAMYL-VALINE	Bulb	--	--	

Chemical Plant Part		Low PPM	High PPM	StdDev	Reference Citation	
0	GIBBERELLIN-A-4	Root	--	--	Das, V. S. R., Rao, J. V. S. 1965. Onion Root Gibberellins. <i>Curr. Sci.</i> , 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. <i>Abstr. 4th Asian Symp. Med. Plants Spices Bangkok, Thailand, September 15-19: 117.</i>	
0	GLUCOFRUCTAN	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>	
7	GLUCOSE	Bulb	102000	158600	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>	
7	GLUCOSE	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>	
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. <i>J. Agr. Food Chem.</i> , 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. <i>Biosci. Biotech. Biochem.</i> , 58(1): 108-110.	
12	GLYCINE	Bulb	490	5341	1	
4	GLYCOLIC-ACID	Bulb	--	--	Balansard, J., Arnoux, M. 1951. A Study of the Hepato-Renaldiuretics. III. The Active Principle of Onion Juice. <i>Med. Trop. (Marseille)</i> , 11: 632-634.	
0	GRAMISTEROL	Bulb	--	--	Itoh, T., Tamura, T., Mitsuhashi, T., Matsumoto, T. 1977. Sterols of Liliaceae. <i>Phytochemistry</i> , 16: 140-141.	
0	HEXADECEN-1-OL	Seed	--	--		
7	HISTIDINE	Bulb	190	2071	-1	USDA's Ag Handbook 8 and sequelae)
6	IRON	Bulb	2	135	0.7831452902858658	
6	IRON	Leaf	34	436	0.18456741976079077	CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses

Chemical Plant Part		Low PPM	High PPM	StdDev	Reference	Citation
6	IRON	Seed	235	235	0.3912510395242066	
3	ISOLEUCINE	Bulb	420	4578	-1	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	KAEMPFEROL-3,4'-DI-O-BETA-D-GLUCOSIDE	Bulb	--	--		Tissut, M., Ravel, 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., Ravel, 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	--	--		
0	KILOCALORIES	Bulb	380	3750	1	CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
0	KILOCALORIES	Leaf	260	3330	0.5027842271594564	CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
0	LEAD	Bulb	0.01	1.4		
2	LEUCINE	Bulb	410	4469	-1	USDA's Ag Handbook 8 and sequelae)
27	LINOLEIC-ACID	Seed Oil	575000	590600	0.7844920848789769	
27	LINOLEIC-ACID	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>
27	LINOLEIC-ACID	Seed	103500	106200	-0.00790147227328753	Wealth of India.
11	LITHIUM	Bulb	0.152	0.324		
0	LOPHENOL	Bulb	--	--		Itoh, T., Tamura, T., Mitsunashi, T., Matsumoto, T. 1977. Sterols of Liliaceae. <i>Phytochemistry</i> , 16: 140-141.

Chemical Plant Part		Low PPM	High PPM	StdDev	Reference Citation
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	6104	-1 USDA's Ag Handbook 8 and sequelae)
65	MAGNESIUM	Bulb	76	1230	0.7319115529256467
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.
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.
14	MANGANESE	Bulb	1	38	1.4045726642160135
14	MANGANESE	Seed	19.4	19.4	-0.425040968734703
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	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	1090	-1
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.
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	Plant	--	--	
0	METHYL-CIS-PROPENYL-DISULFIDE	Bulb	--	--	Wealth of India.
0	METHYL-CIS-PROPENYL-TRISULFIDE	Bulb	--	--	

Chemical Plant Part		Low PPM	High PPM	StdDev	Reference Citation	
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. <i>J. Agric. Food Chem.</i> , 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. <i>J. Agric. Food Chem.</i> , 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. <i>J. Agric. Food Chem.</i> , 44(9): 2690-2693.	
0	METHYL-PROPENYL-TRISULFIDE	Plant	--	--		
0	METHYL-PROPYL-DISULFIDE	Bulb	--	--		
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. <i>Pharmazie</i> , 47(6): 455-456.	
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. <i>Pharmazie</i> , 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. <i>Pharmazie</i> , 47(6): 455-456.	
0	MEVALONIC-ACID	Bulb	0.5	0.5	Wills, R. B. H., Scurr, E. V. 1975. Mevalonic Acid Concentrations in Fruit and Vegetable Tissues. <i>Phytochemistry</i> , 14: 1643.	
2	MOLYBDENUM	Bulb	0.1	2.3	1.0000000000000002	
13	MUFA	Bulb	230	2230	USDA's Ag Handbook 8 and sequelae)	
3	MURAMIDASE	Bulb	--	0.033	-1	LAWSON in Koch, H. P. and Lawson, L. D., eds. 1996. <i>Garlic- The Science and therapeutic application of Allium sativum L. and related species.</i> Williams & Wilkins, Baltimore. 329 pp.
3	MURAMIDASE	Leaf	--	0.3	LAWSON in Koch, H. P. and Lawson, L. D., eds. 1996. <i>Garlic- The Science and therapeutic application of Allium sativum L. and related species.</i> Williams & Wilkins, Baltimore. 329 pp.	
6	MYRISTIC-ACID	Bulb	10	100	-1	USDA's Ag Handbook 8 and sequelae)



Chemical Plant Part		Low PPM	High PPM	StdDev	Reference Citation	
6	MYRISTIC-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. <i>J. Amer. Oil Chem. Soc.</i> , 66(3): 365.	
0	MYROSINASE	Bulb	--	--		
1	N-PROPYL-MERCAPTAN	Bulb	--	--	Nishimura, H., Mizutani, J. 1975. Effect of Gamma-Irradiation on Development of Lachrymator of Onion. <i>Agric. Biol. Chem.</i> , 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. <i>J. Agric. Food Chem.</i> , 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. <i>J. Agric. Food Chem.</i> , 44(9): 2690-2693.	
4	N-PROPYLSULPHINOTHIOIC-ACID-S-N-PROPYLESTER	Bulb	--	--		
0	NEODECANOIC-ACID	Bulb	--	--	Wealth of India.	
39	NIACIN	Bulb	1	75	1	
39	NIACIN	Leaf	7	90	-0.09123627617407809	CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
3	NICKEL	Bulb	0.05	2.5	0.9999999999999996	
3	NICKEL	Seed	0.03	4	-0.14389814511946067	
0	NITROGEN	Bulb	1700	17690		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. <i>J. Agr. Food Chem.</i> , 24(1): 194-.
0	NORCEPANONE	Bulb	--	--		Wealth of India.
64	OLEANOLIC-ACID	Bulb	--	--		
18	OLEIC-ACID	Bulb	230	2230	1	
18	OLEIC-ACID	Seed Oil	260000	292900	-0.1478289753657865	
18	OLEIC-ACID	Seed	--	46800	-0.5943767329474172	Wealth of India.
9	OXALIC-ACID	Bulb	10	10		
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. <i>Food Chem.</i> , 8(3): 169-177. (Coll. Agric. Alexandria Univ. Ale.)
25	P-COUMARIC-ACID	Bulb	--	--		

Chemical Plant Part		Low PPM	High PPM	StdDev	Reference	Citation
25	P-COUMARIC-ACID	Leaf	--	--		Das, V. S. R., Rao, J. V. S. 1964. Phenolic Acids of Onion Plant. <i>Curr. Sci.</i> , 33(15): 471-472.
25	P-COUMARIC-ACID	Root	--	--		Das, V. S. R., Rao, J. V. S. 1964. Phenolic Acids of Onion Plant. <i>Curr. Sci.</i> , 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. <i>J. Agric. Food Chem.</i> , 44(9): 2690-2693.
13	P-HYDROXY-BENZOIC-ACID	Bulb	107	107	1	
0	P-HYDROXYBANZOIC-ACID	Bulb	--	107		
0	PAEONIDIN-GLYCOSIDE	Bulb	--	--		Williamson, E. M. and Evans, F. J., <i>Potter's New Cyclopaedia of Botanical Drugs and Preparations</i> , Revised Ed., Saffron Walden, the C. W. Daniel Co., Ltd., Essex UK, 362 pp, 1988, reprint 1989.
13	PALMITIC-ACID	Bulb	240	2325	-1	
13	PALMITIC-ACID	Seed Oil	--	73000	-0.723771059427567	
13	PALMITIC-ACID	Seed	--	13140	-0.4284802139449916	Wealth of India.
11	PANTOTHENIC-ACID	Bulb	1	16	1	USDA's Ag Handbook 8 and sequelae)
24	PECTIN	Bulb	--	--		Leung, A. Y. and Foster, S. 1995. <i>Encyclopedia of Common Natural Ingredients</i> 2nd Ed. John Wiley & Sons, New York. 649 pp.
0	PELARGONIDIN-MONOGLYCOSIDE	Bulb	--	--		Fuleki, T. 1969. The Anthocyanins of Strawberry, Rhubarb, Radish, and Onion. <i>J. Food Sci.</i> , 34(4): 365-369.
0	PENTOSAN	Bulb	--	--		
0	PEROXIDASE	Bulb	--	--		
7	PHENYLALANINE	Bulb	300	3270	-1	USDA's Ag Handbook 8 and sequelae)
8	PHLOROGLUCINOL	Bulb	100	100		
0	PHLOROGLUCINOL-CARBOXYLIC-ACID	Bulb	100	100		Hermann, K. 1958. Flavonols and Phenols of the Onion ( <i>Allium cepa</i> ). <i>Arch. Pharm. (Weinheim)</i> , 291: 238-247.
4	PHOSPHORUS	Bulb	275	4038	-1	
4	PHOSPHORUS	Leaf	310	5513	0.09963731108701822	
0	PHYTOHORMONE	Bulb	--	--		
2	PHYTOSTEROLS	Bulb	150	1455	1	
0	POLYSACCHARIDES	Bulb	100000	400000		
14	POTASSIUM	Bulb	1514	22164	1	

Chemical Plant Part		Low PPM	High PPM	StdDev	Reference Citation	
0	PROLINE	Bulb	370	4033	-1	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.
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 Eiyo Shokuryo Gakkaishi, 37(4): 343-347.
0	PROPAN-1-OL	Bulb	--	--		
0	PROPANAL	Bulb	--	--		Wealth of India.
0	PROPANE-1-THIOL	Bulb	--	--		Wilkins, W. F. 1962. The Isolation and Identification of the Lachrymogenic Compound of Onion. Diss. Abstr. Int. B, 22: 3978.
0	PROPIONAL	Bulb	--	--		Wilkins, W. F. 1962. The Isolation and Identification of the Lachrymogenic Compound of Onion. Diss. Abstr. Int. B, 22: 3978.
2	PROPIONALDEHYDE	Bulb	--	--		Wilkins, W. F. 1964. Isolation and Identification of the Lachrymogenic Compound of Onion. Cornell Univ., Agr. Expt. Sta. Mem. No., 385: 31 pp.
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-.
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	1		
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.

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	Bulb	10940	162000 -1	
0	PROTEIN	Leaf	18000	231000 0.19108914041232994	CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
43	PROTOCATECHUIC-ACID	Bulb	4500	17540	
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	6005	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	--	1034	
1	PYRUVIC-ACID	Fruit Juice	1034	1034	Morgan, E. J. 1946. Pyruvic Acid in the Juice of Onion ( <i>Allium cepa</i> ). <i>Nature (London)</i> , 157: 512.
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	--	48100 1	
0	QUERCETIN-3,4'-DI-O-BETA-D-GLUCOSIDE	Bulb	1700	5600	
2	QUERCETIN-3,4'-DIGLUCOSIDE	Bulb	--	--	
2	QUERCETIN-3-O-BETA-D-GLUCOSIDE	Bulb	--	40	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	--	160	
0	QUERCETIN-4-O-BETA-D-GLUCOSIDE	Bulb	100	800	
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>

Chemical Plant Part		Low PPM	High PPM	StdDev	Reference Citation	
1	RAFFINOSE	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.	
0	RHAMNOSE	Bulb	--	--	Sinha, A. 1959. Chemical Examination of Allium cepa. I. Glycosidic and Sugar Fractions. Indian J. Appl. Chem., 22: 89-91.	
15	RIBOFLAVIN	Bulb	0.4	15	1	
0	RIBOSE	Bulb	--	--	Sinha, A. 1959. Chemical Examination of Allium cepa. I. Glycosidic and Sugar Fractions. Indian J. Appl. Chem., 22: 89-91.	
0	RUBIDIUM	Bulb	0.14	6.6	ACTA AGRIC SCAND SUPPL 22: 1980	
87	RUTIN	Bulb	--	14000		
0	S-(2-CARBOXY-PROPYL)-GLUTATHIONE	Bulb	125	125	-1	Tsuboi, S., Kishimoto, S., Ohmori, S. 1989. S-(2-carboxypropyl)glutathione in Vegetables in Liliiflorae. 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 (Allium cepa). 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	26		
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	20	1	
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.	
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.	

Chemical Plant Part		Low PPM	High PPM	StdDev	Reference Citation	
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, <i>Allium cepa</i> . <i>Adv. Front Plant Sci.</i> , 30: 189-.	
0	SELENO-METHIONINE	Bulb	--	--		
0	SELENO-METHIONINE	Plant	--	--	Hamilton, J. W. 1975. Chemical Examination of Seleniferous Onions, <i>Allium cepa</i> . <i>Adv. Front Plant Sci.</i> , 30: 189-.	
0	SELENO-METHYL-SELENOCYSTEINE	Bulb	--	--		
0	SELENO-METHYL-SELENOCYSTEINE	Plant	--	--	Hamilton, J. W. 1975. Chemical Examination of Seleniferous Onions, <i>Allium cepa</i> . <i>Adv. Front Plant Sci.</i> , 30: 189-.	
0	SELENO-METHYL-SELENOMETHIONINE	Bulb	--	--		
0	SELENO-METHYL-SELENOMETHIONINE	Plant	--	--	Hamilton, J. W. 1975. Chemical Examination of Seleniferous Onions, <i>Allium cepa</i> . <i>Adv. Front Plant Sci.</i> , 30: 189-.	
0	SELENOSIDE	Plant	--	--		
1	SERINE	Bulb	350	3815	-1	USDA's Ag Handbook 8 and sequelae)
0	SFA	Bulb	260	2520		USDA's Ag Handbook 8 and sequelae)
4	SILICON	Bulb	1	75		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. <i>Curr. Sci.</i> , 33(15): 471-472.
9	SINAPIC-ACID	Leaf	--	--		Das, V. S. R., Rao, J. V. S. 1964. Phenolic Acids of Onion Plant. <i>Curr. Sci.</i> , 33(15): 471-472.
9	SINAPIC-ACID	Root	--	--		Das, V. S. R., Rao, J. V. S. 1964. Phenolic Acids of Onion Plant. <i>Curr. Sci.</i> , 33(15): 471-472.
1	SODIUM	Bulb	8	2052	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 ( <i>Allium cepa</i> ). <i>Biosci. Biotech. Biochem.</i> , 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 ( <i>Allium cepa</i> ). <i>Biosci. Biotech. Biochem.</i> , 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 ( <i>Allium cepa</i> ). <i>Biosci. Biotech. Biochem.</i> , 58(1): 221-222.

Chemical Plant Part		Low PPM	High PPM	StdDev	Reference Citation
4	SPIRAEOSIDE	Bulb	10000	11300	
4	SPIRAEOSIDE	Epidermis	--	--	Ito, Y., Ono, M., Masuoka, C., Yahara, S., Nohara, T. 1995. Hyaluronidase Inhibitors of Onion ( <i>Allium cepa</i> L.) Skin. <i>Kyushu Tokai Daigaku Nogakubu Kiyō</i> , 14: 43-48.
8	STEARIC-ACID	Bulb	20	195	
8	STEARIC-ACID	Seed Oil	--	35000	-0.6541098145281985
8	STEARIC-ACID	Seed	--	6300	-0.4287014331879593 Wealth of India.
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. <i>Fecs. Int. Conf. Chem. Biotechnol. Biol. Act. Nat. Prod., (Proc.) 3rd</i> : 166-170.
12	STIGMASTEROL	Bulb	--	40	
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> ). <i>Hrana Ishrana</i> , 25: 167-169 (Inst Ishr Vet Fak Belgrade, Yugoslavia)
12	STIGMASTEROL	Seed	--	--	Kintia, P. K., Degtiaryova, L. P., Balashova, N. N., Shvets, S. A. 1987. Sterols and Steroidal Glycosides of Bulb Onion Seeds. <i>Fecs. Int. Conf. Chem. Biotechnol. Biol. Act. Nat. Prod., (Proc.) 3rd</i> : 166-170.
0	STRONTIUM	Bulb	57	162	
7	SUCCINIC-ACID	Bulb	--	--	Soldatenkov, S. V., Mazurova, T. A., Ranteleev, A. N. 1960. Organic Acids of Onion and Spinach. <i>Trudy Petergof Biol. Inst., Leningrad Gosudarst Univ Im AA Zhdanova</i> , 18: 55-61.
7	SUCCINIC-ACID	Leaf	--	--	Soldatenkov, S. V., Mazurova, T. A., Ranteleev, A. N. 1960. Organic Acids of Onion and Spinach. <i>Trudy Petergof Biol. Inst., Leningrad Gosudarst Univ Im AA Zhdanova</i> , 18: 55-61.
14	SUCROSE	Bulb	82600	145900	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</i> : 117.
14	SUCROSE	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</i> : 117.
0	SUGARS	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-.
14	SULFUR	Bulb	80	4075	-1
6	TARTARIC-ACID	Bulb	--	--	
31	THIAMIN	Bulb	0.3	6	-1

Chemical Plant Part		Low PPM	High PPM	StdDev	Reference Citation
31	THIAMIN	Leaf	0.5	6.4	-0.39693808734805064 CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
0	THIOPROPANAL-S-OXIDE	Bulb	--	--	
0	THIOPROPIONAL-S-OXIDE	Bulb	--	--	
4	THREONINE	Bulb	280	3052	-1 USDA's Ag Handbook 8 and sequelae)
0	TITANIUM	Bulb	0.38	11	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. <i>J. Agric. Food Chem.</i> , 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. <i>Biochem. Pharmacol.</i> , 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	--	--	
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., <i>Potter's New Cyclopaedia of Botanical Drugs and Preparations</i> , 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	13	-0.46591212987573255 Evans, L. S., Tramontano, W. A. 1984. Trigonelline and Promotion of Cell Arrest in G2 of Various Legumes. <i>Phytochemistry</i> , 23(9): 1837-1840.
29	TRYPTOPHAN	Bulb	170	1853	1 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. <i>Fecs. Int. Conf. Chem. Biotechnol. Biol. Act. Nat. Prod.</i> , (Proc.) 3rd: 166-170.



Chemical Plant Part		Low PPM	High PPM	StdDev	Reference Citation	
1	TULIPOSIDE-A	Root	--	--	Slob, A., Jekel, B., De Jong, B., Schlatmann, E. 1975. On the Occurrence of Tuliposides in the Liliiflorae. <i>Phytochemistry</i> , 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. <i>Phytochemistry</i> , 14: 1997-2005.	
8	TYROSINE	Bulb	290	3161	-1	USDA's Ag Handbook 8 and sequelae)
3	VALINE	Bulb	270	2943	-1	
24	VANILLIC-ACID	Bulb	258	258	1	
0	VIT-B-6	Bulb	1	18		USDA's Ag Handbook 8 and sequelae)
0	WATER	Bulb	866000	918000	0.778867813617976	
0	WATER	Leaf	922000	922000	0.5705515493442906	CRC Handbook of Medicinal Herbs and/or CRC Handbook of Proximate Analyses
10	XYLITOL	Bulb	--	--		Counsell, J. N., Robertson, D. J. 1976. Xylitol-A Sweetener Which is Kind to the Teeth. <i>Food Process Ind.</i> , 45(54): 24-26.
3	XYLOSE	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.
5	ZEAXANTHIN	Bulb	--	--		Granado, F., Olmedilla, B., Blanco, I., Rojas-Hidalgo, E. 1992. Carotenoid Composition in Raw and Cooked Spanish Vegetables. <i>J. Agr. Food Chem.</i> , 40(11): 2135-2140.
77	ZINC	Bulb	2	53	1.4104984605249231	
77	ZINC	Seed	34	34	-0.31604114389068755	
0	ZIRCONIUM	Bulb	0.76	1		