

# Chocolate Science: Chemical Constituents in Raw Cacao

*(listed in alphabetical order)*

♥ 3-ALPHA-L-ARABINOSIDYL CYANIDIN	♥ ISOLEUCINE 5,600 ppm	♥ PROLINE 7,200 ppm
♥ 3-BETA-D-GALACTOSIDYL- CYANIDIN	♥ L-EPICATECHIN 27,000 ppm	♥ PROPIONIC-ACID
♥ 4-HYDROXY-3-METHOXY- BENZOIC-ACID	♥ LACTIC-ACID	♥ PROTEIN 120,000 - 180,000 ppm
♥ 3-METHYLOXYTYRAMINE	♥ LEUCINE	♥ PROTEINASE
♥ ACETIC-ACID 1,520 - 7,100 ppm	♥ LEUCOCYANIDINS 14,000 - 35,000 ppm	♥ PROTOCATECHUIC-ACID
♥ ALANINE 10,400 ppm	♥ LINALOL 5 ppm	♥ PURINE 30,000 - 40,000 ppm
♥ ALKALOIDS 33,900 ppm	♥ LINOLEIC-ACID	♥ PYRIDOXINE (Vitamin B6) 1 ppm
♥ ALPHA-THEOSTEROL	♥ LINOLENIC-ACID	♥ RIBOFLAVIN (Vitamin B2) 1 - 4 ppm
♥ AMYL-ACETATE	♥ LIPASE	♥ SALSOLINOL
♥ AMYL-ALCOHOL	♥ LYSINE 800 ppm	♥ SERINE 8,800 ppm
♥ AMYL-BUTYRATE	♥ LY SOPHOSPHATIDYLCHOLINE	♥ SEROTONIN
♥ AMYLASE	♥ MAGNESIUM	♥ SITOSTEROL
♥ ANANDAMIDE	♥ MANNAN	♥ SPERMIDINE
♥ ARABINOSE	♥ MANNINOTRIOSE	♥ SPERMINE
♥ ARGININE 800+ ppm	♥ MANNOSE	♥ STACHYOSE
♥ ASCORBIC-ACID 31 ppm	♥ MELIBIOSE	♥ STARCH 60,000 ppm
♥ ASCORBIC-ACID-OXIDASE	♥ MESO-INOSITOL	♥ STEARIC-ACID
♥ ASPARIGINASE	♥ METHYLTETRAHYDROISOQUINO LINE	♥ TANNINS 75,400 ppm
♥ BETA-THEOSTEROL	♥ METHYL-HEPTENONE	♥ TARTARIC-ACID
♥ CAFFEIC-ACID	♥ N-BUTYLACETATE	♥ TELEMETHYLHISTAMINE
♥ CAFFEINE Petiole 51 - 525 ppm or 500 - 12,900 ppm, Skin 130-723 ppm	♥ N-LINOLEOYLETHANOLAMINE -- Anandamide reuptake inhibitor	♥ THEOBROMINE 10,000 - 33,500 ppm
♥ CALCIUM 800 - 1,100 ppm	♥ N-NONACOSANE	♥ THEOPHYLLINE 3,254 - 4,739 ppm -- Theophylline is a methylxanthine with diuretic and bronchial smooth muscle relaxant properties.
♥ CAMPOSTEROL	♥ N-OLEOLETHANOLAMINE -- Anandamide reuptake inhibitor	♥ THIAMINE (Vitamin B1) 1 - 3 ppm
♥ CARBOHYDRATES 347,000 - 445,000 ppm	♥ NIACIN 17 - 18 ppm	♥ THREONINE 1,400 ppm
♥ CATALASE	♥ NICOTINAMIDE 21 ppm	♥ TOCOPHEROL (BETA, GAMMA) (Vitamin E forms)
♥ CATECHINS 30,000 - 35,000 ppm	♥ NITROGEN 22,800 ppm	♥ TRIGONELLINE
♥ CHLORIDE 120 ppm	♥ NONANOIC-ACID	♥ TRYPTOPHAN
♥ CHROMIUM (10 times more than whole wheat, highest of any major food)	♥ O-HYDROXYPHENYLACETIC ACIC	♥ TYRAMINE
♥ CITRIC-ACID 4,500-7,500 ppm	♥ OCTOIC-ACID	♥ TYROSINE 5,700 ppm
♥ COPPER 24 ppm	♥ OLEIC-ACID 190,000 - 217,000 ppm	♥ VALERIANIC-ACID
♥ COUMARIN	♥ OLEO-DIPALMATIN 76,500 - 92,800 ppm	♥ VALERIC-ACID
♥ CYANIDIN-3-BETA-L- ARABINOSIDE	♥ OLEOPALMITOSTEARIN	♥ VALINE 5,700 ppm
♥ CYANIDIN-3-GALACTOSIDE	♥ OXALIC-ACID 1,520 - 5,000 ppm	♥ VANILLIC-ACID
♥ CYANIDIN-GLYCOSIDE 4,000 - 5,000 ppm	♥ P-ANISIC-ACID	♥ VERBASCOSIDE
♥ DOPAMINE	♥ P-COUMARIC-ACID	♥ VERBASCOTETROSE
♥ EPIGALLOCATECHIN	♥ P-HYDROXY-BENZOIC-ACID	♥ WATER 36,000 ppm
♥ ERGOSTEROL	♥ P-HYDROXYPHENYLACETIC- ACID	♥ XYLOSE
♥ ESCULETIN	♥ P-TYRAMINE	
♥ FAT 371,000 - 582,300 ppm	♥ PALMITIC-ACID	
♥ FERULIC-ACID	♥ PALMITODIOLIN	
♥ FIBER 59,000 - 89,000 ppm	♥ PANTOTHENIC-ACID (Vitamin B- 5) 13ppm	
♥ FORMIC-ACID	♥ PECTIN	
♥ FURFUROL	♥ PENTOSE	
♥ GLUCOSE 3,000 ppm	♥ PEROXIDASE	
♥ GLUTAMIC-ACID 10,200 ppm	♥ PHENYLACETIC-ACID	
♥ GLYCINE 900 ppm	♥ PHENYLALANINE 5,600 ppm	
♥ HISTAMINE	♥ PHENYLETHYLAMINE	
♥ HISTIDINE 800 ppm	♥ PHOSPHATIDYL-CHOLINE 92 - 1,328 ppm	
♥ INVERTASE	♥ PHOSPHOLIPIDS	
♥ IRON 36 - 37 ppm	♥ PHOSPHORUS 3,600 - 5,571 ppm	
♥ IRON-OXIDE 40 ppm	♥ POLYPHENOLS 78,000 - 100,000 ppm	
♥ ISOBUTYL-ACETATE		