

cups, nausea, parturition, polyps, sores, spasm, sterility, toothache, uteropathy, warts, worms, and wounds.^{4,32,33} In China, crushed flower buds have been used for nasal polyps, in Malaya for callous ulcers, in California for warts.⁴ Sold in oriental bazaars as a carminative and stimulant, and to relieve the irritation of sore throat. Clove oil is widely used for toothache. Clove oil is locally irritant and stimulates peristalsis. A powerful antiseptic, perhaps dangerously so, it has been applied as a local anesthetic for toothache. Has been used as an expectorant in bronchitis and phthisis. As an aromatic, powdered cloves or an infusion thereof has been given for emesis, flatulence, languid indigestion, and dyspepsia.

Per 100 g, the ground cloves are reported to contain 323 calories, 6.9 g H₂O, 6.0 g protein, 20.1 g fat, 61.2 g total carbohydrate, 9.6 g fiber, 5.9 g ash, 646 mg Ca, 105 mg P, 8.7 mg Fe, 264 mg Mg, 243 mg Na, 1102 mg K, 1.0 mg Zn, 530 IU vitamin A, 0.12 mg thiamine, 0.27 mg riboflavin, 1.46 mg niacin, 80.1 mg ascorbic acid, 0 mcg vitamin B₁₂, and 2.56 mg phytosterols. Campesterol, crataegol acid, sitosterols, and stigmasterol are reported from clove bud extracts. From an essential-oil point of view, dried cloves contain 4.0 to 10.0% nonvolatile ether extract, 5.0 to 8.0% total ash, 0.1 to 0.6% acid-insoluble ash, not less than 15% volatile oil, less than 8% moisture, and 10 to 13% crude fiber.¹⁹³ Trace element composition is 0.7 to 0.8% Ca, 0.1% P, 0.02 to 0.3% Na, 1.0 to 1.3% K, 90 to 150 ppm Fe, <0.05 ppm Co, 0.25 to 0.3 Mg, <0.2 ppm Pb, <0.5 ppm F, 0.2 ppm V, <0.04 ppm Se, <0.05 ppm Cd, <0.05 ppm Hg, 80 to 160 ppm Al, 20 to 30 ppm Ba, 30 to 60 ppm Sr, 10 to 40 ppm B, 2 to 5 ppm Cu, 4 to 25 ppm Zn, 170 to 410 ppm Mn, and 3 to 5 ppm.¹⁹³ Many compounds have been identified in the essential oil, among them 2-heptanone, ethyl hexanoate, 2-heptyl acetate, 2-heptanol, 2-nonanone, methyl octanoate, ethyloctanoate, 2-nonanyl acetate, alpha-cubene, copaene, 2-nonanol, linalool, 2-undecanone, caryophyllene, methyl benzoate, ethyl benzoate, alpha-humulene, methyl chavicol, styrallyl acetate, alpha-terpinyl acetate, alpha-amorphene, benzyl acetate, alpha-murolene, carvone, zonarene, gamma-carinene, phenyl ethyl acetate, calamenene, *trans*-anethole, benzyl alcohol, calacorene, caryophyllene oxide, methyl eugenol, 2-heptyl benzoate, humulene epoxide, cinnamaldehyde, benzyl tiglate, ethyl cinnamate, eugenol, 10-alpha-cadinol, eugenyl acetate, chavicol, and humulen-7-ol.

Toxicity — Clove bud oil is reported to have an oral LD₅₀ of 2650 mg/kg body weight in rats (equaling that of the major ingredient, eugenol, which sensitizes some people, causing contact dermatitis).