

leaves contain 0.34 to 1.72% caffeine, much of which is bound to tannins, to be freed in the fermentation process. Leaves also contain 0.096 to 0.19% theobromine, some theophylline, 4 to 16% tannin, chlorogenic and nonchlorogenic, the antitumor compounds ursolic acid, and beta-amyrin, rutin, traces of vanillin, resinous substances, ascorbic acid, riboflavin, pyridoxine, nicotinic acid, panthotenic acid or its derivatives, inositol, traces of trigonellin, and choline.³³ Among the fats, there is butyric-, isobutyric-, isovalerianic-, isocaproic-, and 4-oxolauric-acids, with 2,5-xyleneol, together with three monophenols and three polyphenols.

Toxicity — Lewis and Lewis classify maté with poisonous plants (like coffee and tea).¹¹ One kilogram prepared leaves contains only 2.5 g caffeine, cf. 4.6 g in black tea, 2.6 g in ground coffee. Gastric disturbances may also be caused by essential oils in coffee; maté contains only 10 mg/kg essential oil, cf. 410 for coffee and 6000 to 7900 for tea. Emboden lists maté as a stimulant with narcotic effects.⁵⁴