

TITLE: PROFILE OF GREEN TEA VOLATILE COMPOUNDS

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ABSTRACT:

Green tea (*Camellia sinensis*) (L.) Kuntze (Theaceae) is a non-fermented tea that is widely consumed in the world because of its unique aroma and characteristic flavour. The taste and flavour of green teas are related to their volatile compounds, such as terpenoids and terpenes, oxygenated compounds, nitrogen compounds (caffeine) and others. A wide variety of green teas are available to consumers, made with different processing methods and storage conditions, in different harvest times and seasons, with distinct climatic conditions of plant cultivation and growing regions, all of which may contribute to the characteristic aroma in each tea. Some products can be adulterated with other plant species or did not be in accordance with their label specifications. In this study, SPME was used to extract the volatile compounds from the plant, which were identified by GC-MS. Authentic fresh and dried samples of *C. sinensis* and commercial samples of green teas (30) were obtained in the Belo Horizonte market. Microbiological analysis were based on the methods of the Brazilian Pharmacopoeia for mesophilic bacteria, molds and yeasts, *E. coli* and *Salmonella* spp. The SPME fiber device was inserted into the sealed vial and exposed to the headspace of the plant material at 60 °C for 30 min and desorbed on the GC injector. Data obtained for microbiological analysis showed that 16% of the samples were not in accordance with the established limits for counts of mesophilic bacteria, 6% for mold and yeast and 84% for *E. coli*. None of the samples presented the pathogenic microorganism *Salmonella*. In the chromatographic analysis, 215 compounds were identified, including alcohols (30), aldehydes (26), hydrocarbons (31), ketones (22) and terpenes (86). The main identified compounds were benzaldehyde, linalool oxide, linalool, eugenol, benzenemethanol, 2,4-octadienal, 2-hexenal, nonanal, butyn-3-one-1-yl-menthol and methyl salicylate. Thirty compounds were found both in commercial and in authentic fresh and dried samples. The chromatographic profile of fresh and dried samples was similar with variations in peak's intensity. 76 compounds were present in both samples, but with a higher content in the dried ones. These results generate a concern related to the commercialization of medicinal plants in Brazil, due to the lack of knowledge of the current legislation and efficient inspection. The volatile composition presented a small variation between commercial and authentic samples.

Keywords: tea, volatile compounds, GC-MS, microbiological analysis.

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