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Comprehensive Study of Volatile Compounds of Tea

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Abstract

Tea is one of the major non-alcoholic beverages in the world, usually prepared by leaching the refined leaves of the plant *Camellia sinensis* in hot water. The tea leaves contain hundreds of chemical compounds. Most numerous in different types are volatile compounds. Many kinds of research about the chemical composition of tea leaves, predominantly for the food and pharmaceutical industry, were elaborated. But, because of the quantity and wide variability of volatile compounds, these researches often provide significantly different results. Therefore, until nowadays, the content and composition of volatile compounds and their changes in composition are not explored and explained enough. This study provides a complex analysis of these volatile compounds in refined tea leaves prepared for direct consumption of the final consumer. It monitors the volatiles composition according to the origin and refining method of the tea leaves, the storage method of the refined tea leaves, and the extraction method used for extraction of the volatile compounds. The analysed teas come from different Vietnam regions. Teas were stored at room temperature and packed in an anaerobic environment with the absence of light. Three extraction techniques, such as hydrodistillation, solvent extraction and headspace solidphase micro-extraction, were used for the extraction of the volatile compounds. In addition, this study examines if there are differences in volatile composition depending on the market price of refined tea. The extracted volatile compounds were analysed by GC - MS, and the results were further statistically analysed and in detail discussed.

Keywords: Gas chromatography, tea leaves, volatile compounds