Coffee leaves essential oil from natural and commercial sources.

Natália A. B. Tinoco, Thais M. Uekane, Claudia M. Rezende

Universidade Federal do Rio de Janeiro - Rio de Janeiro, Brazil
nataliaabtinoco@gmail.com

Keywords: coffee leaves, essential oil, hydrodistillation, gas chromatography.

Coffee is an important commodity throughout the world and Brazil is currently the largest producer and exporter of coffee beans (1). Worldwide, hot tea is the leading beverage besides hot coffee, with different patterns in countries due to the legacy of colonial expansion, geopolitics and trade market. But what about making tea with coffee? The aim of this study was to perform a hydrodistillation of *Coffea arabica* leaves from two origins: one directly picked from *C. arabica* trees (NL) from Morro Azul do Tinguá, Rio de Janeiro, RJ and the other from a commercial source (CL), in order to obtain the essential oils and compare the volatiles profile by GC/MS. Fresh natural leaves (NL) dried in a hot oven at 50 °C for 24 h (51g) and commercial leaves (CL) (49g) were subjected to hydrodistillation in a Clevenger-type apparatus for 5 h. The water content from both leaves was monitored by thermogravimetry. The oils were analyzed by GC/MS in an Agilent 5975C system, with a DB-Wax column (30 m X 0.25 mm X 0.25 µm). Oil components were identified by comparison of both mass spectra and linear retention indices with spectral library and literature (2). For NL, the water content was 1.5 %, while for commercial leaves it was of 10.9 %. In both oils, 47 peaks were integrated, from which 27 compounds were identified for NL, and 18 for CL. NL oil presented compounds previously reported in roasted coffee such as pyrazines and furans, besides some terpenoids. Major compounds in NL were 5-methylfurfural (14%), furfural (11%) and methyl salicylate (8%). CL essential oil presented α-terpineol (42%), followed by octanoic acid (18%). Three compounds were found in both samples, which were furfural, α-terpineol and hexahydro-farnesyl acetone. Differences between the samples can be due to use of different species, age of leaves, geographic origin or even adulteration. There are few reports in the literature on the composition of coffee leaves essential oil, most of them reported the utilization of the coffee leaves for medical purposes or in combating coffee pests. Regarding coffee-leaf tea advantages, the claim is that it has a lower content in caffeine and higher in antioxidants, mainly compared to green tea. However, more studies are needed to clarify and establish the various benefits of this matrix and its volatile compounds.

1. ABIC, 2015. http://www.abic.com.br/, accessed on August, 2015.
2. Adams, R.P. Identification of Essential Oil Components by Gas Chromatography/ Mass Spectrometry, Allured Publishing Corporation, 2007.

ISBN: 978-85-66836-11-0