9º Simpósio Brasileiro de Óleos Essenciais
20 e 22 de novembro de 2017
Caxias do Sul-RS
SBOE
ISBN Nº 978-85-66836-19-6

Volatiles extraction kinetics and essential oil composition from *Varronia curassavica* (Jacq.) and *Laurus nobilis* (L.) by hydrodistillation

Douglas S.A. Chaves[1], Pedro C. D. Junior[2], Marco A. A. Souza[1]

[1] Programa de Pós-graduação em Química, UFRRJ. [2] Programa de Pós-graduação em Fitotecnia, UFRRJ. BR 465, km 7, Seropédica, RJ, Brazil. decoerej@yahoo.com.br

Keywords: *Cordia verbenacea*, *Laurus nobilis*, essential oil.

Essential oils and their isolated compounds are applied for the manufacture of beverages, foods, cosmetics and pharmaceuticals[1]. *V. curassavica* and *L. nobilis* essential oil show anti-inflammatory, analgesic and anti-allergic proprieties[2,3] related to the sesquiterpenes *α*-humulene and *β*-caryophyllene[4,5]. Phenylpropanoids and oxigenated monoterpenes such as eugenol, methyl eugenol, eucalyptol, linalool and α-terpineol to give sensory quality to the *L. nobilis* leaves, that together with essential oil are widely used in the food industry to give flavour and biological proprieties. A large number of techniques may be used to obtain a volatile fraction, however, the essential oil can only be obtained by hydrodistillation, steam distillation or cold expression for citrus fruits[6]. Depending on the management used to grow crops and harvest or methods used to obtain essential oil, the variables almost always promote composition and quality changes. For this reason, it is difficult to establish a safe comparison within the universe of results involving essential oils of the same species. Hydrodistillation time study will contribute with substantial information that applied to essential oils production line, to promote better yield and quality and reduction in energy use. With this purpose, essential oils extracted from *V. curassavica* and *L. nobilis* dried leaves hydrodistillation, as well as, their chemical composition and extraction kinetic were evaluated. Thus, six hours continuous hydrodistillation and also aliquots collected at different time (0.5, 1, 2, 4 and 6 h) were carried out allowing calculating accumulated content (% w/w) and verifying essential oil chemical profile. Essential oils from dried leaves were obtained by hydrodistillation in Clevenger apparatus for 1 h. GC-FID and GC-MS analysis was carried out on a Hewlett-Packard 5890 II (Palo Alto, USA) and GC/MS QP-2010 Plus (Shimadzu, JPN). Substances were separated into the fused silica capillary column VF-5ms (30 m × 0.25 mm i.d., film thickness 0.25 µm, Agilent J&W). Analysis conditions and compound identification were the same as reported by literature[9]. β-caryophyllene (15.2%), β-sinesal (7.9%), (Z)-α-*trans*-bergamotol (7%), α-humulene (5.6%), and β-bisabolene (5.5%) represent *V. curassavica* essential oil major components, while, eucalyptol (19.2%), linalool (18.4%) and α-terpineol acetate (13.5%) are the major components from *L. nobilis*. The kinetics of essential oil extraction showed an not-linear distribution for the two species; the contents of monoterpenes and sesquiterpenes extracted, in each interval, showed a not-linear decline and growth, respectively. Faster monoterpene extraction than the sesquiterpene extraction was observed, however, both presented hyperbolic distribution. Extraction kinetics of eucalyptol, linalool, α-terpineol, α-humulene and β-caryophyllene and others compounds can be seen during the poster session.

1. Lange, B.M. et al. Med. Aromat. Plants 2013, **2**, 1–10.
2. Passos, G.F. et al. J. Ethnopharmacol. 2007, **110**, 323–333.
3. Sayyah, M. et al. Phyther. Res. 2003, **17**, 733–736.
4. Bakir, B. et al. Int. J. Essent. Oil. 2008, **2**, 41–44.
5. Fernandes, E.S. et al. 2007. Eur. J. Pharmacol. **569**, 228–36.
6. Rubiolo, P. et al. Flavour Fragr. J. 2010, **25**, 282–290.
7. Cavalcanti, A. S. et al. Rev. Bras. Farmacogn. 2015, **25**, 356–362.

Acknowledgements: Faperj and CAPES.