



Yield and composition of the essential oil from *Varronia curassavica* Jacq. in response to suppression of irrigation.

Cristiane de O. Bolina¹, Roselaine Facanali², Paulo S. S. da Silva¹, Filipe P. G. Bonfim¹,
Marcia O. M. Marques^{1,2}

¹ Faculdade de Ciências Agrônômicas, Universidade Estadual Paulista Júlio de Mesquita Filho, Fazenda Lageado, Rua José Barbosa de Barros, 1780, Botucatu (SP), Brazil

² Agronomic Institute of Campinas (IAC), Av. Theodureto de Almeida Camargo, 1500, Campinas (SP), Brazil
crisbolina_bio@hotmail.com

Keywords: *Varronia curassavica*, erva baleeira, essential oil, α -humulene, deficit water

Varronia curassavica Jacq, popularly known as “erva baleeira”, is a medicinal plant native of Brazil that has aroused the interest of the pharmaceutical industry because it contains in its essential oil α -humulene, a substance with anti-inflammatory activity (1,2). Due to the economic importance of the essential oil, this study evaluated the effects of withholding irrigation on yield and chemical composition of the essential oil. The experiment was conducted in a green house and a micro propagated seedlings growing in plastic pots with sub-irrigation system was used. The treatments were represented by the control (irrigated daily), and three levels of water stress. These levels were expressed by the leaf water potential I (Ψ_w): T1 - control ($\Psi_w \sim -0.3$ MPa), T2 $-\Psi_w \sim -1.0$ MPa; T3 $-\Psi_w \sim -1.7$ MPa and T4 $-\Psi_w \sim -2.5$ MPa. The Ψ_w was measured daily at 4:30 a.m. with a pressure camera. The plants were harvested eight, nine and ten days after the suppression irrigation, and they were dried in oven with air flow until reaching constant weight. The essential oil was extracted by hydrodistillation in a Clevenger-type apparatus for 2:30 h. The analysis of the chemical composition of the essential oils was performed through gas chromatograph equipped with a flame ionization detector (GC/FID) and gas chromatograph coupled to mass spectrometer (GC/MS). The smallest Ψ_w (-2.5 MPa) differed significantly from the other treatments and showed the highest oil yield (0.18 %), without causing significant losses in the production of biomass. The suppression irrigation was effective in increasing the productivity of the essential oil from *V. curassavica*. Twenty-five substances were identified in the essential oil from *V. curassavica*. The same substances were found in all the treatments. The major compounds were α -pinene (40.0 %), (*E*)-caryophyllene (22.9 %), α -humulene (4.0 %), and β -bisabolene (2.5 %). There was no statistical difference among treatments in the relative proportion for the main classes of compounds. The relative proportions of the active principals, (*E*)-caryophyllene and α -humulene, also did not differ significantly among the treatments.

1. Akisue, M.K. et al. Rev. Bras. Cienc. Farm., 1983, **5**, 69-82.

2. Quispe-Condori, S. et al. J. Supercritical Fluids, 2008, **46**, 27-32.

Acknowledgements: CAPES.