

## Chemical Composition and Antimicrobial Activity of Essential Oils of Two Asteraceae from the Brazilian Cerrado

Marcelly C. S. Santos<sup>1</sup>, Humberto R. Bizzo<sup>1</sup>, Paola E. Gama<sup>1</sup>, Roberto F. Vieira<sup>2</sup>,  
Daniela S. A. Moreno<sup>3</sup>

<sup>1</sup>Embrapa Agroindústria de Alimentos - Av. das Américas, 29501 Rio de Janeiro, Brazil

<sup>2</sup>Embrapa Recursos Genéticos e Biotecnologia - Brasília, Brazil

<sup>3</sup>Instituto de Microbiologia - Universidade Federal do Rio de Janeiro - Rio de Janeiro, Brazil  
marcelly.santos@embrapa.br

Palavras-chave: Cerrado, Asteraceae, antimicrobial activity.

Cerrado is a very ancient savannah-like formation, corresponding to approximately 21% of Brazilian territory. It occupies an area of about 2 million km<sup>2</sup>, being the second largest neo-tropical biome, an important center of biodiversity and one of most endangered biomes in Brazil. More than 12,000 plant species have been cataloged, including several aromatic plants from the Asteraceae family. The huge biodiversity from this biome may be a great source for fascinating natural scents (1,2). The AROCER project is an effort to characterize the chemical composition, olfactive profile and to evaluate the antimicrobial activity of the essential oils from Cerrado species. Samples of *Baccharis reticularia* DC and *Hoehnephytum trixoides* (Gardner) Cabrera, both from Asteraceae family, were collected in Brasília (DF) and voucher specimens were deposited at the herbarium of Embrapa Recursos Genéticos e Biotecnologia. After hydrodistillation separately in Clevenger-type apparatus for 2 hours, the oils were analyzed by GC-FID and GC-MS in Agilent 7890A and 5975C systems, both with HP-5MS fused silica capillary columns (30 m x 0.25 mm x 0.25 µm). Hydrogen was used as carrier gas for GC-FID and helium for GC-MS, both with a flow rate of 1.0 mL/min. Oven temperature was raised from 60 to 240°C at 3°C/minute. Mass detector was operated in electronic ionization mode at 70 eV. The percentage composition was obtained by normalization from FID. Oil components were identified by comparison of both mass spectra and linear retention indices with spectral library and literature. The yields of the oils were 1.0 % for both *B. reticularia* and *H. trixoides*. The main compounds found in *B. reticularia* oil were spathulenol (25.2 %) and limonene (11.9%). The oil of *H. trixoides* was rich in spathulenol (25.1%) and caryophyllene oxide (9.7%). Both essential oils were tested and presented good results as antimicrobial agents against *Salmonella enteritidis*, *Listeria monocytogenes* and *Candida albicans* (CIM: 0.16 mg/mL).

1. Vieira, R.F.; Bizzo, H.R.; Deschamps, C. Isr. J. Plant Sci., 2010, **58**, 263-271.

2. Ratter, J.A.; Ribeiro, J.F.; Bridgewater, S. Annals of Botany, 1997, **80**, 223-230.

Acknowledgements: Embrapa, UFRJ, Givaudan.