

## Formulation and *In Vitro* Determination of Antifungal Activity of *Ocimum basilicum* L. (Maria Bonita cultivar) Essential Oils

Mônica B. ALMEIDA<sup>1,2,4</sup>, Daniela L. TRAVASSOS<sup>1</sup>, Lucas ANDRADE<sup>3,4</sup>,  
Carine S. FERREIRA<sup>3,4</sup>, Patrícia SEVERINO<sup>3,4,\*</sup>, Jane J.S. MOREIRA<sup>5</sup>, Claudio M. LIMA<sup>6,7</sup>,  
Elisângela M.O. CRUZ<sup>8</sup>, Rita C. TRINDADE<sup>1</sup> & Edilson D. ARAÚJO<sup>3</sup>

<sup>1</sup> Department of Morphology, Center for Basic Health Sciences, Federal University of Sergipe, 49100-000 São Cristóvão - SE, Brazil

<sup>2</sup> Department of Biology at the Laboratory of Genetics and Conservation of Natural Resources Federal University of Sergipe, 49100-000 São Cristóvão - SE, Brazil

<sup>3</sup> Institute of Technology and Research (ITP), Av. Murilo Dantas, 300, 49010-390 Aracaju, Brazil  
<sup>4</sup> Tiradentes University (Unit), Av. Murilo Dantas, 300, 49010-390 Aracaju, Brazil

<sup>5</sup> Department of de Food Engineering Engenharia de Alimentos - Federal University of Sergipe, 49100-000 São Cristóvão - SE, Brazil

<sup>6</sup> Federal University of Sergipe, 49000-000 Lagarto - SE, Brazil

<sup>7</sup> Fármacos Handling Pharmaceuticals, SE, Brazil

<sup>8</sup> Federal University of Sergipe (UFS), Department of Agronomic Engineering, 49100-000 São Cristóvão - SE, Brazil

**SUMMARY.** Candidiasis is a common infection in a woman life caused by an imbalance of microorganism flora in the vaginal mucosa. With this, the objective was to develop a semi-solid formulation with essential oil of *Ocimum basilicum* L. for treatment of candidiasis. The essential oil was extracted by hydrodistillation, analyzed by Gas Chromatography-Mass Spectrometry (GC-MS) and determination of Minimum Inhibitory Concentration (MIC) and Minimal Fungicidal Concentration (MFC). The cream (o/w) stability with essential oil of *Ocimum basilicum* L. has studied for 60 days and determined by antifungal tests using well diffusion assay. Results showed the major constituent of essential oil obtained was linalool (76.28 %), and the MIC ranged from 0.78-1.56 mg/mL against strains of *Candida* spp. The semi-solid formulations were white, with characteristic odor, stable for 60 days and exhibited halos inhibition effectiveness against all *Candida* spp. evaluated. Results showed potential use of semi-solid formulation development in prevention and treatment of vaginal infectious diseases.

**RESUMEN.** La candidiasis es una infección común en la vida de una mujer causada por un desequilibrio de la flora de microorganismos en la mucosa vaginal. Por ello, el objetivo fue desarrollar una formulación semisólida con aceite esencial de *Ocimum basilicum* L. para el tratamiento de la candidiasis. El aceite esencial se extrajo por hidrodestilación, se analizó mediante cromatografía de gases y espectrometría de masas (GC-MS) y se determinó la concentración mínima inhibitoria (CIM) y la concentración mínima de fungicidas (MFC). La estabilidad de la crema (o/w) con aceite esencial de *Ocimum basilicum* L. se ha estudiado durante 60 días y se ha determinado mediante pruebas antifúngicas utilizando un ensayo de difusión. Los resultados mostraron que el principal componente del aceite esencial obtenido fue linalol (76.28%), y la CIM varió de 0.78-1.56 mg/mL contra cepas de *Candida* spp. Las formulaciones semisólidas eran blancas, con olor característico, estables durante 60 días y exhibieron eficacia de inhibición de halos contra todas las *Candida* spp. evaluadas. Los resultados mostraron el uso potencial del desarrollo de formulaciones semisólidas en la prevención y el tratamiento de enfermedades infecciosas vaginales.

**KEY WORDS:** candidiasis, essential oil, *Ocimum basilicum* L. (Maria Bonita cultivar), vaginal use.

\* Author to whom correspondence should be addressed. E-mail: pattypharma@gmail.com; patricia\_severino@itp.org.br