10th Brazilian Conference on Natural Products
XXXVI RESEM
4-7 November 2025, Belo Horizonte, MG, Brazil
Section: 02

SCENTS FROM BRAZILIAN ATLANTIC FOREST: CHEMICAL PROFILE AND BIOACTIVITY OF ESSENTIAL OILS FROM THREE MYRCIA SPECIES (MYRTACEAE)

Pedro Peixoto dos Reis[1], Camila de Faria Nascimento[2], Thiago Fernandes[3], Francisco P. Machado[4], Lucas Silva Abreu[5], Aislan, C. R. F. Pascoal[6], Claudia Moraes de Rezende[2], Rafael Ferreira da Silva[1,2]
pereis@id.uff.br; raferreirasilva@id.uff.br
[1]*Laboratório de Fragrâncias e Aromas da Biodiversidade, IQ – Universidade Federal Fluminense*
[2]*Laboratório de Análise de Aromas, IQ – Universidade Federal do Rio de Janeiro*
[3]*Instituto de Pesquisas, Jardim do Botânico do Rio de Janeiro*
[4]*Laboratório de Tecnologia de Produtos Naturais, FF – Universidade Federal Fluminense*
[5]*Laboratório de Química de Produtos Naturais, IQ – Universidade Federal Fluminense*
[6]*Laboratório de Pesquisa de Produtos Naturais e Moléculas Bioativas, ISN - UFF*

Niterói city, in Rio de Janeiro's metropolitan region, preserves 56% of its territory as Atlantic Forest, a major biodiversity hotspot that still harbors endemic species with phytochemical potential. Among its representative groups, the Myrtaceae family stands out for its wide distribution and industrial relevance. A survey on Reflora Herbário Virtual recorded 96 Myrtaceae species in Niterói, 73% of which remain unstudied for their essential oils. This study is part of a broader project on the prospection of aromatic Myrtaceae in local reserves. Leaves of *Myrcia loranthifolia*, *M. rubiginosa*, and *M. ovata* were selected for their pleasant aromas. Samples were collected along a trail and subjected to hydrodistillation for 3 h in a Clevenger-type apparatus. Essential oils (1% in hexane) were analyzed by GC-FID and GC-MS with an HP-5MS column [1]. Percentage composition was determined by FID peak-area normalization, and components identified by NIST library, literature, and linear retention indices [2]. Antiproliferative activity was evaluated by the MTT method in the MG-63 cell line (osteosarcoma). Results showed sesquiterpenes predominating in *M. rubiginosa* (92%) and *M. ovata* (95%), while *M. loranthifolia* was rich in monoterpenes (>50%). The major compounds were (*E*)-β-Farnesene (26.8%) and (*E*)-Caryophyllene (25.9%) in *M. ovata*; α-pinene (33.7%) and β-pinene (6.7%) in *M. loranthifolia*; and (*E*)-Caryophyllene (15.3%), Bicyclogermacrene (12.3%), and Spirolepechinene (10.2%) in *M. rubiginosa*. In the analysis of antiproliferative activity, the essential oils were able to reduce cell viability at a dose of 125 µg/mL. *M. laranthifolia* reduced cell viability by 23.25%, *M. rubiginosa* reduced cell viability by 72.89% and *M. ovata* by 37.11%. This is the first report on the chemical composition of the essential oil from *M. rubiginosa* and the oils showed slight cytotoxic activity in osteosarcoma.

Keywords: *essential oils, volatile compounds, Myrtaceae, phytochemistry, biodiversity*

[1] Silva et al. Journal of Essential Oil Research, 27:5, 417-420, 2015; [2] ADAMS, Robert P. 4.1 ed., 2017.