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

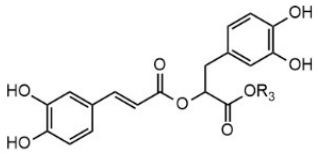
Section: 05

Chemical Profile of Cyanocephalus rugosus and Inhibitory Evaluation Against Neglected Tropical Diseases

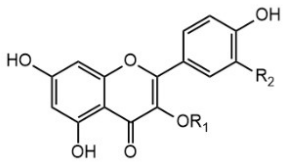
Emiret Otoni de Faria [1,5*], *Tanja Schirmeister*[2], *Lorena Ramos Freitas De Sousa*[3], *Sergio Tadeu Sibov*[4], *Lucilia Kato* [1].
emiret.faria@ifg.edu.br

1- Institute of Chemistry, UFG, Brazil. 2- Institute of Pharmaceutical and Biomedical Sciences (IPBW), UniMainz, Mainz, Germany. 3- Institute of Chemistry of UFCAT, Catalao. 4- Plant Tissue Culture Laboratory, UFG, Brazil. 5- Federal Institute of Goias, Brazil.

Cyanocephalus rugosus (Lamiaceae) is a species little explored in terms of its chemical profile and pharmacological potential. This herb found in the Cerrado of Goiás was domesticated and introduced into an agroforestry system (SAF). SAF provides agricultural productivity with ecological principles, being a sustainable approach to conventional agriculture through land use over time. This work proposed to study the chemical profile of an aromatic plant grown in an agroforestry system and how these environmental conditions influence the production of secondary metabolites in *C. rugosus*. The ethanolic extracts of the species were evaluated for inhibitory activity against dengue virus type 2 (DENV-2) serine proteases and the enzyme rhodesaina (*Trypanosoma brucei*). Identification was performed by LC-MS and spectral libraries. Rosmarinic acid **(1)**, ethyl rosmarinate **(2)** and another 41 compounds were identified for the first time in the species. The promising results of enzyme inhibition led us to bioguided fractionation and identification of the active compound. The active fraction was identified as quercitrin **(3),** originating from the extract of aerial parts showed 69% inhibition (1mg.mL^{-1}) against DENV-2. The global metabolite profile is being analyzed by PCA and PLS-DA to compare the chemical profile of the species after introduction into the SAF. The results reinforce the potential of *C. rugosus* as a source of bioactive compounds for the development of a new therapy against neglected tropical diseases (Dengue and Human African trypanosomiasis) and present the cultivation of this in a sustainable agriculture system as a viable way to obtain compounds of technological interest.



(1) R_3=H
(2) R_3=CH_2CH_3



(3) R_1= rhamnoside R_2=OH

Kaempferol R_1=H R_2=H
Quercetin R_1=H R_2=OH

Keywords: *Cyanocephalus rugosus, bioactive, proteases, DENV-2, Trypanosoma brucei, metabolomics, sustainable agriculture.*

Acknowledgments: