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

Section: 02

BIOACTIVE SECONDARY METABOLITES PRODUCED THE MARINE FUNGUS *Nigrograna* sp.

Andrés F. T. Peña[1*], Marcelo R. de Amorim[1], Rafael V. C. Guido[2], Antonio G. Ferreira[3], Roberto G. S. Berlick[1]

andres.torres@usp.br

1 – Instituto de Química de São Carlos, USP, Av. Trabalhador Sancarlense, 400, São Carlos, SP, Brazil. 2 – CIBFar, Instituto de Física de São Carlos, USP, Av. Trabalhador Sancarlense, 400, São Carlos, SP, Brazil. 3 – LRMN, Universidade Federal de São Carlos, Avenida Biblioteca Comunitária, DQ, São Carlos, SP, Brazil

Malaria is a potentially fatal disease caused by *Plasmodium falciparum*, with a high global incidence, particularly concentrated in Sub-Saharan Africa and, in Latin America, in countries such as Colombia, Ecuador and Brazil. In 2021, the World Health Organization reported 247 million cases and over 419,000 deaths resulting from this disease (MADHAV et al., 2023). Although artemisinin derivatives initially showed effectiveness in malaria treatment, the emergence of resistant strains of *P. falciparum* has compromised their therapeutic efficacy, highlighting the urgent need to identify new natural bioactive compounds with antimalarial potential (PENNA-COUTINHO et al., 2021) (KYEI-BAFFOUR et al., 2020)

In this study, secondary metabolites from aqueous, AcOEt, and mycelial extracts produced by the marine fungus *Nigrograna* sp. M13 have been isolated, identified and subjected to bioassays. Pre-purification of the extracts was performed using size-exclusion chromatography on Sephadex LH-20, and by solid-phase extraction. The resulting fractions were subjected to chemical and biological dereplication, prioritizing those that exhibited poorly investigated m/z ions in natural product databases, as well as those that demonstrated antiplasmodial activity ≥ 90%. Selected fractions were purified by HPLC-UV and identified. A series of aromatic polyketides and unusual nitrogenated metabolites have been isolated and identified, two of which displayed moderate antiplasmodial activity, with IC_{50} values of 4.9 ± 0.3 µM and 7.1 ± 0.8 µM, respectively.

Acknowledgments: The authors thank FAPESP, CNPq, and CAPES for financial support and fellowships granted.

Keywords: *Marine natural products, Marine fungi, Nigrograna sp.*

1. *Madhav H, Patel TS, Rizvi Z, et al.* ***European Journal of Medicinal Chemistry****, v. 258, n. May, p. 115564, 2023.*
2. *Penna-Coutinho J, da Silva Araújo M, Campos Aguiar AC, et al.* ***International Journal for Parasitology: Drugs and Drug Resistance****, v. 17, n. 12, p. 150–155, 2021.*
3. *Kyei-Baffour K, Davis DC, Boskovic Z, Kato N, Dai M. et al.* ***Bioorganic and Medicinal Chemistry****, v. 28, n. 19, p. 115678, 2020.*