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ANTI-PLASMODIAL BROMINATED METABOLITES FROM MARINE SPONGES OF THE BRAZILIAN COAST.

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Malaria is an infectious disease caused by *Plasmodium* parasites. In 2023, an estimated 263 million confirmed cases were reported resulting in approximately 600.000 deaths across 83 malaria-endemic countries.[1] Marine sponges are known to be an outstanding source of biologically active natural products. In the present investigation we evaluated the biological and chemical profile of three marine Verongida sponges collected at the coast of Brazil. The biological material was freeze-dried, extracted with MeOH and partitioned into hexane, AcOEt and H_2O fractions. Fractionation of the extracts resulted in enriched fractions which were subjected to the anti-*Plasmodium* assay and HPLC-UV-MS analyses. *Aplysina alcicornis* fractions (AASP) and *Aiolochroia crassa* (AiCr) were selected for further bioassay-guided investigation. Fractions AASP7, AASP12 and AiCr_F1 inhibited the growth of *Plasmodium falciparum* at 98 ± 1%, 98 ± 1% and 95 ± 1%, respectively, at concentrations of 50 µg/mL. Fractions were submitted to purification by HPLC-UV, resulting in six pure compounds (AASP7-pS7_p12C, AASP7-pS7_p12G, CSF3-T2, AASP7-pS7_p5, AASP7-pS7_p12, AASP12-pS7M). Structural elucidation was performed using spectroscopic and spectrometric analyses. Pure compounds were submitted to the antiplasmodial assay, compound CSF3-T2 displayed 94 ± 1% (IC_{50} of 50 µM) and compound AASP12-pS7M displayed 99 ± 1% (IC_{50} of 1.94 µM) of growth inhibition of *Plasmodium falciparum*. Our results demonstrate the importance of studying Brazilian marine invertebrates. The authors thank CNPq, CAPES for the student's scholarship as well as FAPESP for the financial support.

Keywords: *Marine sponge, isolation, antiplasmodial, HPLC-UV-MS, NMR*

Reference:

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