Evaluation of amides from *Piper* as antimalarial compounds

Nakabashi, M.²; Yamaguchi, L.F.¹; Fokoue, H.H.¹; Marques, J.V.¹; Kato, M.J.¹; Garcia, C.R.S.²

¹Instituto de Química, Universidade de São Paulo
²Instituto de Biociências, Universidade de São Paulo

Malaria is a leading cause of death in several developing countries worldwide. The agent responsible for this disease is a parasite of genus *Plasmodium*, in particular *P. falciparum*. Several studies testing various compounds have been done to prevent the progress of this disease, one of these searches is a natural compound. *Piper* genus belongs to the Piperaceae family and compound isolated from these species have shown several biological activities, among them, amides were described as schistosomicidal and trypanosomacidal agents. In this study, two amides, piplartine and piperine, extracted from *Piper tuberculatum* and *P. nigrum*, respectively, were evaluated as antimalarial compounds using assays against *P. falciparum* in vitro. The antimalarial activity was tested with *P. falciparum* culture incubated with serial dilution of each compound for 48 hours. After that, the samples were fixed with 2% formaldehyde, stained with YOYO-1 and the fluorescence were measured by flow cytometry (FACS). Then the parasite growth inhibition was obtained using FlowJo and the IC₅₀ values and statistical analysis were determined. Both natural compounds showed IC₅₀ lower than 10 µM. These results open new perspectives for search of effective antimalarial compounds. In order to investigate their mechanisms of action, further experiments will be conducted to evaluate the influence of these compounds on calcium release in *P. falciparum*.

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