Antiplasmodial activity screening of natural product fractions derived from endophytic fungi

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Introduction: Malaria is a life-threatening disease caused by protozoan parasites of the genus *Plasmodium*, with a major global impact on human health. In 2024, there were an estimated 282 million cases and 610,000 deaths worldwide[1]. The increasing resistance to licensed antimalarial drugs highlights the need to identify new candidates. In this context, natural products stand out due to their broad structural diversity and potent biological activity.

Objective: To identify extracts and fractions from endophytic fungal strains with antiplasmodial activity and select promising samples for bioassay-guided fractionation and structural elucidation.

Methods: The antiplasmodial activity of 167 extracts/fractions was evaluated against *P. falciparum* (3D7 strain, chloroquine-sensitive) using the SYBR Green I fluorescence assay (72 h). Samples were tested at a single concentration of 50 µg/mL, and activity was expressed as percent growth inhibition relative to the untreated control.

Results: In 2025, 167 samples were screened; 63 inhibited parasite growth by >90% at 50 µg/mL, representing 38% of the total. The most potent fractions were selected for subsequent studies, including further fractionation and chemical and biological characterization.

Conclusion: Growth inhibition screening assays are important early steps in the drug discovery pipeline. Our data indicate that natural product-derived fractions are promising candidates for bioassay-guided investigations aimed at identifying novel structural scaffolds with antiplasmodial properties.

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Reference: (1) *World Health Organization. World malaria report 2025: addressing the threat of antimalarial drug resistance.* Geneva: World Health Organization; 2025.