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Exploiting Nigerian Lichens Biodiversity for Alternative Panacea to Global Malaria Endemicity.

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Introduction: Major setbacks to the eradication of malaria endemicity globally have been resistance to the conventional drugs and drawbacks in vaccine development. In recent times, attention is being shifted towards the discovery and development of plant-based drugs in combating the disease. The therapeutic potentials of Nigerian

Lichens- the algae -Fungi symbiotic form of life are yet to be fully exploited. This study investigated the antiplasmodial and cytotoxic potentials of the foliose lichen *Flavoparmelia caperata* epiphytic on oil palm tree.

Method: Antiplasmodial activity was done using the PLDH assay method and the TOX8 test kit from Sigma-Aldrich was used for the





cytotoxic assay with chloroquine and emetine used respectively as reference drug for comparison. The constituents of the extract were separated using chromatography techniques while the structure of purified compound was elucidated using nuclear magnetic resonance spectroscopy.

Results: A novel antiplasmodial depsidone ester (1) ($IC_{50} = 25 \mu\text{g/mL}$) with insignificant cytotoxicity ($IC_{50} > 100 \mu\text{g/mL}$) was isolated and characterized from NMR spectroscopic analysis.

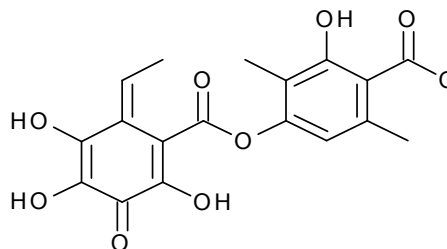
Conclusion: This study reports for the first time the potential of Nigerian lichens in the management of malaria infections.

Keywords: Lichens, epiphyte, oil palm tree, depsides malaria panacea



Flavoparmelia caperata epiphytic on oil

palm tree.



References

1. Isaka M, Tantichareon M, Kongsaeree P, Thebtaranonth Y. (2001). Structures of Cordypyridones A–D, Antimalarial *N*-Hydroxy- and *N*-Methoxy-2-pyridones from the Insect Pathogenic Fungus *Cordyceps*. *Journal of Organic Chemistry*; 66 (14): 4803-4808
2. Makler MT & Hinrichs DJ. (1993). Measurement of the lactate dehydrogenase activity of *Plasmodium falciparum* as an assessment of parasitemia. *American Journal of Tropical Medicine and Hygiene* 48, 205–210.
3. Vamanu E. (2012) *In Vitro* antimicrobial and antioxidant activities of ethanolic extract of lyophilized mycelium of *Pleurotus ostreatus* PQMZ91109. *Molecules* 17: 3653-3671.

