

Evaluation of the Biologically Active Substances in *Zanthozylum zanthozyloides* for Amelioration of COVID-19 Upshot

O.C. Ogundare, S.M. Akoro, A.O. Adepoju, M.A. Omotayo, S.A. Ogundare
& V.I. Oludare

Lagos State University of Science and Technology
Ikorodu, Lagos State, Nigeria

ABSTRACT

Cancer prevention and treatments are considered as part of the ways to reduce COVID-19 outcome. Also, most cytotoxic plants are known for biological activities like anticancer property. Thus, the *Zanthozylum zanthozyloides* secondary metabolites, antioxidant activity and cytotoxicity of its saponins- extract were investigated. The plant ethanolic-shoot-extract was screened for the presence of secondary metabolites and its components identified using gas liquid chromatography-mass spectroscopy (GC-MS). The saponins-rich extract obtained from the ethanolic-shoot-extract was subjected to in-vitro antioxidant activity via 2, 2-Diphenyl-1-picrylhydrazyl (DPPH), nitric oxide (NO) and hydrogen peroxide (H₂O₂) radical scavenging properties in comparison to ascorbic acid. The plant cytotoxicity was evaluated by using Brine shrimp lethality (BSL) in comparison with doxorubicin. The crude extract contains limonene, squalene, 3-carene, and vitamin E in addition to other secondary metabolites. The extracts induced antioxidant and BSL cytotoxic effects in a dose-dependent manner. In all cases, the saponin extract (35.40 µg/ mL) significantly ($p < 0.05$) scavenged DPPH radicals more than the ethanolic extract (42.10 µg/ mL), but lower than the ascorbic acid. Furthermore, at a lethal concentration of 78.70 µg/ mL, the saponin extract killed 50 percent of the nauplii population (LC₅₀). This activity was not as effective as doxorubicin (8.62 µg/ mL), but it was significantly more effective ($p < 0.05$) than the crude extract (102.01 µg/ mL). These findings revealed that the under studied plant possessed active secondary metabolites with potted biological activities inform of antiradical and cytotoxicity, and a possible anticancer properties that may help reducing the severity of COVID-19 outcome among patents and frontline medical personnel.

Keywords: *Zanthozylum zanthozyloides*, secondary metabolites, Antioxidant, Cytotoxicity, COVID-19

Proceedings Citation Format

O.C. Ogundare, S.M. Akoro, A.O. Adepoju, M.A. Omotayo, S.A. Ogundare & V.I. Oludare (2022): Evaluation of the Biologically Active Substances in *Zanthozylum zanthozyloides* for Amelioration of COVID-19 Upshot. Proceedings of the LASUSTECH 30th iSTEAMS Multidisciplinary Innovations Conference. Lagos State University of Science & Technology, Ikorodu, Lagos State, Nigeria May 2022. Series 30 Vol 2 Pp 118.

www.isteams.net/lasustech2022.

DOI: <https://doi.org/10.22624/AIMS/iSTEAMS/LASUSTECH2022V30-2P16>