

# Inventory of ferns in Mapawa Nature Park, Cagayan de Oro, Philippines with the anti-angiogenic screening of *Asplenium nidus* through *in vivo* CAM Assay

Christine Jean S. Agad, Eunice Joshua F. Gazmin, Sophia May R. Lagrimas,  
Michelle M. Barbon, and Mary Ann M. Ganzon\*

Specialization Years Program, Philippine Science High School-Caraga Region Campus,  
Brgy. Ampayon, Butuan City, Philippines

\*Corresponding Author's E-mail: : mmganzon@crc.pshs.edu.ph

(Received: June 11, 2020; Revised: September 16 & October 22 , 2020; Accepted: November 16, 2020)

## ABSTRACT

Ferns are nonflowering vascular plants that reproduce by spores. A variety of fern species are considered as biological indicators which multiply in specific favorable environments. The main objective of this study is to assess the diversity of ferns present in Mapawa Nature Park, Cagayan de Oro, Philippines and specifically aims to determine the effectiveness of *Asplenium nidus*' in suppressing angiogenesis in duck chorioallantoic membrane (CAM). The study identified 15 fern species around Mapawa which were processed using the documentation and labeling protocols prescribed by Guevara *et al.* (2005). Among the collected species, *A. nidus*, an indigenous plant in the Philippines, was determined to be the most abundant in the environment. For the CAM assay, seven-day incubated ducks were introduced with the phytochemical extract of *Asplenium nidus* in different concentrations. It was observed that pure and 50% concentration of *A. nidus* extract may potentially have levels of toxicity which shows mortality rate in treatments A and B. Moreover, it was found that treatment A, B, and C has a significant percent difference over the branch point than the environmental control setup with 37.4%, 53. 57% and 35.71% respectively. Based on the results, *A. nidus* has potential anti-angiogenic properties and can exhibit maximum efficacy with the 50% concentration of *A. nidus* extract. On the other hand, the inventory and characterization of the present fern species is of great significance to civilization around the ecological community since they will be able to not only maximize the economic benefits of the species, but to also know the threats of some invasive ferns.

**Key words:** ferns, chorioallantoic membrane, concentration, incubated eggs, inventory

