

***IN VITRO AND IN VIVO* SCREENING OF GARLIC (*Allium sativum*) LEAF
EXTRACTS AGAINST *Aeromonas hydrophila* ON NILE TILAPIA
(*Oreochromis niloticus* L.)**

by

LEA JOY DINGLE DARAPIEZA

An Undergraduate Thesis presented to the Faculty of the College of Fisheries in partial
fulfilment of the requirements for the degree of

BACHELOR OF SCIENCE IN FISHERIES

**Department of Aquatic Post Harvest
COLLEGE OF FISHERIES
CENTRAL LUZON STATE UNIVERSITY
Science City of Muñoz, Nueva Ecija**

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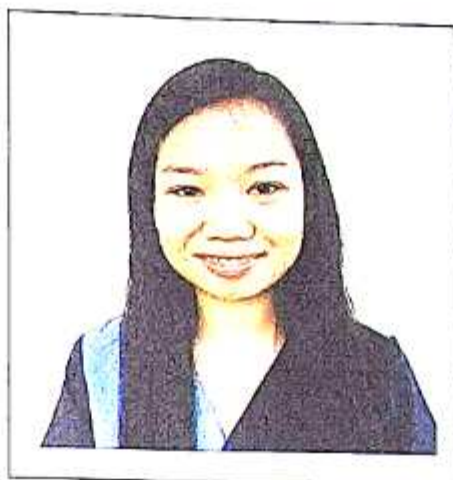
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ABSTRACT

The study was done to evaluate the garlic leaf extract as potential alternative antibiotic for *Aeromonas hydrophila*. The study had two experiments. The first experiment was the *in vitro* experiment, aimed to determine the susceptibility of *A. hydrophila* in garlic leaf extract using different extraction solvents. The second experiment was the *in vivo* experiment, aimed to determine the significant differences in the survival and water quality of Nile tilapia among all treatments. Bacterial plate counting was also done to determine bacterial colonies present in fish. A total 45 Freshwater Aquaculture Center Nile tilapia were used in this study. The treatments used for *in vitro* experiment are antibiotic chloramphenicol (positive control), distilled water (negative control), aqueous extract (T3), ethanol (T4) and methanol (T5).

In *in vitro* experiment, the susceptibility of *A. hydrophila* in chloramphenicol and garlic leaf extracted in methanol showed no significant difference. However, garlic leaf extracted in ethyl alcohol (T4) and aqueous extract (T3) were comparable to one another but significantly different from chloramphenicol (T1) and garlic leaf extracted in methanol (T5).

In *in vivo* experiment, water quality in all treatments were comparable. In the survival of Nile tilapia, antibiotic chloramphenicol (T1) and aqueous extract (T2) were significant but methanol extract (T3) was not significant as compared with T1 and T2. T1 and T3 were significantly different from T2.

Screening of garlic leaves in *in vitro* and *in vivo* experiment had positive effect on both experiment. This can be used as an alternative antimicrobial rather than antibiotic because it is inexpensive and has less negative impacts to fish and human.

It was recommended for future studies to determine the phytochemical constituents present in garlic leaf to know its bioactive compounds, try another species of fish, determine the mode of action of antibiotic in *A. hydrophila* and use the clinical standards in microbial testing.

^{1/} Undergraduate thesis presented to the faculty of College of Fisheries, Central Luzon State University as a partial fulfillment of the requirements for the degree of Bachelor of Science in Fisheries. Prepared at the Department of Aquatic Post Harvest under the supervision of Prof. Janet O. Saturno.

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