



# **DEMONSTRATION OF MARINE MICROALGAE AS AN ALTERNATIVE TO ANTIBIOTICS AGAINST BACTERIAL DISEASES OF POULTRY**

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Master of Science in Aquaculture**

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**JUNE 2020**

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**THE AUTHOR**  
**JUNE 2020**

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**This is to certify that we have examined the above Master's thesis and have found that is complete and satisfactory in all respects, and that all revisions required by the thesis examination committee have been made**

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## LIST OF ABBREVIATIONS

°C	Degree Celsius
ppt	Parts per Thousand
cm	Centimeter
μg	Microgram
ml	Micro liter
mg	Milligram
g	Gram
ml	Milliliter
mm	Millimeter
LUX	Unit of illumination

## ABSTRACT

Antimicrobial activity of the methanolic extract of dried marine microalgae *Tetraselmis* sp, *Nannochloropsis* sp. and *Chlorella* sp. was studied against Gram-negative *Escherichia coli* and *Stenotrophomona maltophilia* and Gram-positive *Staphylococcus saprophyticus*. The largest inhibition zone (8.30 mm in diameter) appeared around the disc loading of extract of *Chlorella* against *Escherichia coli*. Moreover, *Tetraselmis* showed strong antimicrobial activity (20mg/ml) against *Stenotrophomonas maltophilia*, and *Chlorella* against *E. coli* and *Staphylococcus* (10mg/ml). The observed antimicrobial activities might be linked to the contents of the extracts in fatty acid, carotenoids, chlorophylls, hycocyanin, phycoerythrin, phycobiliprotein and phenolic compounds that need to be determined. The studied microalgae could be considered as a potential natural source of bioactive compounds with antimicrobial activities.

**Key words:** Microalgae, *Chlorella*, *Tetraselmis*, *Nannochloropsis*, *Escherichia coli*, *Staphylococcus saprophyticus*, *Stenotrophomonas maltophilia*.