

Inhibitory Effect of Alagaw (*Premna Odorata*) Bark Aqueous and Ethanol Extracts Against *Escherichia coli* In - Vitro

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ALAGAW



What We Wanted to Know

- Step One
 - This study was conducted to determine the potentials of *Premna odorata* bark in inhibiting the growth of *Escherichia coli*.
 - a. aqueous extracts
 - b. ethanol extracts
 - Aqueous extract vs. Ethanol extract

What We Wanted to Know

- Step Two
 - It aimed to determine the efficacy and amount of inhibition caused by each extraction method against *E. coli* as compared to the control which is Ciprofloxacin.
 - Best from Step One vs. Ciprofloxacin

Significance of the Study

- It is in the aspect of **discovering and evaluating** another medicinal effect of alagaw particularly using the extract from the bark.
- It will help patients in remote areas.
- To nursing education geared on community health, it will provide additional knowledge on first line treatment for different infections.

Methodology

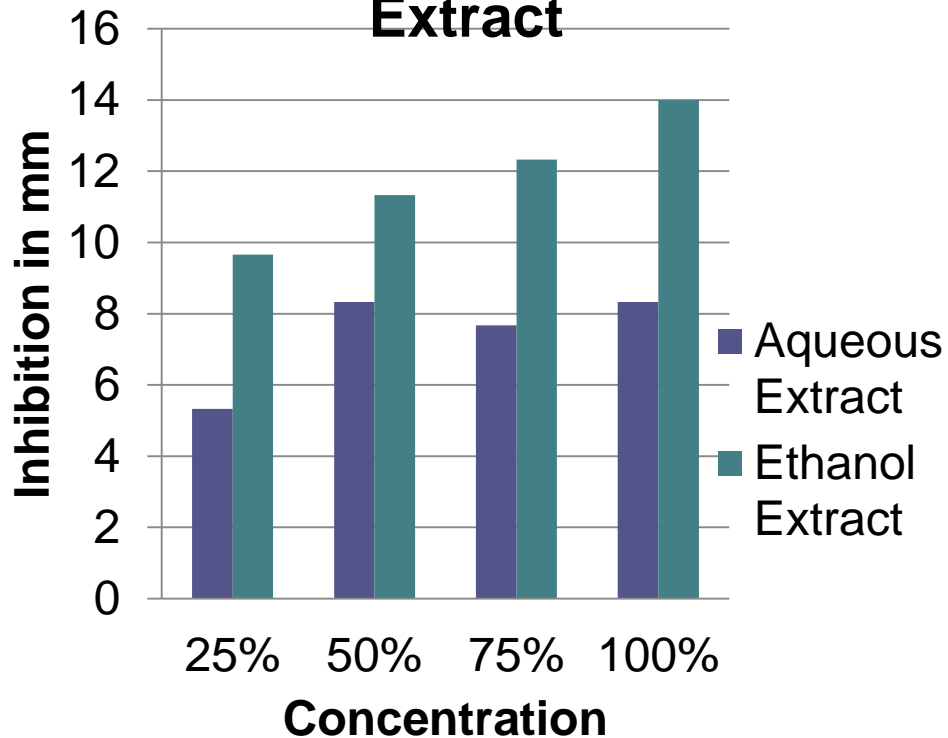
- Extraction
 - Using maceration to obtain the concentrated substances in the alagaw bark, the aqueous extract was obtained.
 - Using the Soxhlet extraction device, the ethanol extract of alagaw was obtained.
- Data collection
 - Measuring and listing the zone of inhibition.
- Data analysis
 - Analysis of Variance (ANOVA) and T test.

Results

- Phytochemical Analysis
 - Results show that the 'alagaw' bark extract contains:
 - Alkaloids
 - Deoxysugars
 - Unsaturated sterols
 - Triterpenes
 - Polyphenolic compounds

Results

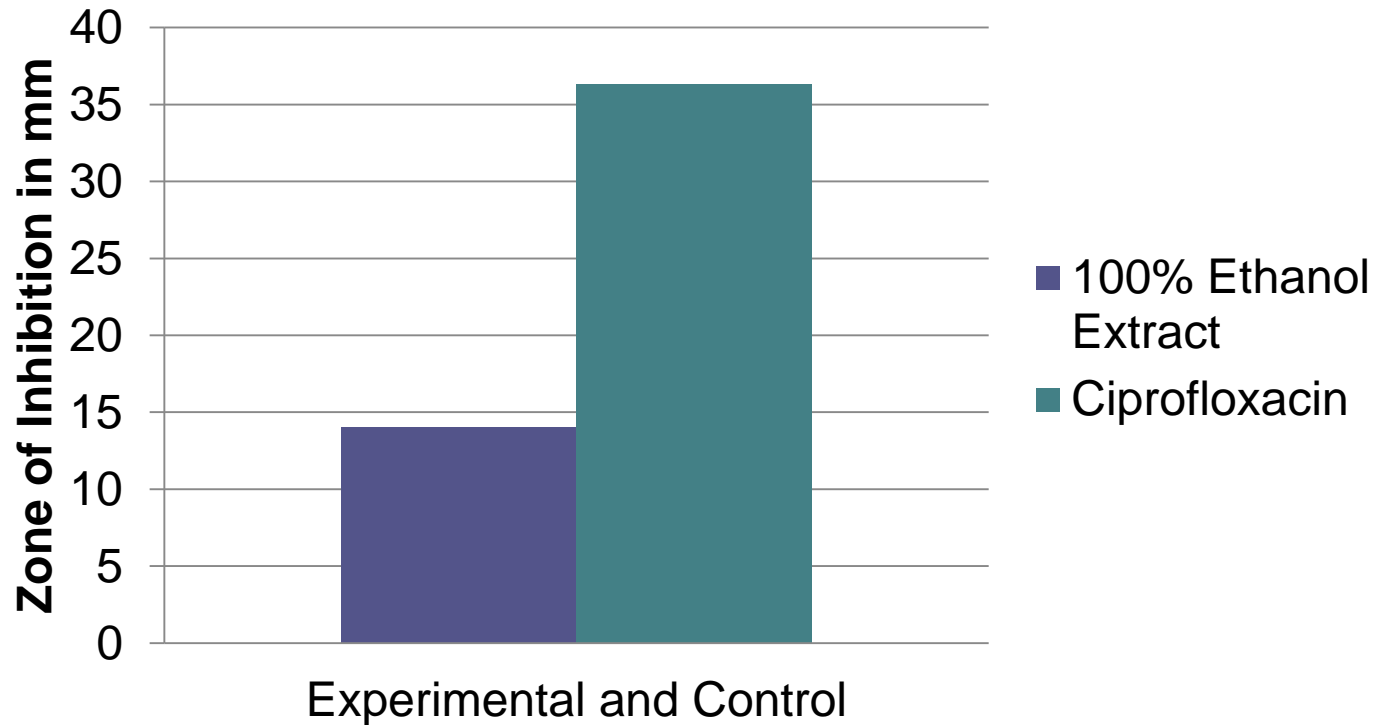
**Zones of Inhibition of
Aqueous and Ethanol
Extract**



Diameter of Zone of Inhibition	Effectivity
<9 mm	Inactive
9-12.99 mm	Partially active
13-18 mm	Active
>18 mm	Very active

Results

Zone of Inhibition of Best Concentration and Ciprofloxacin



Summary

- The different concentrations of 'alagaw' bark extract yielded different zones of inhibitions.
 - a. All of the aqueous extract concentrations were inactive against *E. coli*
 - b. 100% ethanol extract yielded the highest mean of zone of inhibition of 14 mm which is considered active against *E. Coli*
- The efficacy of the best ethanol 'alagaw' extract cannot yet compete with ciprofloxacin

Conclusion

- The phytochemicals found in the 'alagaw' bark have antibacterial properties.
- The ethanol extraction is more effective than the aqueous extraction method.
- The commercial antibiotic Ciprofloxacin is more effective than the 100% ethanol 'alagaw' bark extract.
- The ethanol extract may still have to be processed further to segregate other components that are might be present in the bark.

Recommendations

- For the growers and consumer of 'alagaw' extract:
 - a. Use 'alagaw' bark extract (both aqueous and ethanol) as an immediate treatment only.
 - b. Use the concentrated form of the ethanol bark extract.

Recommendations

- For further studies:
 - a. Aside from using the bark, other parts of the plant may be tested for any antibacterial effects. Combinations can also be tested.
 - b. Try using other methods of extraction.
 - c. Use different solvents to extract different active components.
 - d. Aside from treatment of bacteria, try treating other microorganisms.