

NATURAL REMEDIES FROM LOCAL GENUS

Extract of *Pluchea indica* Less and/or *Gardenia augusta* to Inhibit Bacteria *Staphylococcus aureus*

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1. Introduction

Staphylococcus aureus is the most common bacterial causes of ulcer disease, acne, and skin abscess. (Jawetz *et al.*, 2005). Disease prevention efforts caused by *Staphylococcus aureus* bacteria can use a skin ointment containing active ingredients that have antibacterial activity. Some natural ingredients that have potential as natural antibacterial are *Pluchea indica* L. and *Gardenia augusta* leaves. However, there is no scientific research related to antibacterial activity of ointment combination of *Pluchea indica* L. and *Gardenia augusta* and analysis of physical and chemical properties, so the questions in this study are: 1. How does antibacterial activity of ointment extract of *Pluchea indica* L. and *Gardenia augusta* inhibit the growth of *Staphylococcus aureus*? ; 2. How is the result of active compound test on *Pluchea indica* L. and *Gardenia augusta*?; 3. How is the result of physical characteristic test on ointment extract of *Pluchea indica* L. and *Gardenia augusta* (adhesive, spreading, and pH).

2. Research Method

This research is an experimental research combined with qualitative and quantitative descriptive. This study used 3 treatments, namely: (K +): chemical-based ointment circulating in the pharmacy (Gentamicin); (P1): 5% *Pluchea indica* L. leaves; (P2): 5% *Gardenia augusta* leaves;(P3): Combination of 2,5% *Pluchea indica* L. leaf 2,5% *Gardenia augusta* leaf; (P4): combination of 3,75% *Pluchea indica* L. leaf : 1,75% *Gardenia augusta* leaf,;(P5): combination of 1,75% *Pluchea indica* L. leaf :3,75% *Gardenia augusta* leaf. The subjects used in this research are *Pluchea indica* L. and *Gardenia augusta* formulated in ointment preparations while the observed objects in this study were *Staphylococcus aureus* bacteria. The data that have been collected in this research both from the results of experiments and literature review is analyzed with qualitative-quantitative descriptive

3. Results and Analysis

The inhibition zone test result of *Pluchea indica* L. and *Gardenia augusta* to *Staphylococcus aureus* has respectively P1 = 19,75 mm, P2 = 26,75, P3 = 18 mm, P4 = 19.5 mm, P5 = 24,07 mm. The

result of inhibitory test of *Pluchea indica* L. and *Gardenia augusta* shows that there are various inhibitory power. These results indicate the content of secondary metabolite compounds contained in *Pluchea indica* L. and *Gardenia augusta* leaves work synergistically in inhibiting the growth of *Staphylococcus aureus* bacteria.

Quantitative test of secondary metabolite on extract *Pluchea indica* L. showed flavonoid, phenol and tannin compound levels were 0.756% QE, 1.879% GAE, 1.328% TAE, respectively. While the extract *Gardenia augusta*, in get an active compound that is flavonoid compound, phenol and tannin respectively 0.630% QE, 2.034% GAE, 1.735% TAE. Flavonoid compounds, phenols and tannins can inhibit the growth of *Staphylococcus aureus* bacteria. The results of the analysis with GC-MS showed that there were some volatile organic ones in the *Pluchea indica* L. is 3,7-dimethyl-2,6-octadienal, sterol, 2- (prop-1-ynyl) -5- (5,6-dihydroxy-hexa- 1,3-diynyl) -thiophene and (-) catechin. In *Gardenia augusta* leaves contained more compounds that are Linalool, styrolyl, 2,2 dimethoxybutane, 1,2,3,4 Butanetetrol, 1,3,5 Pentanetriol, 3 methyl, 1.5 Anhydro d mannitol, Phenethylamine p alpha dimethyl, Benzenemethanol N-methyl, Hexasiloxane, dodecamethyl.

In the adhesive, spreading, and pH power test results, the best adhesion is P1 with an average of 5,2 seconds (50 g) and P2 with an average 47,4 sec (1 kg). In terms of spreading power, the P3 and P5 ointment has the best average spreading average of 3 cm for 50 g and P3 has 6 cm for 300 g load. The pH test results showed that all P1-P5 ointments had a pH value of 6 which tended to be neutral.

4. Conclusion

The results of the *Pluchea indica* Less and *Gardenia augusta* leaves show that the greatest is produce by P2 with 26,75 mm inhibitory zone.

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5. References

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