

## ABSTRACT

### **Antibacterial Activity of Red Algae (*Eucheuma Spinosum*) Against *Staphylococcus epidermidis* and *Escherichia coli* Bacteria**

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**Background:** *Escherichia coli* and *Staphylococcus epidermidis* are normal flora of the body that can become pathogens and cause various types of infections associated with medical devices. Infections caused by these bacteria can be treated by suppressing the growth or killing the bacteria with antibacterial injection. Antibacterial can be obtained from nature such as red algae (*Eucheuma spinosum*) which have antibacterial properties, antifungal properties and anti-inflammatory properties.

**Methods:** The design of this study was quantitative research with laboratory observational experimental methods. This study tested the inhibition of red algae extract (*Eucheuma spinosum*) with concentrations of 30%, 40%, 50%, 60%, 70%, 80%, 90%, and 100% on the growth of *Staphylococcus epidermidis* bacteria and *Escherichia coli* bacteria using the Kirby-bauer diffusion method, liquid dilution, and solid dilution to assess the inhibition zone, Minimum Inhibitory Concentration (MIC), and Minimum Bactericidal Concentration (MBC).

**Results:** The results of this study indicated the presence of an inhibition zone of red algae (*Eucheuma spinosum*) extract against *Staphylococcus epidermidis* bacteria and *Escherichia coli* bacteria at all concentrations. For MIC on *Staphylococcus epidermidis* obtained at a concentration of 100% and *Escherichia coli* obtained at a concentration of 90% and 100%. MIC on *Staphylococcus epidermidis* was not obtained, and *Escherichia coli* was obtained at a concentration of 90% and 100%.

**Conclusion:** There is an inhibitory effect of red algae (*Eucheuma spinosum*) extract on the growth of *Staphylococcus epidermidis* bacteria and *Escherichia coli* bacteria.

**Keywords:** *Eucheuma spinosum*, *Escherichia coli*, inhibition zone, minimum bactericidal concentration (MBC), minimum inhibition concentration (MIC), *Staphylococcus epidermidis*

## **ABSTRAK**

### **Uji Aktivitas Antibakteri Alga Merah (*Eucheuma Spinosum*) Terhadap Bakteri *Staphylococcus Epidermidis* Dan *Escherichia Coli***

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**Latar Belakang:** *Escherichia coli* dan *Staphylococcus epidermidis* merupakan flora normal tubuh yang dapat menjadi patogen dan menyebabkan berbagai jenis infeksi yang berasosiasi dengan peralatan medis. Infeksi yang disebabkan oleh bakteri-bakteri tersebut dapat ditangani dengan menekan pertumbuhan atau mematikan bakteri dengan pemberian antibakteri. Antibakteri bisa didapatkan dari alam seperti alga merah (*Eucheuma spinosum*) yang memiliki sifat antibakteri, antijamur, dan antiinflamasi.

**Metode:** Desain penelitian ini adalah penelitian kuantitatif dengan metode eksperimental observasional laboratorik. Penelitian ini menguji daya hambat ekstrak alga merah (*Eucheuma spinosum*) dengan konsentrasi 30%, 40%, 50%, 60%, 70%, 80%, 90%, dan 100% terhadap pertumbuhan bakteri *Staphylococcus epidermidis* dan bakteri *Escherichia coli* dengan metode difusi Kirby-bauer, dilusi cair, dan dilusi padat untuk menilai zona hambat, Kadar Hambat Minimum (KHM), dan Kadar Bunuh Minimum (KBM).

**Hasil:** Hasil penelitian ini menunjukkan adanya zona hambat ekstrak alga merah (*Eucheuma spinosum*) terhadap bakteri *Staphylococcus epidermidis* dan bakteri *Escherichia coli* pada seluruh konsentrasi. Untuk KHM pada *Staphylococcus epidermidis* didapatkan pada konsentrasi 100% dan *Escherichia coli* didapatkan pada konsentrasi 90% dan 100%. KHM pada *Staphylococcus epidermidis* tidak didapatkan hasil, dan *Escherichia coli* didapatkan pada konsentrasi 90%.

**Simpulan:** Terdapat daya hambat ekstrak alga merah (*Eucheuma spinosum*) terhadap pertumbuhan bakteri *Staphylococcus epidermidis* dan bakteri *Escherichia coli*.

Kata Kunci: alga merah, *Eucheuma spinosum*, *Escherichia coli*, kadar bunuh minimum (KBM), kadar hambat minimum (KHM), *Staphylococcus epidermidis*, zona hambat