

**UJI AKTIVITAS ANTIBAKTERI DAN ANTIBIOFILM NANOPARTIKEL
PERAK (AgNP) DARI EKSTRAK ETIL ASETAT TERONG UNGU
(*Solanum melongena* L.) TERHADAP *Staphylococcus epidermidis*
ATCC 35984**

ABSTRAK

Staphylococcus epidermidis merupakan bakteri oportunistik penyebab *Healthcare Associated Infections* (HAIs) yang memiliki kemampuan membentuk biofilm, sehingga meningkatkan resistensi terhadap terapi antibiotik konvensional. Peningkatan kejadian resistensi antibiotik mendorong pengembangan agen alternatif berbasis bahan alam, salah satunya terong ungu (*Solanum melongena* L.) yang mengandung senyawa bioaktif seperti flavonoid, alkaloid, tanin, saponin, antosianin, antrakuinon, dan terpenoid yang berpotensi sebagai antibakteri dan antibiofilm. Penelitian ini menggunakan ekstrak etil asetat terong ungu yang diperoleh melalui metode maserasi, kemudian disintesis menjadi nanopartikel perak menggunakan metode *green synthesis* dengan ekstrak terong ungu sebagai agen pereduksi dan penstabil. Tujuan penelitian ini untuk mengevaluasi aktivitas antibakteri dan antibiofilm nanopartikel perak ekstrak etil asetat terong ungu terhadap *S. epidermidis* ATCC 35984. Penelitian dilakukan secara *true experimental laboratory research* dengan rancangan *post-test only control group design*. Hasil penelitian menunjukkan bahwa nilai MIC dan MBC diperoleh pada konsentrasi 2 mg/mL yang mampu membunuh $\geq 99,9\%$ sel planktonik. Uji antibiofilm menunjukkan nilai MBIC₅₀ pada konsentrasi 2 mg/mL. Nilai MBRC₅₀ mampu mencapai reduksi biofilm tertinggi pada konsentrasi 4 mg/mL sebesar 41,36%. Nanopartikel perak ekstrak etil asetat terong ungu menunjukkan aktivitas antibakteri dan potensi antibiofilm terhadap *S. epidermidis* ATCC 35984, sehingga berpotensi dikembangkan sebagai agen antibakteri alternatif berbasis bahan alam.

Kata Kunci: Antibakteri, Antibiofilm, Nanopartikel Perak (AgNP), *Staphylococcus epidermidis* ATCC 35984, Terong Ungu (*Solanum melongena* L.).

**ANTIBACTERIAL AND ANTIBIOFILM ACTIVITY OF SILVER
NANOPARTICLES (AgNP) DERIVED FROM ETHYL ACETATE
EXTRACT OF EGGPLANT (*Solanum melongena* L.) AGAINST
Staphylococcus epidermidis ATCC 35984**

ABSTRACT

Staphylococcus epidermidis is an opportunistic bacterium associated with healthcare-associated infections (HAIs) and possesses the ability to form biofilms, thereby increasing its resistance antibiotic therapy. The rising incidence of antimicrobial resistance has encouraged the development of alternative therapeutic agents derived from natural products, including eggplant (*Solanum melongena* L.), which contains various bioactive compounds such as flavonoids, alkaloids, tannins, saponins, anthocyanins, anthraquinones, and terpenoids with potential antibacterial and antibiofilm properties. This study used an ethyl acetate extract of eggplant obtained through maceration and subsequently synthesized silver nanoparticles using a green synthesis method, in which the extract functioned as both a reducing and stabilizing agent. The study aimed to evaluate the antibacterial and antibiofilm activities of silver nanoparticles synthesized from the ethyl acetate extract of eggplant against *S. epidermidis* ATCC 35984. The study was conducted as a true experimental laboratory study with a post-test only control group design. The results showed that the MIC and MBC values were 2 mg/mL, which eliminated $\geq 99.9\%$ of planktonic cells. The antibiofilm test showed an MBIC₅₀ value at a concentration of 2 mg/mL. The MBRC₅₀ value was able to achieve the highest biofilm reduction at a concentration of 41,36% at a concentration of 4 mg/mL. Silver nanoparticles from purple eggplant ethyl acetate extract showed antibacterial activity and antibiofilm potential against *S. epidermidis* ATCC 35984, thus having the potential to be developed as an alternative antibacterial agent based on natural ingredients..

Keywords: Antibacterial Activity, Antibiofilm Activity, Eggplant (*Solanum melongena* L.), Silver Nanoparticles (AgNP), *Staphylococcus epidermidis* ATCC 35984.