

## ABSTRACT

### THE EFFECTS OF ANTIBACTERIAL POWER OF ETHANOL EXTRACT MOUTHWASH FROM CIPLUKAN LEAVES (*Physalis angulata* L.) TOWARD *Staphylococcus aureus* BACTERIA *In Vitro*

Cahyaning Hannisa Permatasari

School of Dentistry, Faculty of Medicine and Health Sciences  
Muhammadiyah University of Yogyakarta

**Background:** *Staphylococcus aureus* is one of the bacteria that causes abscess and swollen roof of mouth. *Staphylococcus aureus* causes diseases through toxins production or direct invasion, thus it can destroy tissues. Ciplukan or ciplukan (*Physalis angulata* L.) is one of the herbs which has analgesic property (pain killer), diuretic property (urine laxative), toxins neutralizer, cough reliever, and can activate the function of body glands as well as an anti-tumor. Ciplukan leaves (*Physalis angulata* L.) contains lots of polyphenols, alkaloids, and flavonoids that have antimicrobial effects.

**Research objective:** This research aimed to find out the effects of antibacterial power of ethanol extract mouthwash from ciplukan leaves (*Physalis angulata* L.) to *Staphylococcus aureus*.

**Research methodology:** This research was designed using purely laboratory experiment. Cultured *Staphylococcus aureus* was incubated with ethanol extract mouthwash from ciplukan leaves (*Physalis angulata* L.) with concentration of 5%, 10%, 15%, 20% and 25% for 18-24 hours within the temperature of 37°C. The negative control was using of Chlorhexidine gluconate 0.2% and the positive control was the basic formula of mouthwash (0% concentrate). The antibacterial power test was using liquid dilution method to determine the minimum inhibitory concentration (MIC) and solid dilution to determine the minimum bactericidal concentration (MBC). The data were analyzed using descriptive quantitative method.

**Research findings:** The result of this research shows that ethanol extract of mouthwash from ciplukan leaves (*Physalis angulata* L.) has the same minimum inhibitory concentration (MIC) and minimum bactericidal concentration (MBC) as much as 5%.

**Conclusion:** Ethanol extract mouthwash from ciplukan leaves (*Physalis angulata* L.) has antibacterial power to *Staphylococcus aureus*.

---

**Key words:** Ciplukan leaves (*Physalis angulata* L.), *Staphylococcus aureus*, mouthwash, minimum inhibitory concentration (MIC) and minimum bactericidal concentration (MBC)

## INTISARI

### **PENGARUH DAYA ANTIBAKTERI OBAT KUMUR EKSTRAK ETANOL DAUN CIPLUKAN (*Physalis angulata* L.) TERHADAP BAKTERI *Staphylococcus aureus* *In Vitro***

**Cahyaning Hannisa Permatasari**

Program Studi Pendidikan Dokter Gigi Fakultas Kedokteran dan Ilmu Kesehatan  
Universitas Muhammadiyah Yogyakarta

**Latar Belakang:** *Staphylococcus aureus* merupakan salah satu bakteri penyebab abses, dan peradangan pada rongga mulut. *Staphylococcus aureus* menyebabkan penyakit melalui produksi toksin atau invasi langsung dan menyebabkan kerusakan jaringan. Ceplukan atau ciplukan (*Physalis angulata* L.) merupakan salah satu tumbuhan herbal yang mempunyai sifat analgetik (penghilang rasa sakit), *diuretic* (peluruh air seni), menetralkan racun, meredakan batuk, mengaktifkan fungsi kelenjar-kelenjar tubuh, dan antitumor. Daun ciplukan (*Physalis angulata* L.) kaya akan *polifenol*, *alkaloid*, dan *flavonoid* yang memiliki efek antimikroba.

**Tujuan Penelitian:** untuk mengetahui daya antibakteri obat kumur ekstrak etanol daun ciplukan (*Physalis angulata* L.) terhadap bakteri *Staphylococcus aureus*.

**Metode Penelitian:** Desain penelitian ini adalah eksperimental murni laboratorium. Menggunakan biakan bakteri *Staphylococcus aureus* yang diinkubasi dengan obat kumur ekstrak etanol daun ciplukan (*Physalis angulata* L.) pada konsentrasi 5%, 10%, 15%, 20% dan 25% selama 18-24 dalam suhu 37°C, kontrol negatif menggunakan *Chlorhexidine gluconate* 0.2% dan kontrol positif adalah formula dasar obat kumur (konsentrasi 0%). Uji daya antibakteri menggunakan metode dilusi cair untuk menentukan kadar hambat minimal (KHM) dan dilusi padat untuk menentukan kadar bunuh minimal (KBM). Analisis data menggunakan deskriptif kuantitatif.

**Hasil Penelitian:** penelitian ini menunjukkan bahwa obat kumur ekstrak etanol daun ciplukan (*Physalis angulata* L.) mempunyai kadar hambat minimal (KHM) dan kadar bunuh minimal (KBM) pada konsentrasi yang sama yaitu 5%.

**Kesimpulan:** obat kumur ekstrak etanol daun ciplukan (*Physalis angulata* L.) mempunyai pengaruh daya antibakteri terhadap bakteri *Staphylococcus aureus*.

---

Kata kunci: Daun ciplukan (*Physalis angulata* L.), *Staphylococcus aureus*, obat kumur, kadar hambat minimal (KHM), kadar bunuh minimal (KBM)