

ABSTRACT

Effect Rosella Extract (Hibiscus sabdariffa) as Antibacterial to Staphylococcus epidermidis in In-Vitro

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Background: Infection of *Staphylococcus epidermidis* is still a common problem found in many hospitals. Factor determining biofilm formation makes it harder for antibiotics to cure the infection. Rosella (*Hibiscus sabdariffa*), a well known traditional medicine plant is a potential candidate to be developed into drugs against infectious disease.

Purpose: The purpose of this research is to investigate the antibacterial effect of ethanol extract from rosella (*Hibiscus sabdariffa*) calyx against the growth of *Staphylococcus epidermidis*.

Method: Assessment for antibacterial effect is done using broth diffusion method. The extract is made by maceration of the calyx of rosella in 96% ethanol. Extract with concentration of 125, 62.5, 31.25, 15.63, 7.81, 3.90, 1.95, 0.97, 0.48, 0.24 mg/mL are added into separated Mueller-Hinton broth (MHB), which have already been inoculated by *Staphylococcus epidermidis*. For control positive, we used bacterial and MHB inoculation as for negative control we used mixture of extract and MHB. Then from each broth, the solutions are added into separate nutrition agar plates. Replications are done three times. Clearance and bacterial growth are observed after 24 hours of incubation.

Result: Clearance cannot be observed in 36 broth, but bacterial growth is observed on the plate for concentration 0.97, 0.48, and 0.24 mg/mL.

Analysis: Minimum inhibitory concentration cannot be determined because the extract's color interferes the observation. While minimum bactericidal concentration, the last concentration before the concentration where the bacteria is still viable, is 1.95 mg/mL.

Discussion: important substance, flavonoid like protocatechuic acid, is the active substance that contributes in killing the bacteria. Previous studies said that flavonoid in rosella can even inhibit bacterial biofilm, an ability of bacteria that makes it more resistant to antibiotics. This makes rosella a potential alternative medicine in bacterial infection.

Keyword: *Hibiscus sabdariffa*, antibacterial, *Staphylococcus epidermidis*.