Antimicrobial activity of the saponin extract of *Sansevieria trifasciata* var. Golden Hahnii

**Whika Febria Dewatisari**
Universitas Terbuka, Indonesia

*Sansevieria trifasciata* used as an ornamental plant. It also used as a traditional medicine for influenza, cough and inflammation of the respiratory tract. The roots and leaves of *S. trifasciata* contains many secondary metabolites such as saponins that efficacious as a cough remedy to treat sprains, injuries hit, venomous snake bites, ulcers, cough, inflammation of the respiratory tract and hair growth. Microbes are used to seeing the antibacterial saponins activities of *S. trifasciata* are *Escherichia coli* and *Staphylococcus aureus*. The main reason for used these microbes because *E. coli* is a bacterium that causes diarrhea and *S. aureus* is one of the bacteria that cause cough in humans. Plants were used *S. trifasciata* var. Golden Hahnii. Based on research by Dewatisari (2008), states that the variety had the highest saponin content of *S. trifasciata* is Golden Hahnii among other varieties and the parts that had the highest saponin were in its roots. This article aims to explain quantitatively the effectiveness of saponin compounds from the roots of *S. trifasciata* var. Golden Hahnii as anti-microbials in inhibiting the growth of bacteria *S. aureus* and *E. coli*. Methods of data collection were sample preparation, a preliminary test, the extraction of saponins, antibacterial activity test and isolate compound separation by TLC (Thin layer Chromatography). This study includes the extraction of the active compounds in the roots of *S. trifasciata* by maceration with methanol 90%. Separation of the active compound was conducted by TLC. Eluent used was chloroform; methanol; water with various concentration (13: 4: 1), (65: 50: 10), (20: 60: 4), 20:60:10). Antibacterial test conducted by the disc diffusion method against *S. aureus* and *E. coli*. Identification of test compounds triterpenoid saponins using foam and Liebermann-Burchard color test (LB). The results showed that the extract of the roots has potential as anti-bacterial. The extract was able to inhibit the growth of *E. coli* and *S. aureus*. At the optimum concentration of 200 ppm produced inhibition zone was 26.5 mm to 20.2 mm for *S. aureus* and *E. coli*. Best eluent to separate the triterpenoid saponins using foam and Liebermann-Burchard color test (LB). The results showed that the root extract as an anti-bacterial *S. trifasciata* was synergistic. It was seen from the inhibition zone, for *E. coli* isolates I=5.52 mm and isolates II=2.50 mm, for *S. aureus* isolates I=1.52 mm and isolates II=0.58 mm while the isolates III is not effective as an anti-bacterial.

**Biography**

Whika Febria Dewatisari is an Academic Staff at Department of Mathematic and Natural Science in Open University (Universitas Terbuka) Bandar Lampung-a public university in Indonesia. She is a Biology Lecturer and started working at 23 years old. She teaches courses in Plant Embriology, Microbiology and Ecology.

dewatisari@whika.web.id
whika@ut.ac.id

**Notes:**

---

*Sansevieria trifasciata* used as an ornamental plant. It also used as a traditional medicine for influenza, cough and inflammation of the respiratory tract. The roots and leaves of *S. trifasciata* contains many secondary metabolites such as saponins that efficacious as a cough remedy to treat sprains, injuries hit, venomous snake bites, ulcers, cough, inflammation of the respiratory tract and hair growth. Microbes are used to seeing the antibacterial saponins activities of *S. trifasciata* are *Escherichia coli* and *Staphylococcus aureus*. The main reason for used these microbes because *E. coli* is a bacterium that causes diarrhea and *S. aureus* is one of the bacteria that cause cough in humans. Plants were used *S. trifasciata* var. Golden Hahnii. Based on research by Dewatisari (2008), states that the variety had the highest saponin content of *S. trifasciata* is Golden Hahnii among other varieties and the parts that had the highest saponin were in its roots. This article aims to explain quantitatively the effectiveness of saponin compounds from the roots of *S. trifasciata* var. Golden Hahnii as anti-microbials in inhibiting the growth of bacteria *S. aureus* and *E. coli*. Methods of data collection were sample preparation, a preliminary test, the extraction of saponins, antibacterial activity test and isolate compound separation by TLC (Thin layer Chromatography). This study includes the extraction of the active compounds in the roots of *S. trifasciata* by maceration with methanol 90%. Separation of the active compound was conducted by TLC. Eluent used was chloroform; methanol; water with various concentration (13: 4: 1), (65: 50: 10), (20: 60: 4), 20:60:10). Antibacterial test conducted by the disc diffusion method against *S. aureus* and *E. coli*. Identification of test compounds triterpenoid saponins using foam and Liebermann-Burchard color test (LB). The results showed that the extract of the roots has potential as anti-bacterial. The extract was able to inhibit the growth of *E. coli* and *S. aureus*. At the optimum concentration of 200 ppm produced inhibition zone was 26.5 mm to 20.2 mm for *S. aureus* and *E. coli*. Best eluent to separate the triterpenoid saponins in root extracts of *S. trifasciata* was chloroform; methanol; water at a concentration (20: 60: 4) with 3 separate visible stains are: 0.135; 0.85; 0.815. Mechanism root extract as an anti-bacterial *S. trifasciata* was synergistic. It was seen from the inhibition zone, for *E. coli* isolates I=5.52 mm and isolates II=2.50 mm, for *S. aureus* isolates I=1.52 mm and isolates II=0.58 mm while the isolates III is not effective as an anti-bacterial.

**Biography**

Whika Febria Dewatisari is an Academic Staff at Department of Mathematic and Natural Science in Open University (Universitas Terbuka) Bandar Lampung-a public university in Indonesia. She is a Biology Lecturer and started working at 23 years old. She teaches courses in Plant Embriology, Microbiology and Ecology.

dewatisari@whika.web.id
whika@ut.ac.id

---