

**ABSTRACT****Inhibition Analysis on Ahasin, of Javanis Snail *Achatina fulica* Ferussac, as an Antibacterial Substance on the Viability of *Escherichia coli* and *Streptococcus mutans*****Titiek Berniyanti**

This aim of the research is to study the effects of glycoprotein (Ahasin) Java nis snail mucus *Achatina fulica* Ferussac on the viability of *Escherichia coli* and *Streptococcus mutans* bacteria. The existence of some antibacterial factors are likely present in the glycoprotein, and three-step of studies were conducted to investigate it. The first step of study was identification, isolation and investigation of the antibacterial activity of the snail mucus. The snail used in this study was belong to *Achatina fulica* Ferussac species, and captured in East Jawa. The antibacterial activity was identified in the aqueous extract and mucin fraction of the mucus Javanis snail *Achatina fulica* Ferussac on that two kinds of tested bacteria.

The second step of the study was characterization and detection of molecular Ahasin. The objective of the study was to find out the characteristics of an active pure protein on the ahasin according to its pH, molecular weight and antigen antibody reaction through purification by ion exchange chromatography, SDS-PAGE and immunoblotting test. The third step was investigate how the ahasin attacked bacteria and killed them. The bacteria without Ahasin and with the Ahasin concentration of 1 mg/ml added to the bacteria were tested and observed during 1, 2, 4, and 5 hours. Changes in ultrastructure were observed using TEM.

The mucus exhibited positive antibacterial activity both for the gram positive bacteria and gram negative bacteria when assayed by diffusion (sumuran) method. The bactericidal effect of ahasin was observed and its MIC was on the concentration of 6.25 µg/ml pada *S. mutans* dan 50 µg/ml pada *E. coli*. An antibacterial glycoprotein with molecular weight of 71,3 kDa and pH 8 was found in the mucin obtained from the body surface mucus of Javanis snail *Achatina fulica* Ferussac.

There were ultrastructure changes of the treated bacteria. The site that had been attacked by ahasin was determined by TEM to be the cell wall and cytoplasmic membran of the cell. Their cell wall had no septa, the membrane leakage, the material genetic condense, spheroplast, clearing, and vacuolization. The conclusion of the study was that antimicrobial peptide were present on the Javanis snail mucus *Achatina fulica* Ferussac and it affect the viability of gram negative bacteria *Escherichia coli* and gram positive bacteria *Streptococcus mutans*.

Keyword: Javanis snail mucus *Achatina fulica* Ferussac, Cell wall-Cytoplasmic membran electron microscopy on *Streptococcus mutans*.