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Characterization of lytic phage S*taphylococcus aureus*from dairy farm cows in Indonesia

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Abstract : *Staphylococcus aureus* is one of pathogenic bacteria causing multitude of diseases. This bacterium was resistant to ampicillin, tetracycline and chloramphenicol. Therefore, to reduce potential infection of antibiotic resistant *S. aureus*, alternative solutions such as application of lytic phage were needed. The aims of this study were to isolate and characterize phage that can lyse *S. aureus* cells. Phages were isolated from waste water from local dairy farm. Phage isolates were determined by their ability to form plaques, specificity, morphology, and effectiveness of bacteriolysis. In this study, 3 phages (FSb, FSs, and FSk) were isolated to replicate *S. aureus* isolates as a potential way to control these infections. Phage was specific to *S. aureus* as its host. Transmission electron microscope observation showed that the FSb and FSk can be classified as a member of *Myoviridae* family, while FSk was the member of *Siphoviridae* family. FSb had an icosahedral head in 85.71 nm diameter, long tail of 126.67 nm, and the diameter of the tail about 20.00 nm width; FSs had an icosahedral head in 53.33 nm diameter, long tail of 106.67 nm, and the diameter of the tail about 13.33 nm width; FSk had an icosahedral head in 66.67 nm diameter, long tail of 120.00 nm, and the diameter of the tail about 16.67 nm width. All lytic phage reduced the population of *S. aureus* effectively. Lytic phages found in this study can be used as an alternative therapy agent to *S. aureus* infected.
Keywords: Characterization, lytic phage, *Staphylococcus aureus*.

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