

KAJIAN FAKTOR VIRULEN *Staphylococcus aureus* ISOLAT ASAL KAMBING PERANAKAN ETTAWA DAN UJI PATOGENISITAS BERDASARKAN DAYA FAGOSITOSIS SEL MAKROFAG

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INTISARI

Staphylococcus aureus merupakan bakteri utama penyebab mastitis kambing Peranakan Ettawa (PE). Terdapat beberapa faktor virulen pada *Staphylococcus aureus* yang mempengaruhi tingkat patogenisitas bakteri tersebut. Penelitian ini bertujuan mengetahui faktor virulen *Staphylococcus aureus* isolat asal kambing PE dan uji patogenisitas berdasarkan daya fagositosis sel makrofag.

Sebanyak 8 isolat dari total 26 isolat *Staphylococcus aureus* yang dinyatakan positif melalui uji *mannitol salt agar* (MSA), katalase, *clumping factor*, koagulase dan uji *voges proskauer* (VP). Karakterisasi dilakukan untuk mengetahui faktor virulen antara lain dengan pengamatan sifat hemolisis, uji pigmentasi, uji hemaglutinasi, dan uji *soft agar* (SA). Uji fagositosis sel makrofag dilakukan menggunakan sel makrofag peritoneal mencit secara *in vitro*.

Hasil karakterisasi terhadap 8 isolat menunjukkan bahwa *Staphylococcus aureus* mempunyai sifat α -hemolisa (12,5%), β -hemolisa (37,5%), dan γ -hemolisa (50%), memperlihatkan pigmen berwarna kuning (25%) dan putih (75%). *Staphylococcus aureus* mampu mengaglutinasi eritrosit domba dan sapi (100%) dan eritrosit ayam (87,5%). Sifat pertumbuhan *Staphylococcus aureus* di media *soft agar* (SA) tumbuh koloni difus (12,5%) dan kompak (87,5%). *Staphylococcus aureus* dengan koloni difus difagosit makrofag lebih sedikit dengan rata-rata sebanyak 13,9 bakteri/sel daripada koloni kompak yang difagosit makrofag dengan rata-rata sebanyak 14,33 bakteri/sel.

Kata kunci : mastitis, kambing PE, faktor virulen, *Staphylococcus aureus*, fagositosis, makrofag

**STUDY OF VIRULENCE FACTORS OF *Staphylococcus aureus*
ISOLATED FROM ETTAWA CROSSBRED GOAT AND
PATHOGENECITY ASSAY BASED ON PHAGOCYTIC
ACTIVITIES OF MACROPHAGE CELLS**

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ABSTRACT

Staphylococcus aureus is the main bacteria causing mastitis of the Ettawa crossbred goat. There are some virulence factors of *Staphylococcus aureus* that influence patogeneity of their pathogenicity. The aim of the research were to determine the virulence factors of *Staphylococcus aureus* isolated from Ettawa crossbred goat and their pathogenecity based on phagocytic activities of macrophage cells.

There were 8 isolates from 26 total *Staphylococcus aureus* isolates that have been identified based on mannitol salt agar (MSA), catalase, clumping factor, coagulase, voges proskauer tests. Characterization of *Staphylococcus aureus* factors were determined trough the ability to produce of haemolysins and pigments on blood agar, hemagglutination reactions and soft agar (SA) test. Phagocytose of macrophage cells test was conducted using mice peritoneal macrophage cells by in vitro.

The results of the research showed that 8 *Staphylococcus aureus* could haemolyse of sheep blood agar with type of α -haemolysis (12,5%), β -haemolysis (37,5%), and γ -haemolysis (50%). *Staphylococcus aureus* abled to produce both yellow (25%) and white (75%) pigments. *Staphylococcus aureus* could agglutinated erythrocytes of sheep and cattle (100%) and erythrocytes of chicken (87,5%). The growth of colonies in SA medium showed diffuse colonies (12,5%) and compact colonies (87,5%). *Staphylococcus aureus* with diffuse colonies could be phagocytosed by macrophage for about 13,9 bacteria/cell lower than the compact colonies for about 14,33 bacteria/cell.

Key words: mastitis, Ettawa crossbred goat, virulence factor, *Staphylococcus aureus*, phagocytose, macrophage