

ABSTRAK

KARAKTERISTIK FENOTIPIK *Staphylococcus aureus* ISOLAT ASAL SAPI PERAH, ANJING, DAN KUCING DI JAWA TENGAH DAN YOGYAKARTA

Salma Rosyadah
21/480936/KH/10975

Staphylococcus aureus merupakan bakteri patogen komensal yang dapat menyebabkan berbagai penyakit pada hewan dan manusia, seperti mastitis, dermatitis, pneumonia, dan infeksi luka. Bakteri ini umumnya ditemukan pada kulit, membran mukosa, serta saluran pernapasan bagian atas. Interaksi yang erat antara manusia dengan hewan kesayangan memungkinkan terjadinya transmisi dua arah patogen ini. Penelitian ini bertujuan untuk mengidentifikasi dan mengkarakterisasi sifat fenotipik isolat *S. aureus* yang diperoleh dari sapi perah, anjing, dan kucing. Isolat diperoleh dari 5 sampel susu sapi perah yang diduga mengalami mastitis subklinis di peternakan rakyat Boyolali serta usapan dari 5 anjing dan 5 kucing di beberapa klinik hewan di Yogyakarta dan Semarang. Identifikasi fenotipik dilakukan melalui metode kultur pada media *Tryptic Soy Broth* (TSB), *Mannitol Salt Agar* (MSA), dan *Triple Sugar Iron Agar* (TSIA), diikuti dengan pengecatan Gram, pengamatan pola hemolisis, uji katalase, uji koagulase, serta uji *Methyl Red* (MR) dan *Voges-Proskauer* (VP). Seluruh isolat tumbuh baik pada TSB dan menunjukkan morfologi kokus Gram positif. Semua isolat memfermentasi manitol, sementara satu isolat gagal memfermentasi gula pada TSIA. Aktivitas katalase terdeteksi pada 80% isolat anjing dan kucing serta 60% isolat sapi. Seluruh isolat menunjukkan hasil positif pada uji MR. Uji VP menunjukkan hasil positif pada 80% isolat sapi dan 43% isolat hewan kesayangan. Pola hemolisis menunjukkan bahwa isolat dari sapi memiliki 40% β -hemolisis, 80% γ -hemolisis, dan 20% α -hemolisis, sementara isolat dari hewan kesayangan menunjukkan 70% β -hemolisis dan 30% γ -hemolisis. Aktivitas koagulase terdeteksi pada 40% isolat sapi dan 60% isolat hewan kesayangan. Hasil ini mengindikasikan adanya keberagaman karakteristik fenotipik antarhospes. Keberagaman ini penting untuk diperhatikan dalam diagnosis laboratorium seta potensi implikasi zoonosis.

Kata kunci: *Staphylococcus aureus*, identifikasi, karakteristik fenotipik, hewan kesayangan, sapi perah.

ABSTRACT

PHENOTYPIC CHARACTERISTICS OF *Staphylococcus aureus* ISOLATES FROM DAIRY CATTLE, DOGS, AND CATS IN CENTRAL JAVA AND YOGYAKARTA

Salma Rosyadah
21/480936/KH/10975

Staphylococcus aureus is a commensal pathogenic bacterium capable of causing various diseases in both animals and humans, such as mastitis, dermatitis, pneumonia, and wound infections. This bacterium is commonly found on the skin, mucous membranes, and upper respiratory tract. Close interaction between humans and companion animals enables potential bidirectional transmission of this pathogen. This study aimed to identify and characterize the phenotypic traits of *S. aureus* isolates obtained from dairy cattle, dogs, and cats. Isolates were collected from five milk samples of dairy cows suspected of subclinical mastitis in smallholder farms in Boyolali, as well as swabs from five dogs and five cats at veterinary clinics in Yogyakarta and Semarang. Phenotypic identification was conducted through culture on *Tryptic Soy Broth* (TSB), *Mannitol Salt Agar* (MSA), and *Triple Sugar Iron Agar* (TSIA), followed by Gram staining, observation of hemolysis patterns, catalase test, coagulase test, and *Methyl Red* (MR) and *Voges-Proskauer* (VP) tests. All isolates grew well in TSB and exhibited Gram-positive cocci morphology. All isolates fermented mannitol, while one isolate failed to ferment sugar on TSIA. Catalase activity was observed in 80% of companion animal isolates and 60% of cow isolates. All isolates tested positive for the MR test. The VP test yielded positive results in 80% of bovine isolates and 43% of companion animal isolates. Hemolysis patterns revealed that bovine isolates showed 40% β -hemolysis, 80% γ -hemolysis, and 20% α -hemolysis, whereas companion animal isolates showed 70% β -hemolysis and 30% γ -hemolysis. Coagulase activity was detected in 40% of bovine isolates and 60% of companion animal isolates. These findings indicate phenotypic variability across host species, which is important to consider in laboratory diagnostics and potential zoonotic implications.

Keywords: *Staphylococcus aureus*, identification, phenotypic characteristics, companion animals, dairy cattle.