

## ABSTRAK

### IDENTIFIKASI DAN KARAKTERISASI *Staphylococcus aureus* ISOLAT ASAL SUSU DAN SWAB NASAL

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*Staphylococcus aureus* merupakan bakteri patogen oportunistik, yang dapat ditemukan pada susu sapi maupun kambing serta cairan mukosa nasal manusia, namun dapat menjadi patogen pada hewan maupun manusia. Penelitian ini bertujuan untuk melakukan identifikasi dan karakterisasi *Staphylococcus aureus*.

Bakteri *Staphylococcus aureus* yang berasal dari sampel susu sapi, susu kambing, dan swab nasal manusia dari dua peternakan di Yogyakarta diisolasi di Balai Laboratorium Kesehatan dan Kalibrasi Yogyakarta. Isolat kemudian diidentifikasi dengan pengecatan Gram, uji katalase, uji koagulase, uji *clumping factor*, uji *Methyl Red Voges Proskauer*, dan penanaman pada *Mannitol Salt Agar*. Karakterisasi meliputi pengamatan sifat hemolisis pada media Plat Agar Darah, uji hemaglutinasi, penanaman pada *Lysine Iron Agar* dan *Triple Sugar Iron Agar*, dan uji gula-gula.

Hasil menunjukkan, seluruh isolat bersifat Gram positif, positif pada uji katalase, uji koagulase, uji *clumping factor*, uji MRVP, dan bersifat fermentatif mannitol pada media MSA. Berdasarkan produksi hemolisin, sebanyak 16 isolat (88,89%) memiliki sifat beta-hemolisis dan 2 isolat (11,11%) memiliki sifat gamma-hemolisis atau non hemolisis. Berdasarkan tes hemaglutinasi, semua isolat *Staphylococcus aureus* mampu mengaglutinasi eritrosit. Berdasarkan sifat enzim urease yang diproduksi, sebanyak 6 sampel (33,33%) bersifat *rapid-positive urease*, 5 sampel (27,78%) bersifat *weak-positive urease*, dan 7 sampel (38,89%) bersifat urease negatif. Berdasarkan penanaman pada media LIA, semua isolat menunjukkan hasil negatif deaminasi lisin, positif dekarboksilase lisin, dan negatif reduksi sulfur. Berdasarkan penanaman pada media TSIA, semua isolat menunjukkan hasil positif fermentatif glukosa dan laktosa atau sukrosa dan negatif reduksi sulfur. Pada uji gula-gula, sebagian besar isolat menunjukkan sifat fermentatif terhadap maltosa, mannitol, sukrosa, laktosa, dan glukosa. Berdasarkan hasil karakterisasi, dapat disimpulkan bahwa karakter bakteri yang berasal dari susu sapi, susu kambing, dan swab nasalis manusia memiliki karakter yang berbeda-beda satu sama lain.

Kata kunci : *Staphylococcus aureus*, identifikasi, karakterisasi, susu sapi, susu kambing, swab nasal manusia.

## ABSTRACT

### IDENTIFICATION AND CHARACTERIZATION OF *Staphylococcus aureus* ISOLATED FROM MILK AND NASALIS SWAB

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*Staphylococcus aureus* is an opportunistic pathogenic bacterium, which can be found in both cow's and goat's milk and human nasal mucosal fluid but can be a pathogen in both animals and humans. This study aims to identify and characterize *Staphylococcus aureus*.

*Staphylococcus aureus* from dairy milk, goat milk, and human nasal swab in two farm in Yogyakarta were isolated in Balai Laboratorium Kesehatan dan Kalibrasi Yogyakarta. The isolates were identified by Gram staining, catalase test, coagulase test, clumping factor test, Methyl Red Voges Proskauer test, and inoculating on Mannitol Salt Agar. Characterization includes observation of hemolysis character on blood agar plate media, hemagglutination test, inoculating on Lysine Iron Agar and Triple Sugar Iron Agar, and carbohydrates fermentation test.

The results showed that all isolates were Gram-positive, positive for catalase, coagulase, clumping factor, MRVP test, and mannitol fermentative in MSA media. Based on hemolysin production, 16 isolates (88.89%) had beta-hemolysis properties and 2 isolates (11.11%) had gamma-hemolysis or non-hemolysis properties. Based on the haemagglutination test, all *Staphylococcus aureus* isolates were able to agglutinate erythrocytes. Based on the urease enzyme production, 6 samples (33.33%) were rapid-positive urease, 5 samples (27.78%) were weak-positive urease, and 7 samples (38.89%) were negative urease. Based on inoculation on LIA media, all isolates showed negative results of lysine deamination, positive lysine decarboxylase, and negative sulfur reduction. Based on inoculation on TSIA media, all isolates showed positive results of glucose fermentative and lactose or sucrose and negative sulfur reduction. In the sugar test, most of the isolates showed fermentative properties against maltose, mannitol, sucrose, lactose, and glucose. Based on the results of characterization, it can be concluded that the character of bacteria originating from cow's milk, goat's milk, and human nasal swabs have different characters.

Key words : *Staphylococcus aureus*, identification, characterization, dairy milk, goat milk, nasal swab.