

DETEKSI DAN IDENTIFIKASI BAKTERI *Enterococcus* sp. PADA SAMPEL SUSU KAMBING SEGAR DI KABUPATEN SLEMAN

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INTISARI

Susu kambing merupakan salah satu produk hewan dengan kandungan lemak, protein, laktosa, vitamin, enzim, dan garam mineral. Kandungan nutrisi yang tinggi menyebabkan susu kambing menjadi media pertumbuhan mikroorganisme yang sesuai, termasuk bakteri *Enterococcus* sp. Tugas Akhir ini bertujuan mendeteksi dan mengidentifikasi keberadaan bakteri *Enterococcus* sp. pada susu kambing segar di Kabupaten Sleman, Yogyakarta. Penelitian dilakukan dengan koleksi sampel susu kambing segar di enam peternakan kambing perah yang berada di Kabupaten Sleman, kemudian dilanjutkan uji mikrobiologi dan molekuler. Uji mikrobiologi meliputi kultur bakteri pada media selektif-diferensial (media EF), pewarnaan Gram, uji katalase, uji toleransi NaCl 6,5%, dan uji deret gula (glukosa dan laktosa). Uji molekuler dilakukan dengan metode koloni PCR multipleks menggunakan gen target 16S rRNA dan gen target empat spesies *Enterococcus* sp. Hasil isolasi pada media selektif-diferensial menunjukkan empat dari enam sampel susu kambing segar tumbuh beberapa koloni dengan variasi warna berbeda dan selanjutnya 16 koloni (isolat) dipilih berdasarkan variasi warna (merah marun, cokelat, kuning, merah muda, dan putih) untuk dilanjutkan uji biokimia. Hasil pengujian biokimia menunjukkan seluruh isolat memiliki karakter biokimia yang sama, yaitu Gram positif berbentuk kokus, negatif katalase, toleran terhadap NaCl 6,5%, dan dapat memfermentasi glukosa dan laktosa. Hasil uji PCR menunjukkan 16 isolat yang dipilih tersebut teridentifikasi spesies *E. faecium* (68,75%), *E. faecalis* (6,25%), *E. gallinarum* (6,25%), dan 18,75% spesies tidak dapat teridentifikasi. Hasil tersebut menunjukkan adanya potensi bahaya yang berkaitan dengan keberadaan bakteri *Enterococcus* sp. pada sampel susu kambing segar.

Kata kunci : *Enterococcus* sp., koloni PCR, PCR multipleks, susu kambing segar

DETECTION AND IDENTIFICATION OF *Enterococcus* sp. FROM GOAT MILK IN SLEMAN REGENCY

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ABSTRACT

Goat milk is an animal product containing fat, protein, lactose, vitamins, enzyme, and minerals. The high nutrition makes it an ideal growth medium for some microorganisms, including *Enterococcus* sp. This study aims to detect and identify the presence of *Enterococcus* sp. in goat milk in Sleman Regency, Yogyakarta. This study was conducted by collecting samples from six dairy goat farms in Sleman Regency, followed by microbiological and molecular tests. Microbiological tests included the growth on selective-differential medium (EF medium), Gram staining, catalase test, 6.5% NaCl tolerance test, and sugar fermentation test (glucose and lactose). Molecular tests were carried out using the multiplex colony PCR method targeting 16S rRNA gene and the genes of several *Enterococcus* sp. species. The selective-differential medium showed four out of six goat milk samples grew several colonies with different color variations and then 16 colonies (isolates) were selected according to color variations (maroon, brown, yellow, pink, and white) for further biochemical testing. Biochemical test results showed that all isolates had the same characteristics were Gram-positive cocci, catalase-negative, tolerant to 6.5% NaCl, and fermented glucose and lactose. Multiplex PCR results showed that 16 isolates were identified as *E. faecium* (68.75%), *E. faecalis* (6.25%), *E. gallinarum* (6.25%), and 18.75% as unidentified *Enterococcus* sp. These results indicate the presence of *Enterococcus* sp. contamination has potential hazard in goat milk samples.

Keywords : *Enterococcus* sp., PCR colony, multiplex PCR, goat milk