

ABSTRAK

STUDI MOLEKULER INFEKSI *BABESIA* SP. DAN PENGARUHNYA TERHADAP PROFIL HEMATOLOGI SAPI DI KECAMATAN IMOIRI, BANTUL, YOGYAKARTA

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Babesiosis merupakan penyakit hemoparasitik yang disebabkan oleh protozoa dari genus *Babesia* dan ditularkan melalui vektor caplak (*Rhipicephalus microplus*), yang berdampak signifikan terhadap kesehatan dan produktivitas sapi potong. Penelitian ini bertujuan untuk mengetahui prevalensi infeksi *Babesia* sp. pada sapi potong di Kecamatan Imogiri, Bantul, menggunakan metode apus darah dan *real-time* PCR, serta mengevaluasi perubahan profil hematologi akibat infeksi. Metode pemeriksaan yang digunakan meliputi apusan darah, deteksi molekuler menggunakan *real-time* PCR, serta analisis hematologi darah menggunakan *hematology analyzer*. Sebanyak 38 ekor sapi diperiksa secara acak melalui metode mikroskopik dan molekuler. Hasil menunjukkan prevalensi infeksi sebesar 18,42% berdasarkan apus darah dan 36,84% berdasarkan *real-time* PCR. Infeksi lebih banyak ditemukan pada sapi dari *breed Bos taurus* (Peranakan Limousin dan Simmental), betina, berumur kurang dari tiga tahun, dan dengan *Body Condition Score* (BCS) = 3/5. Pemeriksaan hematologi menunjukkan penurunan signifikan ($p < 0,05$) pada nilai eritrosit, hemoglobin, dan hematokrit pada sapi yang terinfeksi. Temuan ini mengindikasikan bahwa infeksi *Babesia* sp. berpotensi menyebabkan anemia dan memengaruhi kondisi fisiologis sapi potong. Penelitian ini menegaskan pentingnya deteksi dini berbasis molekuler untuk menunjang diagnosis dan evaluasi kesehatan ternak secara lebih akurat.

Kata kunci: *Babesia* sp., babesiosis, hematologi, *real-time* PCR, sapi potong.

ABSTRACT

A MOLECULAR STUDY ON *BABESIA* SP. INFECTION AND ITS EFFECTS ON THE HEMATOLOGICAL PROFILES OF CATTLE IN IMOIRI SUBDISTRICT, BANTUL, YOGYAKARTA

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Babesiosis is a hemoparasitic disease caused by protozoa of the genus *Babesia*, transmitted by tick vectors (*Rhipicephalus microplus*), and has a significant impact on the health and productivity of beef cattle. This study aimed to determine the prevalence of *Babesia* sp. infection in beef cattle in Imogiri Subdistrict, Bantul, using blood smear and *real-time* PCR methods, as well as to evaluate changes in hematological profiles associated with the infection. The examination methods used included blood smear, molecular detection using *real-time* PCR, and blood hematological analysis using a hematology analyzer. A total of 38 randomly selected cattle were examined using both microscopic and molecular techniques. The results showed a prevalence of 18.42% based on blood smears and 36.84% based on *real-time* PCR. Infections were more commonly found in cattle of *Bos taurus* breeds (Limousin and Simmental crossbreeds), females, animals under three years of age, and those with a Body Condition Score (BCS) of 3/5. Hematological analysis revealed a significant decrease ($p < 0.05$) in erythrocyte count, hemoglobin concentration, and hematocrit values in infected cattle. These findings suggest that *Babesia* sp. infection has the potential to cause anemia and disrupt the physiological balance of beef cattle. This study highlights the importance of molecular-based early detection to support accurate diagnosis and health evaluation in livestock.

Keywords: *Babesia* sp., babesiosis, hematology, *real-time* PCR, beef cattle