

ASSOCIATION BETWEEN THE LEVEL OF PARASITEMIA AND DIFFERENTIAL LEUKOCYTES OF *Babesia* sp., *Hepatozoon* sp., AND *Anaplasma* sp. INFECTION IN DOGS

LOOVINIS SIVA ARUNASALAM



**STUDY PROGRAM OF VETERINARY MEDICINE
SCHOOL OF VETERINARY MEDICINE AND BIOMEDICAL
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ABSTRACT

LOOVINIS SIVA ARUNASALAM. Association between the level of parasitemia and differential leukocytes of *Babesia* sp., *Hepatozoon* sp. and *Anaplasma* sp. infection in dogs. Supervised by ARIFIN BUDIMAN NUGRAHA and SRI RAHMATUL LAILA.

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Canine tick-borne hemoparasitic disease, remain significant health problems in tropical regions due to their impact on hematological alterations and overall canine health status. This study aimed to determine the positivity rate of *Babesia* sp., *Hepatozoon* sp., and *Anaplasma* sp. infections in dogs and to analyse their association with differential leukocyte profiles. A total of 80 blood samples were collected from dogs in Pusat Pelayanan Kesehatan Hewan dan Peternakan, Jakarta and prepared as blood smears with 10% Giemsa for microscopic examination. Microscopic evaluation was carried out to determine parasitemia levels and assess differential leukocytes. The results showed that single and mixed infections were detected in 18.75% and 20% of the samples, respectively. *Babesia* sp. showed the highest positivity rate (13.75%), followed by *Anaplasma* sp. (3.75%) and *Hepatozoon* sp. (1.25%). Differential leukocyte values remained within or near normal reference ranges, with mild changes depending on parasite species. No significant association was found between parasitemia levels and differential leukocyte profile ($p>0.05$). In conclusion, canine hemoparasitic infections were commonly detected, with *Babesia* sp. being the most prevalent. In subclinical infections, changes in differential leukocyte profiles are not clearly associated with parasitemia levels, making them unreliable as sole indicators for diagnosing parasitic infections.

Keywords: *Anaplasma* sp., *Babesia* sp., differential leukocyte, dogs, *Hepatozoon* sp., parasitemia.



ABSTRAK

LOOVINIS SIVA ARUNASALAM. Asosiasi antara tingkat parasitemia dan diferensial leukosit pada infeksi *Babesia* sp., *Hepatozoon* sp. dan *Anaplasma* sp. pada anjing. Dibimbing oleh ARIFIN BUDIMAN NUGRAHA and SRI RAHMATUL LAILA.

Penyakit hemoparasit yang ditularkan melalui caplak pada anjing, masih menjadi masalah kesehatan yang penting di wilayah tropis karena dampaknya terhadap perubahan hematologis dan kondisi kesehatan secara keseluruhan. Penelitian ini bertujuan untuk menentukan tingkat positif infeksi *Babesia* sp., *Hepatozoon* sp., dan *Anaplasma* sp. pada anjing serta menganalisis hubungan antara tingkat parasitemia dan profil diferensial leukosit. Sebanyak 80 sampel darah dikoleksi dari Pusat Pelayanan Kesehatan Hewan dan Peternakan, Jakarta. Sampel kemudian dibuat preparat ulas darah dan diwarnai Giemsa 10% untuk pemeriksaan mikroskopis. Evaluasi dilakukan untuk mengidentifikasi hemoparasit, tingkat parasitemia, serta menghitung diferensial leukosit. Hasil penelitian menunjukkan bahwa infeksi tunggal terdeteksi pada 18,75% sampel, sedangkan infeksi campuran sebesar 20%. *Babesia* sp. menunjukkan tingkat positif tertinggi (13,75%), diikuti oleh *Anaplasma* sp. (3,75%) dan *Hepatozoon* sp. (1,25%). Nilai diferensial leukosit sebagian besar berada dalam atau mendekati kisaran normal, dengan perubahan ringan tergantung pada spesies parasit yang menginfeksi. Tidak ditemukan hubungan yang signifikan antara tingkat parasitemia dan profil diferensial leukosit ($p > 0,05$). Kesimpulannya, infeksi hemoparasit pada anjing masih sering ditemukan, dengan *Babesia* sp. sebagai parasit yang paling dominan. Infeksi ini hanya menimbulkan perubahan minimal pada profil leukosit diferensial, sehingga parameter tersebut belum memadai sebagai indikator diagnostik, terutama pada kasus ringan atau subklinis.

Kata kunci: *Anaplasma* sp., anjing, *Babesia* sp, diferensial leukosit, *Hepatozoon* sp., parasitemia.



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LOOVINIS SIVA ARUNASALAM

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Examiners in final exam:

- 1 Dr. drh. Damiana Rita Ekastuti, MS
- 2 Dr. apt. Agriana Rosmalina Hidayati, S. Farm, M. Farm



Title : Association Between the Level of Parasitemia and Differential Leukocytes of *Babesia* sp., *Hepatozoon* sp., and *Anaplasma* sp. Infection in Dogs.

Name : Loovinis Siva Arunasalam

NIM : B0401221831

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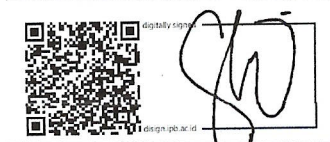
Supervisor 1:

drh. Arifin Budiman Nugraha, M.Si., Ph.D



Supervisor 2:

Dr. drh. Sri Rahmatul Laila, S.K.H.



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Head of Veterinary Medicine Study Program:

Dr. drh. Wahono Esthi Prasetyaningtyas, M.Si.
NIP. 198006182006042026



Vice Dean for Academic, Student Affairs and Alumni
School of Veterinary Medicine and Biomedical
Sciences:

Prof. drh. Ni Wayan Kurniani Karja, M.P., Ph.D.
NIP. 196902071996012001



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- 

PREFACE

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Bogor, July 2026

Loovinis Siva Arunasalam



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