

CAPLAK *Rhipicephalus (Boophilus) microplus* (Acari:Ixodidae) DARI BERBAGAI WILAYAH DI INDONESIA : MORFOLOGI DAN IDENTIFIKASI MOLEKULER

INTISARI

Caplak *Rhipicephalus (Boophilus) microplus* (*R. microplus*) merupakan ektoparasit yang menimbulkan kerugian berupa kehilangan darah terutama pada ternak sapi dan kerbau, berpotensi menyebarkan berbagai agen patogen (vektor) parasit darah seperti Babesia, Anaplasma, dan Thelezeria. Penelitian ini bertujuan untuk mengetahui karakter morfologi dan molekuler *R. microplus* asal Indonesia.

Sampel diperoleh dari berbagai wilayah di Indonesia. Sampel caplak betina, jantan dan larva diidentifikasi dengan menggunakan stereo mikroskop dan *Scanning Electron Microscope*. Pemeriksaan molekuler menggunakan sampel stadium larva, kemudian diisolasi DNANYa, disekuensing, kemudian data dianalisis menggunakan program MEGA v. 6.0. Hasil isolasi diampifikasi pada regio *Internal transcribed spacer* 1 dan 2 (ITS1 dan ITS2). Amplifikasi menggunakan tiga pasang primer pada regio ITS1, dan pada ITS2 menggunakan sepasang primer.

Terdapat karakter spesifik caplak Indonesia berdasarkan pemeriksaan SEM. Pada regio ITS1 menghasilkan urutan basa nukleotida sepanjang 1726 nukleotida, sedang hasil sekuensing regio ITS2 menghasilkan urutan sepanjang 1099 nukleotida. Pohon filogenetik menggunakan metode *Neighbour joining* dengan nilai *bootstrap* 1000 kali. Caplak asal Indonesia identik dan berkerabat dekat dengan caplak asal China berdasarkan urutan nukleotida ITS1. Berdasarkan urutan nukleotida ITS2, caplak terdiri atas 3 klaster; klaster pertama yaitu kelompok caplak yang identik dan berkerabat dekat dengan caplak China, Afrika Selatan; kelompok kedua adalah caplak yang berkerabat dekat dengan caplak *R. australis* dari Australia; kelompok ketiga adalah caplak yang berkerabat dengan caplak asal Laos, India dan Cambodia.

Penelitian ini menyimpulkan adanya perbedaan karakter morfologi caplak asal Indonesia berdasarkan pemeriksaan SEM. Caplak *R. microplus* asal Indonesia berdasarkan sekuen nukleotida ITS2 adalah spesies kompleks.

Kata kunci: *Rhipicephalus boophilus microplus*, caplak, ITS1, ITS2

***Rhipicephalus (Boophilus) microplus* tick (Acari: Ixodidae) of The Indonesian region : Morphological and Molecular Identification**

ABSTRACTS

The cattle ticks *Rhipicephalus (Boophilus) microplus* cause - is one of the most harmful ectoparasites often found in animals, especially cattle and buffalo. Its infections cause loss of blood and potentially deploy a variety of pathogenic agents (vectors) blood parasites such as Babesia and Anaplasma loss of blood and potentially deploy a variety of pathogenic agents (vectors) blood parasites such as Babesia and Anaplasma. This study aims to determine the morphological and molecular characters of *R. microplus* found in Indonesia. T

The tick samples were obtained from various regions in Indonesia. Female and male ticks as well as their larvae were identified using a stereo microscope and a Scanning Electron Microscope (SEM).. Molecular examination was conducted using samples at the larval stage. Their DNA was isolated and amplified using PCR technique and finally it was sequenced. The results were then analyzed using Mega V. 6.0 program. Results from the isolation were amplified in the region of the ribosomal DNA Internal Transcribed Spacer 1 and 2 (ITS1 and ITS2). The result sequences were aligned with the alignment of multiple product sequencing ITS 1 gives sequences of nucleotides along in 1246 nucleotides, the region of ITS2 generate a sequence of nucleotides along The phylogenetic tree was estimated using neighbour joining method with bootstrap value of 1000 times.

Based on the nucleotide sequence in ITS1, the samples were divided into two clusters. Based on the ITS2 nucleotide sequence, ticks originated from Indonesia consisted of three clusters. The first cluster is a group of ticks which is identical and related to ticks originated from China and South Africa. The second cluster is ticks related to *R.australis* ticks from Australia. The third cluster is ticks related to ticks originated from Laos, India and Cambodia. This study concludes that there are differences in morphological characteristic of Indonesia ticks based on results from SEM. *R microplus* of The Indonesia region and can be identified by their of The Indonesia region molecular species based on the nucleotide sequence ITS2.

Key words : *Rhipicephalus boophilus microplus*, Tick, ITS1, ITS2