ABSTRACT

Analysis of Phylogenetic of *Leucocytozoon* spp Cytochrome b (cyt b) Gene on Bred Chicken in Indonesia Endemic Area

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Background and Objectives: Up till now, detection of *Leucocytozoon* based on parasite morphology analysis uses blood smear by microscope, which sometime fail to find parasite in low parasitemia, moreover gametogony of this parasite is only two weeks in circulation. Therefore, diagnosis method is molecularly needed as Polymerase Chain Reaction (PCR). This method is not developed in Indonesia yet for leucocytozoonosis detection. Morphological identification of *Leucocytozoon* spp.often can not be determined until the determination of the species because there are variations in morphology so that difficulties in characterizing the morphology of the parasite. Research using molecular biology will be known until the species could even show *Leucocytozoon* genetic diversity among species. Therefore, through this study we want to know whether the attacked *Leucocytozoon* morphological variation bred chicken genetic variations also be occurred. How does homology of the composition of the nucleotide among isolates of chicken *Leucocytozoon* were attacked in different endemic areas compared with existing *Leucocytozoon* Gen Bank, and how phylogenetic is it.The objectives of this research were 1) Analyzing the morphological variation of *Leucocytozoon* that attack bred chicken in endemic areas of Indonesia; 2) Identification of *Leucocytozoon* with the use of PCR on mtDNA of *Leucocytozoon* cyt b gene attacking bred chicken in endemic area of Indonesia; 3) Identification of nucleotide sequences that determine species using BLAST software; 4) Knowing homology between taxon of *Leucocytozoon* various endemic regions of Indonesia; 5) Studying the *Leucocytozoon* phylogenetic of the infected bred chicken in endemic areas of Indonesia.

Materials and Methods: The study was divided into five stages that was 1) Data collections of leucocytozoonosis cases in Indonesia endemic area; 2) Identification of *Leucocytozoon* morphology by microscope; 3) Identification of *Leucocytozoon* cyt b gene of infected bred chicken in Indonesia endemic area by PCR and sequencing; 4) Analysis of *Leucocytozoon* phylogenetic of infected bred chicken in Indonesia endemic area by Mega 5.

Results and Discussion: The results of this study showed: 1) There is morphological variation of *Leucocytozoon* that attack bred chicken in endemic areas of Indonesia; 2) The results of the identification of *L. caulleryi* with PCR showed the length of 503 bp in the second cycle and 600 bp in the first cycle one; 3) Only *L. caulleryi* found on bred chicken in endemic areas in Indonesia; 4) The homology between taxon of *Leucocytozoon* various endemic regions of Indonesia is very high; 5) *L. caulleryi* from each region has a very close tight with each other. The results also was found of *Plasmodium juxtanucleare* which infected in bred chickens in Blitar and Lumajang, which morphological and PCR profiles similar to *L. caulleryi*.

Key words: *Leucocytozoon caulleryi*, *Plasmodium juxtanucleare*, *cyt b gene*, bred chicken, Indonesia