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MICROSCOPIC CHARACTERIZATION OF *Rhipicephalus microplus* IMMUNE CELLS

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Hemocytes are the cells present in the hemolymph of invertebrates. It is well known that these cells are involved in the response against pathogens. Haemocytes of *Rhipicephalus microplus* lack deep investigation about their morphology and functional characterization, specially involving the defence mechanisms driven by these cells in the tick. Studing *R. microplus* haemocytes can help to understand the defense mecanisms used by this tick against pathogens. Accordingly, the aim of the present study was to characterize *R. microplus* haemocytes, using a non-expensive method, such as conventional light microscopy. Sixty engorged tick females were used to obtain hemolymph. Hemolymph smears were air-dried, fixed in absolute methanol for 3 minutes and five slides were stained using Giemsa and five slides were stained using Schiff Periodic Acid (PAS). Stained slides were examined under optic microscope. It was possible to observe five different cell types (prohemocytes, spherulocytes, granulocytes, plasmatocytes and oenocytes) in the hemolymph of *R. microplus* engorged females under physiological conditions. Smears stained by Giemsa showed granulocytes as circular cells with the central or eccentric nucleus and granulations in their cytoplasm. Plasmatocytes were presented in a variety of formats (i.e., nucleus displaced from the central region and some presented pseudopodia). Oenocytes were larger size cells and presented an eccentric nucleus. Prohemocytes were relatively small cells with their nucleus well developed. After PAS staining, it was also possible to observe that both two types of granulocytes yielded PAS positivity in the cytoplasm, but the granules were negative. Plasmatocytes had vesicles in the cytoplasm and a positive granular material for staining. Oenocytes were PAS negative and Prohemocytes were not visualized in PAS staining. Spherulocytes were found only with PAS staining; these are circular to oval-shaped cells with weakly-positive spherules. Thus, it was possible to qualitatively characterize *R. microplus* haemocytes using conventional light microscopy and two different staining methods. Despite this, it is important to understand that light microscopy may be used to complement other studies with *R. microplus*, and quantitative studies should not use this method since some cell types observed here were very similar (after stained with Giemsa or PAS), which makes accurate identification difficult.

Keywords: giemsa, schiff periodic acid, tick, hemocytes, optic microscope.

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