MORPHOMETRIC RED BLOOD CELS VALUES OF ALPACA *(VICUGNA PACOS)* - AN ATTEMPT OF COMPARISON WITH OTHER CAMELIDS

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Background: The Family *Camelidae* contains three genera: *Camelus*, *Lama* and *Vicugna*. New world camelids (llama and alpaca) are growing in numbers and popularity in Poland. Alpacas are thought to have fewer health problems than most farmed animals, but like most of them they may be susceptible to some conditions. Haematological tests are very important for assessment of animal health status. Counting of red blood cell (RBC) using traditional chamber method is inappropriate for everyday practice. It seem to be that particle counters can be accurate for RBCs counting, but results of cell count will be incorrect if improper threshold settings are used. Most of analyzers available on Polish market do not offer species setting for camelids and for alpacas in particular.

Methods: There are no published studies validating optimal settings of hematology analyzers for camelids. The aims of this study were to check for dimensions of red blood cell of alpacas with comparisons to llama's and bactrian's RBCs.

Methods: EDTA blood was collected from 7 alpacas, 2 bactrians and 1 llama. Hematocrit (PCV), RBC count and hemoglobin were measured by manual methods. From each sample one blood smear was made. Blood smears stained with May- Grunwald-Giemsa stain were evaluated under a microscope. The dimensions of red blood cells were measured using Digimizer Version 5.3.4. software. RBCs mean volume (MCV) was calculated. Results from different species have been compared using U Whitney-Mann test.

Results: The PCV, Hb and RBCs count values obtained for almost all were within reference intervals. Only one alpaca was anemic (PCV 15%) and presents anisocytosis and dacryocytosis. Our studies showed major differences between healthy bactrian and alpaca concerning RBCs morphometric indices. Mean values of long axis and surface area of RBCs were greater ($p<0,05$) in bactrians ($7,42\pm0,61\mu m$ and $22,28\pm2,93\mu m^2$) than in alpacas ($6,49\pm0,66$ µm $18,79\pm3,48\mu m^2$). Also llama's RBCs were longer ($p<0,05$; $7,13\pm0,7\mu m$) than alpaca's.

Conclusion: Due to presence of variances between RBCs of different species of Camelidae family it is unclear whether llama, or camel settings can be used to accurately determine erythrocyte values from alpacas blood using hematology analyzers. Above results will be useful guides for establishing automated analyzers settings.