

# The role of management systems on Haematological profile of Southern giant pouched rat (*Cricetomys ansorgei*) under the tropical setting in Morogoro, Tanzania

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## Abstract

**Introduction:** The study explored the effect of management system on the haematological profiles of African giant pouched rats (*Cricetomys ansorgei*) as compared to the natural environment standard procedures were observed in determining haematological parameters. **Method:** The blood samples were collected from the rats both wild and captivity rats, analyzed using statistically the descriptive statistics and analysis of variance were done using SPSS version 20. **Results:** The southern giant pouched rats in the wild had higher counts (mean  $\pm$  standard deviation) for RBC ( $6.5 \pm 1.5$ ) and lymphocytes ( $38.1 \pm 15.7$ ) than housed rats. The rats in captivity had high reading of total white blood cell counts ( $8.7 \pm 2.4$ ), neutrophils ( $3.5 \pm 2.4$ ) and eosinophil ( $1.4 \pm 1.01$ ) than the wild rats. The blood indices showed that wild rats have relatively higher reading on PCV ( $42.1 \pm 7.4$ ) and HBC ( $18.5 \pm 1.8$ ); whereas the rats in captivity had high reading on MCV ( $72.9 \pm 6.7$ ), Thrombin concentration ( $380.2 \pm 104.5$ ) and MPV ( $7.6 \pm 0.9$ ). The determination of sex versus blood cells and indices; it was shown that female wild rats had high reading on RBC ( $7.2 \pm 1.3$ ), WBC ( $7.8 \pm 1.7$ ) and lymphocytes ( $35.0 \pm 1.8$ ) compared to males; the male rats had high reading on monocytes ( $3.3 \pm 1.9$ ), neutrophils ( $2.3 \pm 1.3$ ) and eosinophil ( $1.0 \pm 0.5$ ). The relation of sex to the determined haematological parameters had no significant difference. The blood indices with respect to sex of the rats; it was shown that wild male rats had high reading on MCV ( $67.0 \pm 18.8$ ), PCV ( $39.8 \pm 9.6$ ), HBC ( $14.9 \pm 4.4$ ) and thrombin concentration ( $387.0 \pm 109.0$ ); meanwhile the rats in captivity the reading were not significant different. **Conclusion:** The present study presents preliminary haematological profiles of southern giant pouched rats in Morogoro which could be useful to researchers in animal physiology. The authors are adamant that these findings provide an insight on further research areas for laboratory based animals and studies on human parameters involving rats or mice in the tropics

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