Motility evaluation of bull spermatic cells in SlimCASA: preliminary results

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Abstract

Statement of the Problem: This study aimed to develop a software for bovine sperm evaluation, from images taken under a microscopy. This program should be compatible with notebooks and PCs for home use, easy to use, in the Portuguese language and free. It is intended, with this software, standardize the sperm motility analysis carried out by veterinarians during andrological examinations at field, cheapening the cost of acquisition of specific equipment. Methodology & Theoretical Orientation: Seventy two images of bovine semen were made by microscopy from thawed semen doses. The 0.5 mL reed were thawed for 30 seconds in a water bath at 37 ° C. Semen drops were analyzed by CASA (Hamilton Thorne Research) and deposited on slides with cover slip for microscopy. The images were obtained from phase contrast microscope (Jenamed2) with 1.3 MP camera attached (Coleman). The software was developed from resources already available in an open source Java solution called ImageJ. Initially, the video images were converted into frames and subjected to some treatments, using only 8-bit color and segmenting grayscale so that the software could do the analysis of the image particles. The 72 semen samples were analyzed by CASA and by the software SlimCASA. For statistical analysis, the results of the counts were subjected to analysis of variance (SAS, 2012) and Tukey's test, at a significance level of 5%. Findings: The average values of the sperm motility did not differ and were 64.69 ± 19.34 and 64.47 ± 9.15 by CASA and by the software SlimCASA, respectively ($p > 0.05$). Conclusion & Significance: In conclusion, the developed software showed the same efficiency as the motility evaluation carried out by Hamilton Thorne CASA.

Image

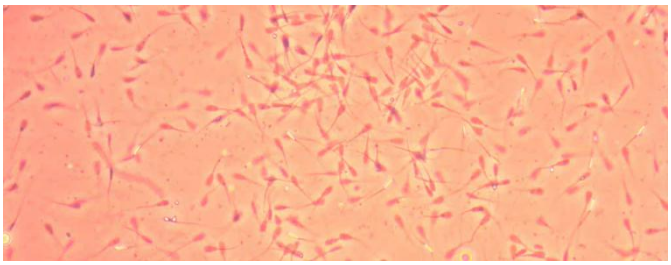


Figure 1: Bovine sperm image by software SlimCASA for sperm analisys.

Recent Publications

1. ABIEC Brazilian Meat Export Industries Association (2014) Estatísticas do ano de 2013.
2. Arruda R (2000) Avaliação dos efeitos de diluidores e crioprotetores para o espermatozóide eqüino pelo uso de microscopia de epifluorescência, citometria de fluxo, análises computadorizadas da motilidade (CASA) e da morfometria (ASMA). Thesis (Livre Docência) School of Veterinary Medicine and Animal Science, São Paulo University. São Paulo, SP. 121p.
3. Cox J, Alfaro V, Montenegro V, Rodriguez-Martinez H (2006) Computer-assisted analysis of sperm motion in goats and its relationship with sperm migration in cervical mucus. Theriogenology 66:860-867.
4. Matos D, Araújo A, Roberto I, Toniolli R (2008) Análise computadorizada de espermatozóides: revisão de literatura. *Computer-Assisted Sperm Analysis* (CASA): a review. Revista Brasileira de Reprodução Animal 32(4):225-232.
5. SAS Institute Inc., 2012. SAS/ETS® Software: Changes and Enhancements for Release 6.12. In: SAS Institute Inc., Cary, NC. 112.



Biography

Aline Camargos has her expertise in reproduction of domestic animals. Her most recent projects aim to develop new technologies for animal reproduction. Her research group has developed a software to analyze animal sperm, a Computer-Assisted Sperm Analysis named SlimCASA. Financial support by CNPq, FAPEG and IF Goiano.

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Notes/Comments: