

Phubet Satsook 2013: Effect of Centrifugation and Sugar Types in Semen Extender on Sperm Quality of Goat Frozen Semen. Master of Science (Animal Breeding and Production), Major Field: Animal Breeding and Production, Department of Animal Science. Thesis Advisor: Miss Sukanya Rattanatabtimtong, Ph.D. 92 pages.

The effects of centrifugation for seminal plasma separation and sugar types in semen extender on sperm quality of goat frozen semen were studied in two trials. In experiment 1, the effect of different speed and time of centrifugation to separate spermatozoa from the seminal plasma on the post-thawed sperm quality was conducted using 2 x 2 factorial in completely randomized designs. The centrifugation speeds (500 and 1500 rpm) and times (3 and 10 min), were two major factors tested. The results revealed that post-thawed spermatozoa centrifuged with 1500 rpm had higher total motility (MOT), progressive motility (PMOT), average path velocity (VAP), straight-line velocity (VSL), curve-line velocity (VCL) and viability compared to those centrifuged with 500 rpm. In addition, there was interaction between speed (1500 rpm) and time (3 min), which could improve the MOT, viability and membrane integrity. In the experiment 2, the effect of different sugar types in semen extender and time after thawing on post-thaws sperm quality was conducted using 4 x 4 factorial in completely randomized designs. There were two factors of interest, sugar type (glucose, fructose, trehalose, and sucrose) and time after thawing (0, 1, 2, and 3 h.). The results revealed that trehalose could improve MOT, PMOT, VAP, VSL, VCL, viability and membrane integrity of spermatozoa which was higher than other sugar types. In addition, sperms after-thawing at 0 h. have higher MOT, PMOT, VAP, VSL, VCL, viability, membrane integrity and normal characteristic compared to those after thawing. These studies indicate that the seminal plasma removal by centrifugation with 1500 rpm for 3 minutes and use of trehalose in semen extender can improve sperm quality in terms of both sperm motility and survival after cryopreservation.

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Student's signature

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Thesis Advisor's signature