HOLDING TIME INFLUENCES FROZEN SEMEN QUALITY OF MIZO LOCAL BOAR (ZOVAWK)

A.K. DAS[1], K. LALRINTLUANGA[2], F.A. AHMED[3], N. AHMED[1]*, M.A. ALI[3], P.K. SUBUDHI[4] AND D. DEURI[1]

Department of Animal Reproduction, Gynaecology and Obstetrics
Central Agricultural University, Selesih-796 014, Mizoram

Received: 06.06.2016 Accepted: 21.06.2016

ABSTRACT

Twenty ejaculates from three boars were used to establish the impact of three holding time (1h, 3h, 5h) on the quality of frozen semen. Sperm motility, live sperm, HOST-reacted sperm and sperms with intact acrosome at equilibration and during post-thaw period were higher ($p<0.05$) with 5h holding time.

Keywords: Cryopreservation, Boar, Frozen semen, Holding time, Sperm parameters

Boar semen differs in several aspects from the semen of other domestic animals as boar semen is produced in large volume and is highly sensitive to cold shock. The viability of sperm cells is dramatically reduced when exposed to $<15^0$C. Nevertheless, the success of boar semen cryopreservation is relatively variable because the factors responsible for the cryosurvival of boar spermatozoa are not entirely elucidated. Therefore, the present study was aimed to improve fertility of Mizo local boar (Zovawk) semen during cryopreservation.

Twenty ejaculates from three Mizo local boars (Zovawk) were used by split sample technique. Split was extended with Lactose egg yolk glycerol (LEYG) extender. The semen was diluted equally in three parts, and these were processed for freezing at 1h, 3h or 5h holding time. The processing of semen, filling, sealing, drying and freezing of semen was carried out. Thereafter, semen was equilibrated for an hour at 5˚C. Just before the end of an hour of equilibration, the straws were taken out from water and wiped dry by using pre-cooled (5˚C) towel. After drying, straws were

Table 1: Boar sperm parameters (Mean±SE) **following different holding time period during cryopreservation**

Parameter	Stage	Holding time		
		1h	3h	5h
Sperm motility	**Equilibration**	63.15±0.40[a]	65.25±0.50[b]	67.20±0.33[c]
	Post-thaw	39.70±0.45[a]	41.70±0.45[b]	43.95±0.45[c]
Live sperm	**Equilibration**	64.70±0.41[a]	67.05±0.38[b]	69.35±0.31[c]
	Post-thaw	41.50±0.38[a]	43.40±0.44[b]	45.56±0.41[c]
HOST-reacted sperm	**Equilibration**	66.30±0.37[a]	68.60±0.46[b]	69.55±0.45[c]
	Post-thaw	41.32±0.39[a]	47.32±0.38[b]	48.15±0.42[b]
Intact acrosome	**Equilibration**	67.40±0.47[a]	70.17±0.27[b]	71.80±0.29[c]
	Post-thaw	42.82±0.30[a]	47.47±0.34[b]	50.37±0.41[c]

[a] *vs.* [b] *vs.* [c] $p<0.05$

[1]M.V.Sc. Scholar, [2]Associate Professor, [3]Professor, [4]Assistant Professor; *nekibahmeds@gmail.com

kept above liquid nitrogen vapours and stored in liquid nitrogen container. After 24h storage, frozen semen was thawed at 50˚C for 12 second. Semen samples of equilibration and post-thaw period were evaluated for sperm motility, live sperm, HOST-reacted sperm and intact acrosome. The data was analyzed statistically by using software SPSS.

Sperm motility, live sperm, HOST-reacted sperm and sperms with intact acrosome at equilibration and during post-thaw period were higher ($p<0.05$) in 5h holding time compared to 1h and 3h holding period (Table 1). These observations were in agreement with other studies (Khan *et al.*, 2012 and Tyngkan *et al.,* 2014). Thus, based on the results obtained, it can be concluded that holding of boar semen for 5h provides better semen quality following cryopreservation.

REFERENCES

Khan, M.H., Naskar, S., Nath, K.C., Deka, B.C., Bardoloi, R.K., Bhuyan, D. and Kumar S. (2012). Effect of different extender on cryopreservation of Hampshire and Crossbred boar semen. *Indian J. Anim. Sci.,* **82(**1): 54-56.

Tyngkan, L., Bhuayan, D., Nath, K.C., Saharia, J., Dutta, D.J., Biswas, R.K. and Das, A. (2014). Effect of holding time and removal of seminal plasma on preservation of boar semen at liquid state. *Indian J. Anim. Sci.,* **84**(2): 100-102.