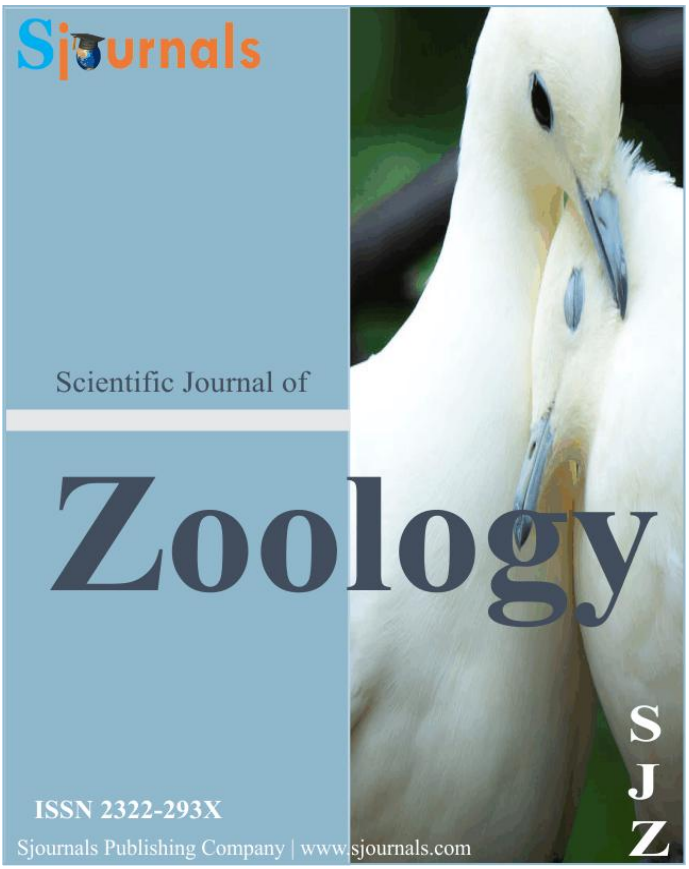
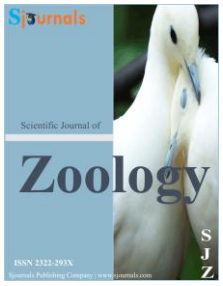


Scientific Journal of Zoology (2017) 6(11) 64-67
ISSN 2322-293X
doi: 10.14196/sjz.v6i11.2451



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Original article

Dilution degree influence of Holstein sires' depreserved sperm on its quality

Alzhan Shamshidin[a], Orinbasar Alshinbaev[b], Aidos Mussabekov[c,*]
[a]*All-Russian Research Institute of Animal Husbandry, LK Ernst, Moscow, Russian Federation.*
[b]*Muhtar Auezov South Kazakhstan State University, South-Kazakhstan Region, Kazakhstan.*
[c]*Saken Seifullin Kazakh Agro Technical University, Astana, Akmola Region, Kazakhstan.*

*Corresponding author: doc-1982@mail.ru

ARTICLE INFO

Article history,
Received 10 October 2017
Accepted 11 November 2017
Available online 18 November 2017
iThenticate screening 12 October 2017
English editing 10 November 2017
Quality control 17 November 2017

Keywords,
Dynamics of indicators
The degree of dilution
Semen
Bulls

ABSTRACT

The article investigates the impact of dilution depressive semen sires, frozen in ASIL TYLIK and French technology, its quality indicators. It was established that the increase in the degree of dilution increases the permeability depressive sperm cytoplasm sperm membranes, significantly reducing their mobility, and absolute figure, regardless of the cryopreservation technology, diluents and formulation components used anti-shock.

1. Introduction

In recent years there has been a general trend of increasing sires genetic potential through the use of cry preserved sperm from them (Bugrov, 2010). The number of full-fledged sperm significantly decreases (1.0 - 2.0 million) due to the large dilution (Bugrov, 2010; Bugrov and Sidashova, 1990). Previously carried delis experiments on cows and heifers for the study of fertility sperm frozen in open canning granules and 2.9% trisodium citrate pentahydrate sodium content of up to a dose of 1.5 Mill, motile spermatozoa (Sidashova, 1992; Bugrov and Sidashova, 1991). At the same time information about the survivability canning bovine semen, frozen in ASIL TYLIK and French technology, with the same degree of dilution, as well as in open granules. In this regard, there was a task set out to study the influence degree of dilution dekonserved semen sires, frozen in the coated granules and

straws on its quality. The aim was to study the effect of the degree of dilution dekonserved bull semen frozen in ASIL TYLIK and the French Technology on its quality.

2. Materials and methods

The experiments were carried out in the department of biotechnology of agricultural technology animals (laboratories and research transplant logy artificially insemination) Republican Center of livestock breeding JSC "ASIL TYLIK" Akmola region, Kazakhstan.

Sperm received an artificial vagina from the bulls dairy black-motley, dairy and red-and-White Holstein breeds. Determining the activity, the concentration of spermatozoa (bn. / Ml). The native sperm diluted in ASIL TYLIK (Wednesday No 1: 63.0 ml - 11% lactose 30 ml - yolk 7 ml - glycerol; Wednesday No 2: 6.0 ml - lactose 1.45 g - trisodium citrate pentahydrate sodium, 5 ml - glycerol, 100 ml - double distilled water) and the French (Wednesday - "Andromeda") technology to the content of 15 million motile sperm in a dose of 0.25 mL after thawing. Packaged in a lined pellets in ASIL TYLIK and straws on French technology. Is frozen according to regulations. It was stored in liquid nitrogen. Depressive carried out in a water bath at a temperature 38˚S. After thawing, semen diluted coated granules No 2 medium to a content of 7.5; 3.75 and 1.87 million. Motile sperm in a volume of 0.25 ml. The same dilution was carried out for semen frozen in straws using the medium "Andromed." After dilution tested and placed on the mobility of incubation in an incubator at a temperature 38˚S checking motility every hour until complete destruction. Counted experience (in hours) and an absolute indicator experience sperm (AIE) (in units) according to a standard formula. Research carried out on 9 separated ejaculates. The results were processed by means of statistical analysis.

3. Results and discussion

The experimental data from experiments are presented in the tables. From Table 1 and Fig. 1 it is clear that after dilution dekonserved semen coated granules to 7.5 million. Rectilinearly moving sperm in a dose of 0.25 ml, motility immediately after dilution was significantly below 0.99 points (16.0%) compared with the control, when diluted to 3750000 and 1.09 points (17.7%), up to 1.87 million and 2.33 points (37.8%). Mobility in samples containing 7.5 million, 0.25 ml, was slightly higher than in samples containing 3.75 mln and 0.1 points (1.93%) and significantly higher than in samples with 1.87 million sperm and 1.34 points (25.9%).

When diluted dekonserved Payette observed in sperm a similar reduction in the mobility index immediately after dilution: In the samples containing 7.5 million in a straight line moving spermatozoa in 0.25 ml and 1.34 points (23.3%). 3.75 million by 2.4 points (41.6%); 1.87 million and 3.14 points (54.4%) compared with control samples containing 15 million sperm (Table Fig. 2). Motility index was significantly higher in the experimental group with the dilution to 7.5 million sperm than in groups with diluting to 3.75 million.

Table 1
Effect of dilution dekonserved semen breeding bulls manufacturers on the quality (n = 9).

Concentration spermatozoa million / dose	ASIL TYLIK technology (Lined with pellets)			French technology (Straws)		
	Mobility of (Scores)	Settle down (hour)	Sa (USD)	Mobility of (Scores)	Settle down (hour)	Sa (USD)
15.00 (K)	6.16 ± 0.12	8.0 ± 0.0	24.37 ± 0.60	5.77 ± 0.02	8.0 ± 0.0	26.53 ± 0.50
7.50	5.17 ± 0.09	6.4 ± 0.2	15.33 ± 0.32	4.43 ± 0.19	6.3 ± 0.2	17.23 ± 1.46
3.75	5.07 ± 0.03	5.3 ± 0.1	13.23 ± 0.20	3.37 ± 0.30	5.9 ± 0.1	14.2 ± 0.72
1.87	3.83 ± 0.09	3.7 ± 0.2	8.00 ± 0.40	2.63 ± 0.12	4.1 ± 0.1	8.27 ± 0.75

Settle down after dilution in the lining of canned sperm pellet to 7.5 million, motile sperm in a dose of 0.25 ml decreased by 1.6 hours compared to the control (20.0%) and then diluting to 3.75 million to 2.7 hours (33.7%) to 1.87 million, 4.3 hours (53.7%) is significantly lower than the control containing 15.0 million motile sperm (P> 0.999) settle down samples with 7.5 million, motile spermatozoa was significantly higher than those with the presence of 3.75 and 1.87 million, motile sperm 1.1 (17.2%) and 2.7 hours (42.2%), respectively (Table Fig. 3).

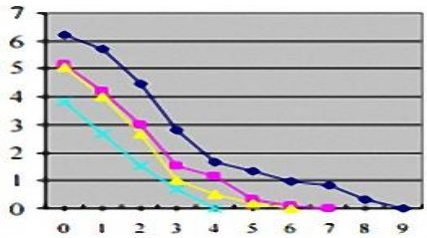

Fig. 1. Dynamics of mobility spermatozoa during incubation of canned in coated granules in sperm depending on the degree of dilution.

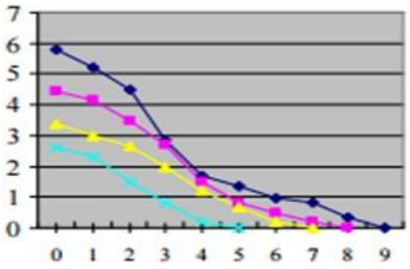

Fig. 2. Dynamics of mobility during the incubation of spermatozoa in sperm straws preserved depending on its degree of dilution.

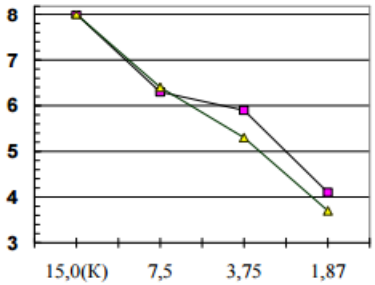

Fig. 3. Dynamics of sperm survival in hours with increasing degree of dilution preserved semen sires.

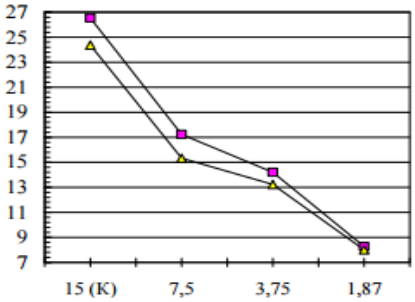

Fig. 4. Dynamics of the absolute indicator of sperm survival by increasing the degree of dilution of semen preserved bulls.

When diluted in canned sperm straws to 7.5 million. Motile spermatozoa to settle down they fell by 1.7 hours (21.25%), to 3.75 mln and 2.1 hours (26.25%) to 1.87 million and 3.9 hours (48.75%), which is significantly lower root in the control samples containing 15.0 million, sperm in a dose (8.0 hours). Has taken root in the samples containing 7.5 million. Motile sperm cells in the dose was insignificantly higher than that with the presence of 3.75 Mill. Spermatozoa (6.3%) and significantly higher than in samples with 1.87 Mill. Motile spermatozoa (34.9%). Therefore, with increasing dilution preserved sperm there is a significant natural decrease sperm settle down. There is a similar pattern reduction of spermatozoa to settle down with increasing dilution of thawed cryopreserved sperm both in ASIL TYLIK, and in the French technology. From Table and Fig. 4 shows that with

increasing degree of dilution within these limits there is a significant natural decrease APV sperm. In control samples preserved in the coated granules sperm AIE was significantly higher (24.37 USD) than in the experimental samples containing 7.5 million sperm cells in a dose 9.04 to USD (37.1%), 3.75 million to 11.14 USD (45.7%) 1870000 to 16.37 USD (67.2%).

There is a similar pattern of decrease in sperm AIE, canned in Payette, with a similar increase in the degree of dilution. So, upon dilution to 7.5 million sperm, motility was lower by AIE 9.3 USD (35.1%) to 3.75 million, 12.33 USD (46.5%), up to 1.87 million to 18.26 USD (68.8%) than in the control group, 26.53 USD (P> 0.999). With increasing degree of dilution is observed in these ranges significant natural decrease sperm AIE both in ASIL TYLIK, and in French technology using the "Andromeda" environment. On the basis of the material presented and published data can be done concluded that the increase in the degree of dilution dekonservirovannoy sperm increases the permeability of the cytoplasmic membrane of sperm, reducing them to settle down, regardless of the cryopreservation technology, composition diluents and used anti-shock component.

4. Conclusion

- ✓ It was found that with increasing dilution of preserved semen of bulls in the coated granules and Payette in a variety of diluents, a regular significant decrease in mobility and survivabilit spermatozoa.
- ✓ It can be assumed that the causes of low sperm vitality after dilution canned sperm is a violation of the integrity of the cytoplasmic membrane during freezing, Depreserve and subsequent dilution and the negative impact of the introduction of active enzyme systems and radicals from dead cells into the medium.

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How to cite this article: Shamshidin, A., Alshinbaev, O., Mussabekov, A., 2017. Dilution degree influence of Holstein sires' depreserved sperm on its quality. Scientific Journal of Zoology, 6(11), 64-67.