FERTILIZATION CAPACITY OF BOAR SEMEN RELATED TO DILUTION AND DURATION OF PRESERVATION

Elena Marandici, G. Darie

Institute of Scientific and Practical Animal Husbandry
and Veterinary Medicine in Biotechnology, Republic of Moldova
e-mail: darie@mail.ru

Abstract

The objective of this study was to examine the effects of duration of storage of diluted boar semen fertilization rate in sows. There were used in the experience "Atropozit" and "M22" organic products as diluents for boar sperm. The diluted semen was stored throughout periods of 2-3 days, 3-4 days, 4-5 days and 5-6 day at 16- 18 ℃. The fertility rate of the sows inseminated with diluted semen and stored 2-3 days was different compared to that achieved when used semen was stored for 4-5 days and 5-6 days, depending on the solvent used. Sows inseminated with semen diluted with "Atropozit" and stored at 16-18 ℃, during 5-6 days had a fecundity of 70% while in the sows inseminated with sperm stored in "M22"diluter, fecundity reached 68.7%.

Key words: boar, semen, dillution medium, artificial insemination

INTRODUCTION

Artificial insemination of pigs currently achieved widespread in Moldova. Advantages of artificial insemination are rational use of genetic fund of pig growth. The main purpose of diluting boar semen is to increase the number of females that can be sown in each ejaculate. Most media are prepared for dilution to extend the retention of sperm in vitro with the sperm components for nutrients, substances that protect sperm from heat shock, pH equal components that keep sperm pH, substances that maintain osmotic balance and antibiotics to inhibit pathogenic micro flora (1,2,3).

Dilution media for sperm dilution and maintaining a short time are successfully used in many European countries. While development environments for preservation of sperm dilution on a longer time is an actual problem for rational use of valuable genetic fund. An important role in maintaining sperm fertilized conservatives to power hypothermal temperatures it has the composition of the dilution media. There are currently, and the price difference between the average dilution of boar semen during storage depending diluted sperm in vitro. Studies on the development of boar semen preservation media for a long time are very low (4,5,6,1). The practice of artificial insemination in pigs in Moldova as environment and conservation dilution of boar semen on a short term is widely used GHȚS environment can not be used for preservation of boar semen for a long time (5, 6).

MATERIAL AND METHOD

Ejaculates used in the study were from 10 boars of the breed Landrace, Yorkshire, Duroc, Pietrain and Hampshire maintained at SE Moldsuinhibrid. Ejaculates were collected by manual method once in three days. Immediately after the ejaculates' collecting have been assessed mobility, sperm concentration and morphology. The experience has been used only with mobility ejaculatele not less than 70% of the total number of sperm in ejaculate and no less than 25x109 spermatozoa with abnormal morphology less than 20%.

Admitted ejaculates were divided into two parts as a part of the ejaculate was diluted with the environment "Atropozit" and other environmentally M22 in order to finally obtain a concentration of 50x106 spermatozoa / ml. Diluted sperm was packed

with 80 ml volume and sperm concentration in a dose of 4.0 x109 sperm.

Packed sperm was kept at 16-18^{0}C and stirred carefully for 2 times a day. Sperm mobility test was performed every morning within six days with ISAS and Smile program.

RESULTS AND DISCUSSIONS

Mobility of spermatozoa after dilution was 85 ± 3.46% when semen was diluted with medium and 86 ± 3.29 Atropozit when M22 medium was used. Similarly sperm mobility decrease over time was tested every time the collection environment to day 6 after collection. No significant difference was detected in sperm mobility after the 6th day of storage (P = 0,009).

Study of morphological indices depending on sperm environments, semen dilution and storage time at temperatures of 16-18^{0}C are shown in Figure 1.

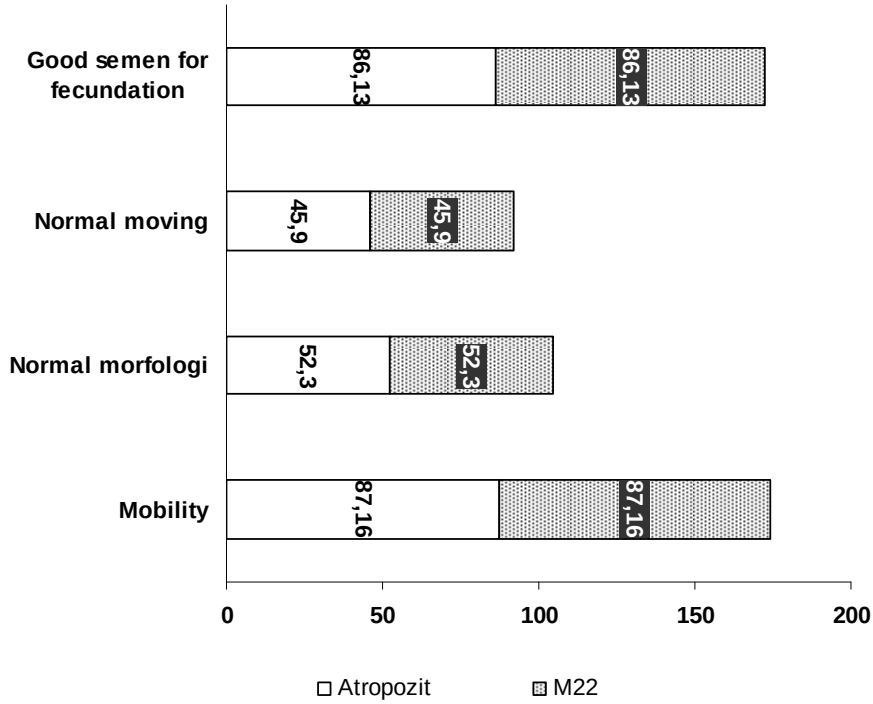

Figure 1. Morphological indices of semen in day of collection on sperm,%

The data presented in Figure 1 shows that media did not influence the dilution of sperm morphological indices after dilution. Sperm mobility for both average was 87.16%, 52.3% sperm with normal morphology, sperm with forward movement rectilinium 45.9% and 86.13% sperm suitable for fertilization.

After 72 hours of storage at a temperature of 16-18^{0}C morphological indices were different depending on the composition of semen diluter. Dilution with environment and keeping it at a temperature of 16-18^{0}C for a period of 72 hours given the opportunity keep mobility at 79.13% compared to semen diluted with M22 medium where this index was 72.8%, spermatozoa with normal morphology at 57.5% sperm with forward movement rectilinium 40.0% suitable for fertilization and sperm at 75% compared to the M22 where consecutive these indices were 53.5%, 38% and a 65.26% (Fig. 2).

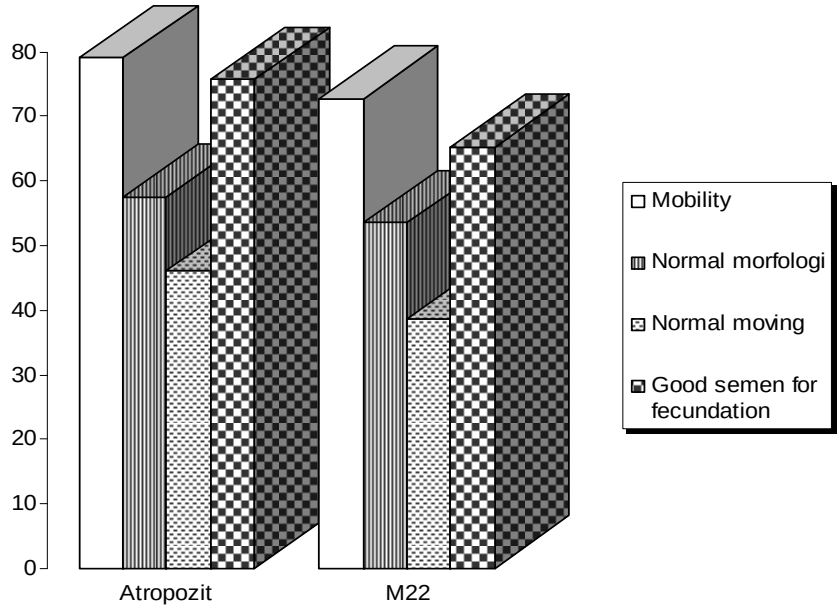

Figure 2. Morphological indices of sperm after 72 hours,%

After 144 hours of storage of semen at a temperature of 16-18°C morphological indices were compared with authentic changed during storage for 72 hours. (Fig. 3)

Diluted semen with sperm mobility Atropozit environment was 50.03%, spermatozoa with normal morphology 47.3% sperm with forward movement rectilinium 22.7% and 43.03% sperm suitable for fertilization compared with diluted semen M22 environment where these indices were consecutively 47,73%,43,06% 40,10% 21,63% and 40,10%.

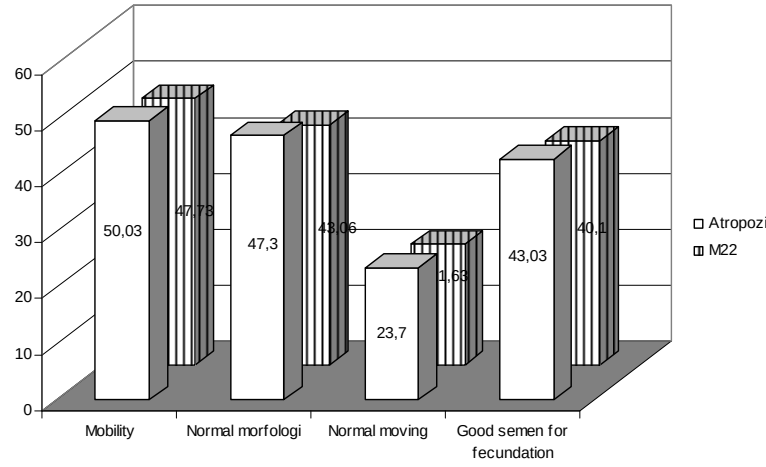

Figure 3. Sperm morphological indices after 144 hours,%

Fecundity of sows inseminated with semen diluted with media Atropozit and M22 and kept at 2-6 days at 16-18^{0}C is shown in Figure 4.

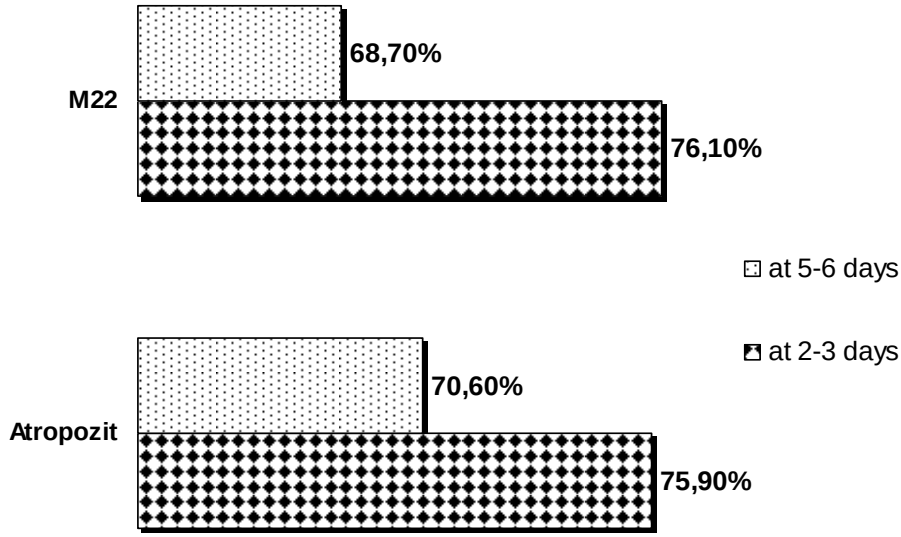

Figure 4. Fertilization sows inseminated with semen diluted and stored at 2-6 days,%

From figure 4 shows that fertility rates do not differ significantly depending on the duration of retention of semen dilution in media from 2 to 4 days. Sows inseminated with semen diluted in M22 medium showed a discovery (P=0,001) compared with sows inseminated with semen diluted with Atropozit environment, when semen was stored for 5-6 days before use at 16-18^{0}C temperature. Number of piglets farrowing environments differ depending on the dilution, the semen was stored for 2 to 3 days. Numerical difference between the average dilutions, the semen was deposited between three and four days was not significant. Comparing the body weight of piglets there was determined that the lower body weight at birth had piglets(P = 0.01) obtained from insemination with semen diluted before use and kept for 4-5 days compared with piglets produced after insemination with Atropozit. Sperm storage temperature of 16-180C for a period of 5-6 days before use did not influence the body weight of piglets at birth.

CONCLUSIONS

For optimal fertility of sows with semen diluted M22 medium can be stored at a temperature of 16-18^{0}C for 3-4 days and diluted with medium Atropozit sperm can be stored before use for a period of 5-6 days.

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