THE INFLUENCE OF BIOACTIVE SUBSTANCES OF BOAR SPERM

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Abstract

The researches have seen held on the boar sperm. The researches had the aim to create efficient method's of boar sperm conserv ation at low temper atures. There were studied bioactive solutio n MD-1, MD-2, u sed in the comp osition of dilution M-22, it the concentration 0.1-1%. The bo ars spermatozoids are more resistible and kelp th eir maintenance during long time of low temperatures using the solution MD-1, added to the composition of M-22 in concentration of 0.2-0.3%.

Key words: boar, semen, dilution, mobility, preservation of normal and abnormal pathology

INTRODUCTION

The preservation of boar semen has a very scientific and practical interest because fertilization ability of sperm is closely correlated with their structural integrity. Between sperm and seminal fluid released by the glands is an asset transfer, continuous and well balanced in normal cases.

Changing this balance can occur under the influence of factors affecting sperm [1.2.] That can reveal the variation membrane integrity and of crosomului. Morpho-physiological indices sperm during their incubation temperature hypothermia.

The above considerations led us to undertake research on a crosomului changes that sperm undergo the boar during dilution and preserve them in cold hypothermia. The main purpose of this research was to find a way to serve the extension of storage of boar sperm in vitro, without diminishing their ability fecundated.

In the present study we focused on bioactive substances entering the composition [3, 4, 6] of the dilution M22. The choice was justified by previous research which have shown that bioactive substances with antioxidant role of morpho-physiological preserve the integrity of boar sperm in a longer running time hypothermal temperature and there is a specific difference between them. [5]

WORKING MATERIAL AND METHODS

Measurements were made on freshly ejaculated boar sperm diluted with various diluents, preserving and maintaining the temperature 16-180C for 96 hours. The bioactive substances were tested preparations MD-1 and MD-2 Synthesis of Genetics Institute of the Academy of Sciences of Moldova.

For dilution of boar semen dilution used M22 in which were introduced as additional component substances MD-1 and MD-2 concentration from 0.1 to 1%. Dilution of sperm was made in proportions, proceeding from the fact that the dose of sowing to contain 3.5-4.0 billion viable sperm. Diluted semen was kept in special incubators where the temperature was constant 16-180C. Morpho-physiological determination of sperm was carried out over every 24 hours.

The results obtained from investigations were statistically processed by calculating serum parameters, the arithmetic mean (M) and average error (m).

RESULTS AND DISCUSSION

Data obtained on the dynamic mobility of sperm diluted with M22 medium, which was introduced as additional components biopreparat MD-1 in concentrations from 0.1% to 1% are recorded in Figure 1.

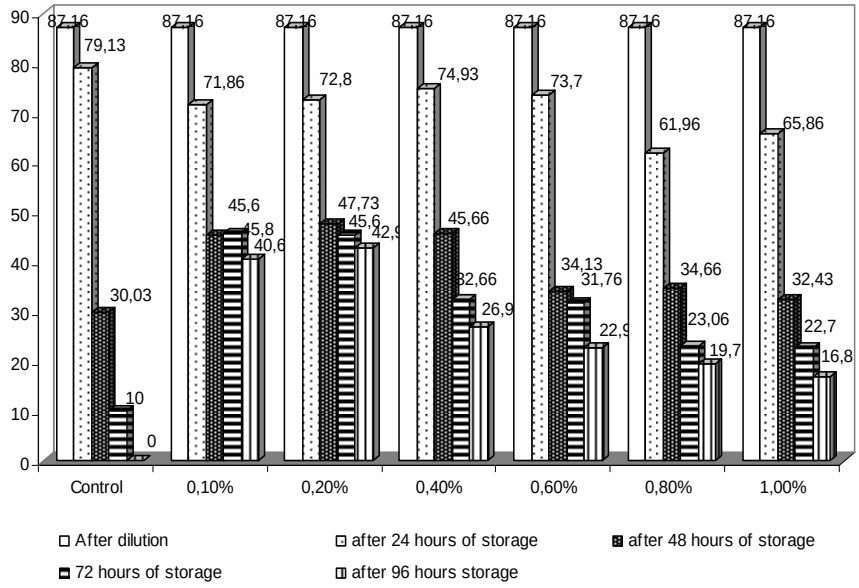

Figure 1.The dynamic of sperm mobility dependingon the concentration of biopreparat MD-1

From this figure appear that the mobility of sperm after 24 hours storage at 16-180C temperature decreased only marginally compared with sperm mobility values after dilution. The slight decrease in mobility is that biopreparat MD-1 introduced in M22 solvent composition in a range 0.1-1% concentrations is toxic to sperm. This finding may serve as a practical criterion for the use of this preparation in practice artificial insemination in swine.

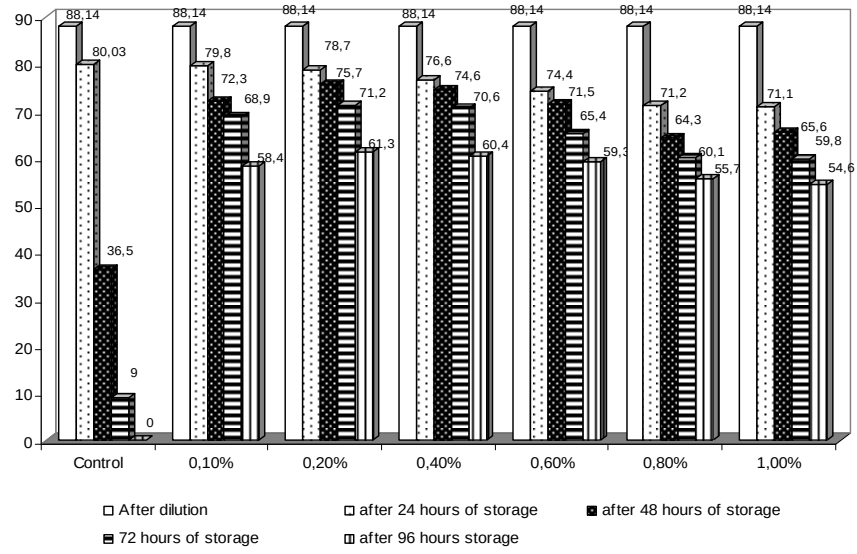

Figure 2.Dinamica sperm mobility depending on the concentration of biopreparat MD-2

Experimentation of biopreparat MD-2 (Figure 2) allowed to obtain better results compared with MD-1 preparation. The mobility of sperm after 96 hours of storage was 60.6% when the concentration of biopreparatului introduced in M22 thinner composition was 0.4% and 61.3% when its concentration was 0.2%. Another fact that we observed is that changes during semen preservation percentage of sperm with normal morphology depending on the concentration of solvent composition of biopreparat introduced in M22 (Figure 3).

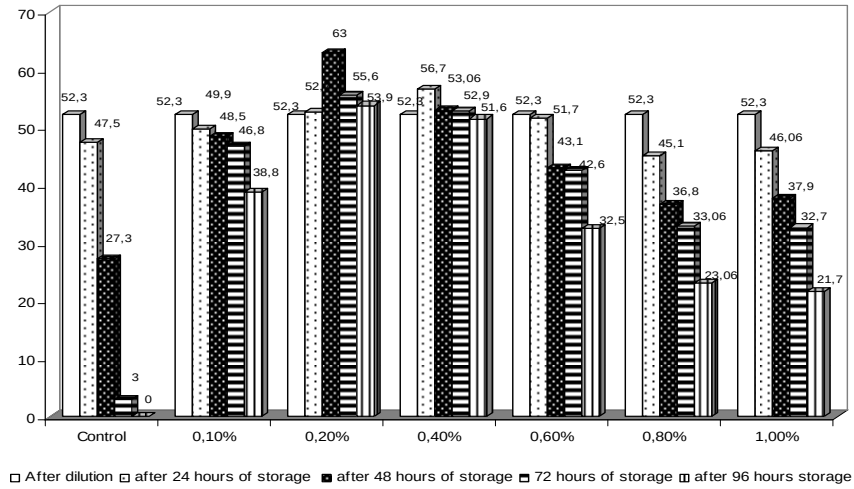

Figure 3. Sperm with normal morphology depending on the concentration of MD-1 biopreparat

The figure given is observed in all cases the number of sperm falling down with normal morphology. After 96 hours of storage of semen diluted 16-180C temperature indices was best achieved when the concentration of the preparation placed in M22 media components were 0.2 and 0.4%. The percentage of sperm with normal morphology was 53.9 and 51.6 running.

Higher indices were obtained in experiments of biopreparat MD-2 (Figure 4).

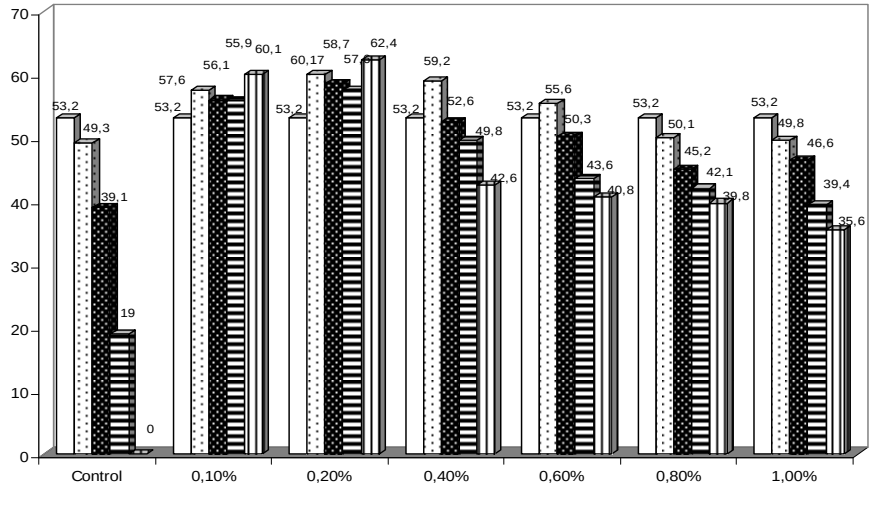

Figure 4. Sperm with normal morphology depending on the concentration of biopreparat MD-2

After 96 hours of storage of semen dilution percentage of sperm with normal morphology was 62.4% when the concentration of the preparation was 0.2% and 60.1% when the concentration was 0.1%.

Exam sperm with abnormal morphology has revealed a variable percentage of pathological sperm in biopreparat experienced and concentration dependence of the media components M22 (Figure 5.).

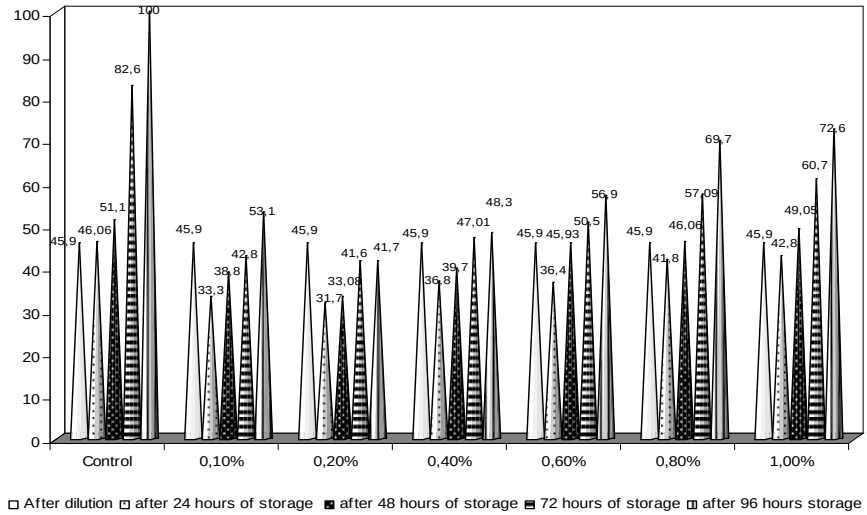

Figure 5. Morphologies depending on not nor normal sperm with concentrations of biopreparat MD-1

During diluted sperm preservation for 96 hours at 16-180C growing number of pathological sperm. The percentage of sperm with abnormal morphology was 41.7 when biopreparat MD-1 concentration was 0.2% and 48.3 to 0.4% concentration. As the concentration increased biopreparat increased and the percentage of pathological sperm. After 96 hours of storage of sperm diluted highest percentage of pathological sperm (72.6%) was the biopreparat concentration was 1%.

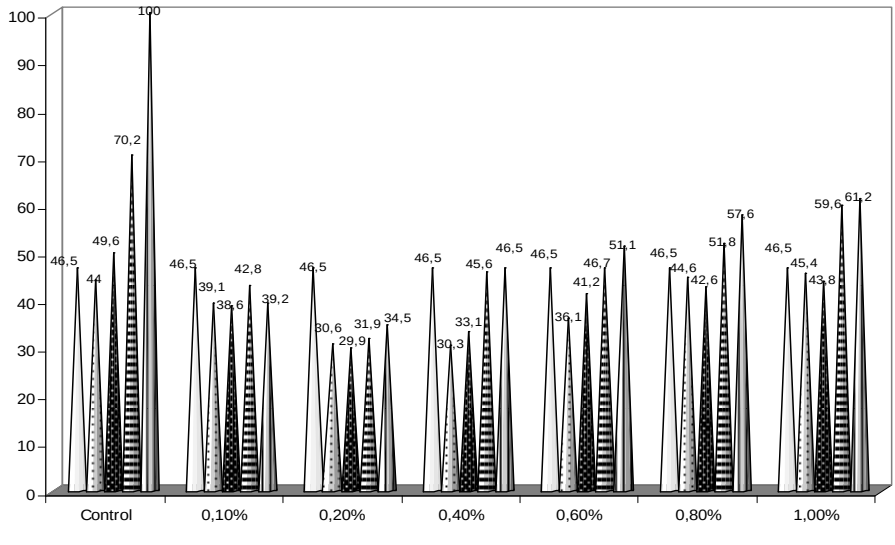

Figure 6. Morphologies depending nor normal sperm with concentrations of biopreparat MD-2

A more favourable effect for sperm preparation was obtained from the expression of MD-2 (Figure 6). After statistical processing of experimental data shows that the number of sperm with morphological abnormalities was biopreparatului concentration of 0.2 and 0.1%. After 96 hours of storage the percentage of pathological sperm was 34.5 and 39.2% sequentially.

CONCLUSIONS

1. Following conservation of boar semen at temperatures hypothermal morphological evidence of reduced sperm continuously throughout their retention
2. Reduced sperm mobility depending on the media used and duration of retention of sperm at a temperature of 16-180C, but the irregular. I suppose that would depend on the irregularity of the structural features of sperm.
3. While preserving the highest semen morpho-physiological indices of sperm were obtained when semen was diluted with M22 medium in which the composition was introduced as supplemented biopreparatul component MD-2 concentration from 0.2% to 0, 4%.
4. Observations made during this research suggests new directions for the development of new media for dilution and preservation of boar semen at temperatures hypothermal and their implementation in practice of artificial insemination.

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