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Study Concerning the Influence of Dilution Media on Semen Morphological Indices

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Abstract. Previous research showed that the morphological study of boar sperm depending on the length of semen storage temperatures hypothermal and bioactive substances for use in the composition of the dilution media could highlight the role of these substances in the preservation of boar semen. If the media presence in the composition of boar semen dilution class of bioactive substances may be increased glycosides boar semen during storage at a temperature of 16-18^{o}C until 6-7 days without reducing power of fecundant sperm.

Keywords: boar, semen, diluents, preservative, bioactive substances, fecundity

INTRODUCTION

Sperm morphology is an area of activity in terms of knowledge of useful indicator to characterize semen and testicular function (1,2,3,4,5,6). Current concerns in this area focuses on the establishment of macro and microscopic indices of sperm required for practical breeding, processing and preservation mode of sperm for artificial insemination and to detect possible pathological abnormalities. In this context, the research objectives pursued in this paper a comparative investigation of bioactive substances entering the composition of the dilution media for boar semen preservation at temperatures hypothermia.

MATERIALS AND METHODS

The comings used in the study were from 10 boars of the breed Landrace, Yorkshire, Duroc, Pietrain and maintained in SE Hampshire I.S. "Moldsuinhibrid". The comings were collected by manual method once in three days. Immediately after harvest have been assessed the comings mobility, sperm concentration and morphology. The experience has been used only with mobility the comings not less than 70% of the total number of sperm in ejaculate and no less than $25x10^9$ spermatozoa with abnormal morphology less than 20%.

The comings admitted were diluted with different dilution media in order to finally obtain a concentration of $50x10^6$ spermatozoa/ml.

Diluted sperm was packed with 80 ml volume and sperm concentration in a dose of 4.0x109 sperm. Packed sperm was kept at 16-18^{o}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 DISCUSSION

Experimental results demonstrate that sperm mobility has changed depending on media composition during dilution and sperm storage temperature of 16-18^{o}C (Fig. 1).

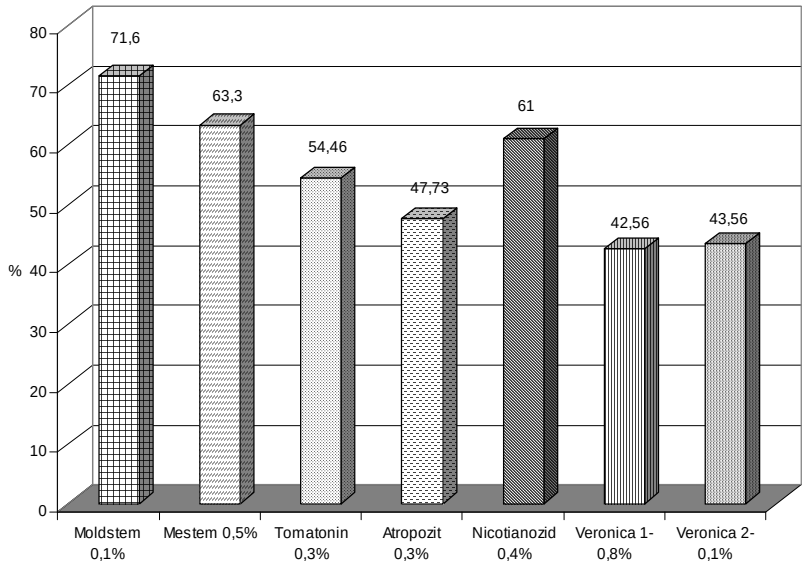

Fig. 1. Sperm mobility after 120 hours storage temperature of 16-18^{o}C, %

The best results of mobility after 120 hours of storage were obtained when the composition of the dilution media was used bio-products Molstem concentration of 0.1%, being 71.6% mobility.

Mesta preparations (0.5%), Tomatonin (0.3%), Atropozit (0.3%), Nicotianozid (0.8%), Veronica 1 (0.8%) and Veronica 2 (0.1%) showed lower results compared with Moldstem preparation.

It is known that in the preservation of normal sperm semen addition there are a variable number of pathological spermatozoa.

Proceeding from this bioproducts studied the influence on the morphology of normal sperm depending on the composition of media dilution and duration of sperm storage (Fig. 2).

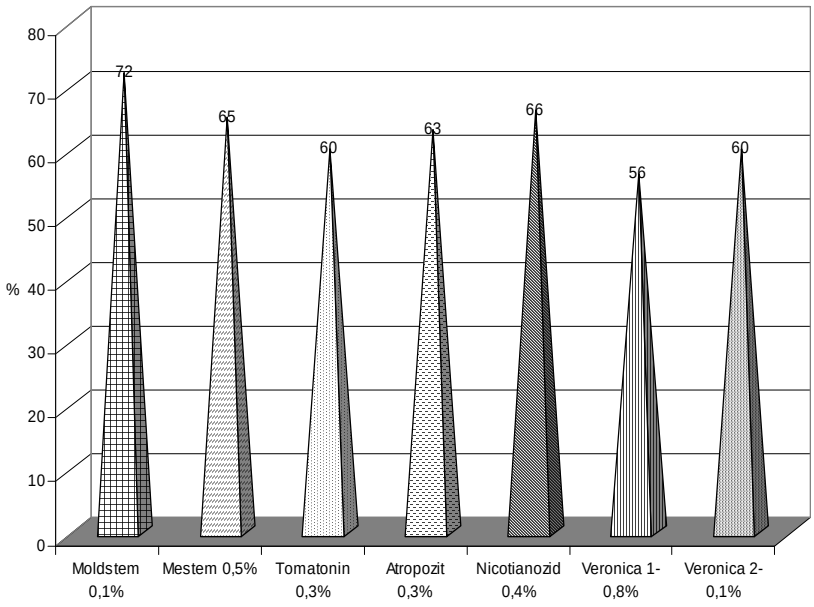

Fig. 2. Sperm with normal morphology after120 hours' storage temperature of 16-18^{o}C, %

Data from Fig. 2 shows that dilution of boar semen with dilution medium composing Molstem preparation which was introduced at a concentration of 0.1% after 120 hours allowed the storage to keep the greatest number of sperm with normal morphology - 72%.

Lower results were obtained when the dilution was introduced into the environment bio-products Mesta (0.5%), and Nicotianozid (0.4%) -65-66% sequentially. Semen diluted with dilution media containing it were introduced the Tomatonin preparations (0.3%), Atropozit (0.3%), Veronica 1 (0.8%) and Veronica 2 (0.1%) showed results lower compared with other preparations studied.

Study of abnormal sperm morphologies show the influence of dilution media composition on the changes taking place in the structure of sperm. Study results abnormal morphologies of sperm are shown in Fig. 3.

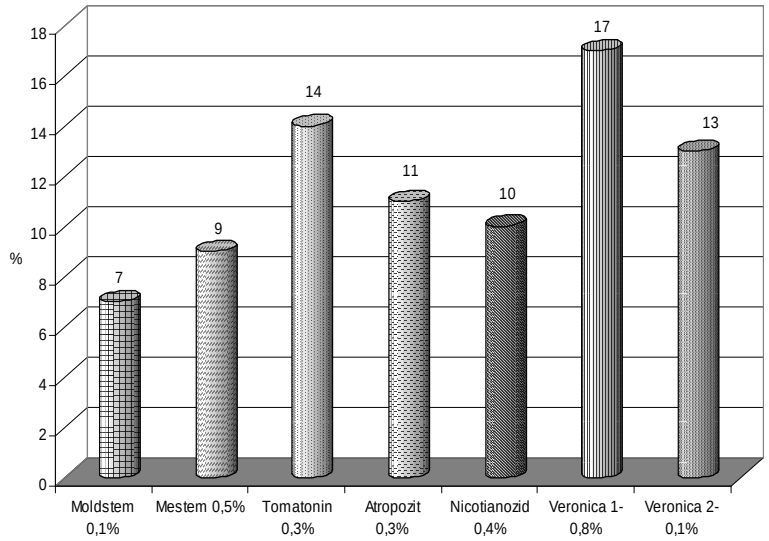

Fig. 3. Spermatozoa with abnormal morphology after 120 hours storage temperature of 16-18^{o}C, %

The data shown in Fig. 3, showed that the percentage of defective sperm during sperm preservation at a temperature of 16-18^{o}C for 120 hours was highest when the dilution medium composition was introduced Veronica preparations 1 (0.8%) and Tomatonin (0.3%) - 17-14% sequentially.

The best indices were obtained when the dilution Components environment was introduced bioproducts Molstem concentration of 0.1%. The percentage of sperm with abnormal morphology was only 7%.

Morphological examination of sperm provides clear indications on the ability of semen fertilized (Fig. 4).

The highest index of fecundity (72%) sows with semen diluted and stored at a temperature of 16-18^{0}C for 120 hours was obtained when the Environmental Components dilution was introduced bioprepartion Molstem (0.1%).The other preparations studied gave lower results compared with the bio-preparation Moldstem.

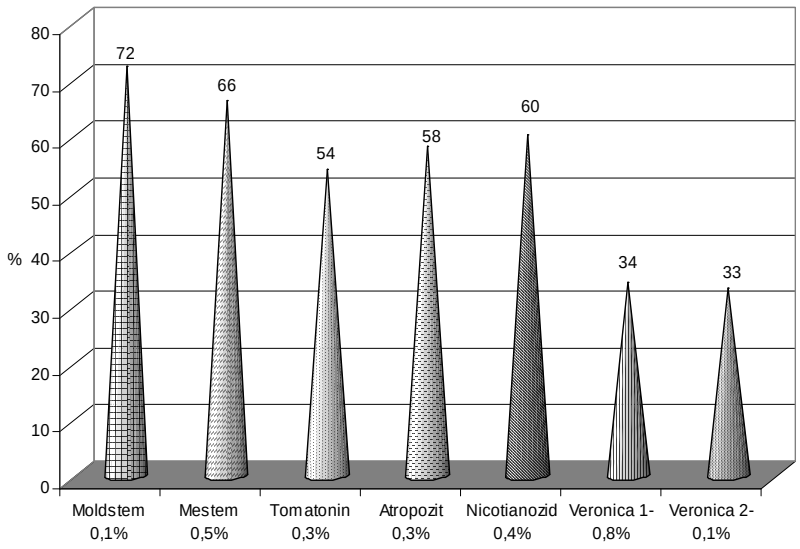

Fig. 4. Fecundity of sows, %

CONCLUSIONS

The presence of bioactive substances in the composition of the dilution media demonstrated their intense activity when temperature preservation of boar semen hypothermal positive influence fecundates capacity of semen.

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