

CONTRIBUTIONS ON THE STUDY OF THE CRYORESISTANCE INCREASE OF THE BULL SEMEN MATERIAL

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Abstract: The biopreparation's effect of the algal origin on cells semen's cryoresistance and the reproductive system function of the sire bulls was established. BioR was influenced significantly (fig. 1) the cryoresistance of semen material of sire bulls. To the end of the administration period (10 days), the group cured with 0.1 ml/ 100kg living mass/day showed an increase of the spermatocytic mobility with 69.14%. comparing to the preexperimental period. The group cured with 0.4 ml/ 100kg living mass /day showed an increase of 3.88%. The next 50 days from the ceasing of the preparation administration, the seminal cells mobility increased for the first group (0.1 ml/100 kg living mass/day) with 107.14%. and for the second group (0.4 ml/100 kg living mass/day) this indices value maintains on the stage. The DMA concentration in blood for the first group was 3.74 nmol/l. 10 days after the administration we established an decrease of this indices till 3.12 nmol/l ($P<0.05$) and 50 days after this treatment ceasing the value of studded index was 2.95 nmol/l ($P<0.05$). The group carried with 0.4 ml/ 100 kg bodily weight /day showed a tendency of decrease only 50 days from the ceasing of the preparation administration.

INTRODUCTION

Due to important works in phytobiotechnology (Рудик. 1990; Rudic. 1993; Rudic .Gudumac. Popovici. 1995) it was possible to obtain biologically active preparations of algal origin with a high efficiency of proteins, amino-acids, nucleic acids, vitamins, microelements etc.. which have demonstrated numerous beneficial effects (Филимон. Авраман. 1992 ; Rudic.. Macari. Gudumac. Buza.1999; Macari. 2003) being used in animals breeding. Taking into account the dates from literature but also due to the fact that these preparations contain biologically active substances, this study is a follow-up of certain previous researches (Granaci. Caragia. 2002). especially concerning the effect of the biopreparation from *Spirulina platensis* administration on the spermatogenesis of sire bulls used in artificial insemination technology.

MATERIAL AND METHOD

The investigation has been performed on bulls from the Black Spotted breed of Moldavian type.

The bulls have been maintained during the investigation in adequate conditions from the point of view of microclimate and fodder.

The bioextract administrations have been done daily during 10 days in accordance with the following protocol:

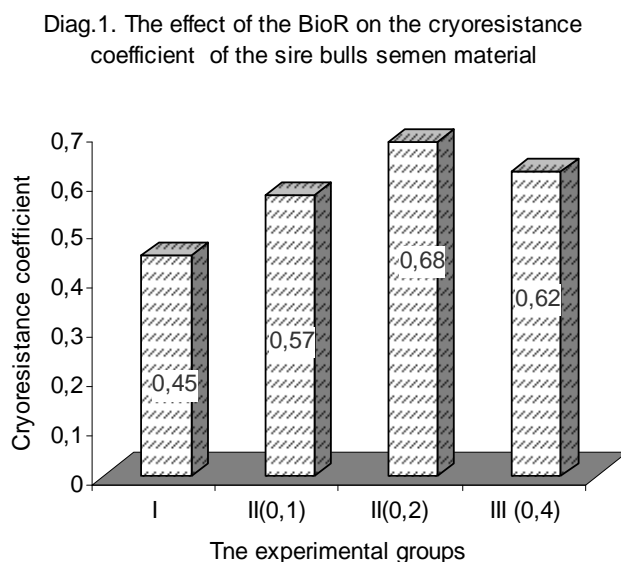
1. Group I – control (non carried BioR);
2. Group II – 0.1 ml/100 kg living mass/day ;
3. Group III - 0.2 ml/100 kg living mass/day ;
4. Group IV - 0.4 ml/ 100kg living mass/day.

Having as purpose the research of the biopreparation's effect from algae on the semen material's cryoresistance reproductive system function. in these experimental groups the functional and the cryobiological indices have been studied: the cryoresistance coefficient and the mobility of the raw spermatozoids; the mobility. the longevity and the survival absolutely indice of the thaving spermatozoids; some metabolic tests.

These indices have been tested in the preexperimental period (30 days) till the beginning of the extract's injection. during the extract's administration (10 days) and 50 days after the ceasing of *Spirulina platensis* extract administration (the length of a bull's spermatogenesis cycle).

RESULTS AND DISCUSSION

Results of our experiments as concerns the increase of the bull gametes resistivity at low temperatures. on the spermatogenesis level. which envisages administration of BioR preparation from *Spirulina platensis* are presented (diag.1).



BioR administration was influenced significantly (diag. 1.) the cryoresistance coefficient of the raw semen material of sire bulls. The produced effect depend of the administrated dose. In the group cured with 0.1 ml/100 kg/living mass/day the cryoresistance coefficient of semen cells showed an increase of 26.67% comparing with the control non cured group. The double dose showed an increase of 51.11%. In case of 0.4 ml the cryoresistance coefficient was superior comparing to the dose of 0.1 ml but it has been noticed an decrease

comparing to the 0.2 mLdose. Concomitantly we has studded the mobility. the longevity and the survival absolutely indice of thaving spermatozoids (tab. 1.).

Table 1

The influence of BioR administration on the cryobiological indices of the semen material of bulls

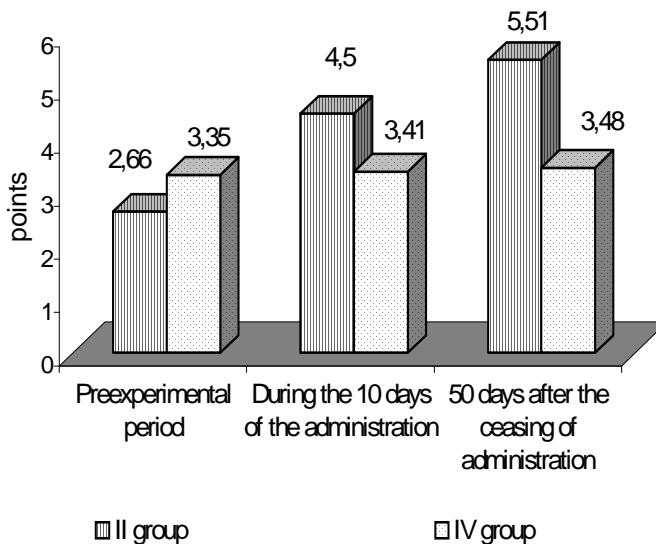
Nr.	The experimental groups	Mobility. points	Longevity. hours	Survival Absolutely Indice. c.u.
1.	I	3.43 ± 0.17	8.33 ± 0.67	11.08 ± 1.29
2.	II	3.54 ± 0.29	7.7 ± 0.90	9.93 ± 1.84
3.	III	4.21 ± 0.27*	9.57 ± 0.20	18.64 ± 2.73*
4.	IV	4.47 ± 0.14*	10.00 ± 0.00	23.75 ± 1.54*

P < 0.05;

The analise of the presented dates (tab.1) notice that the Bior administration was contrbuted on the significantly cryobiological specific features increase of the thaving bull semen material. The highest result was inscribed counterpart the survival absolutely indice and the mobility of the thaving bull spermatozoids. In the case of the longevity it was established a temperate increase. Since thus parameters are a high influence on the spermatozoids skill

fecundity it can to conclude that the BioR will increase the rate of the fecundity of the females after fist artificial insemination.

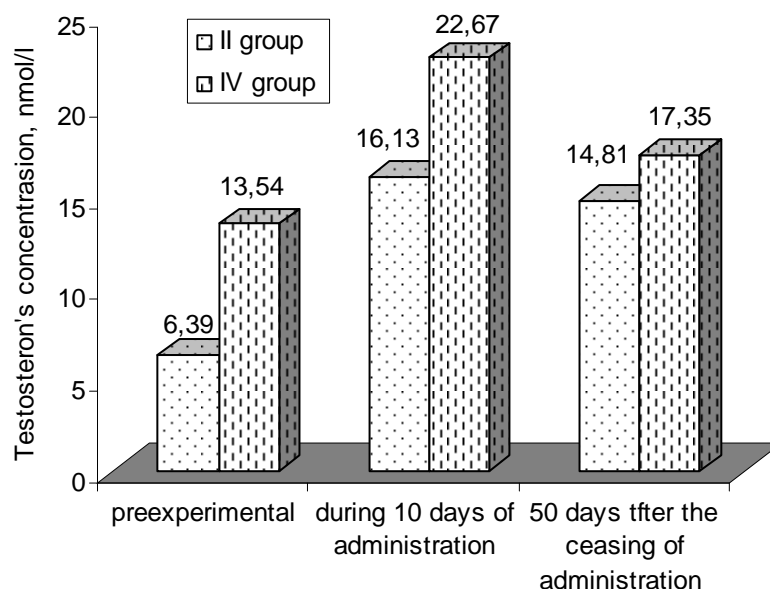
Diag.2. Effect of the biopreparation from *Spirulina platensis* administration on the mobility of sires bulls



About the biological specific features of the raw semen material it was established that to the end of the administration period (10 days). the group cured with 0.1 mL/100 kg living mass/day showed an increase of the spermatic mobility (diag. 2) with 69.14%. comparing with the preexperimental period. The group cured with 0.4 mL/100 kg/ living mass day showed

an increase of 3.88% The estimation of this index during the next 50 days from the ceasing of the preparation administration. showed a permanent increase of the seminal cells mobility till 5.51 points for the first group (0.1 mL/100 kg living mass /day) or with 107.14% ; as for the second group (0.4 ml/100kg living mass /day) this index value maintains on the stage.

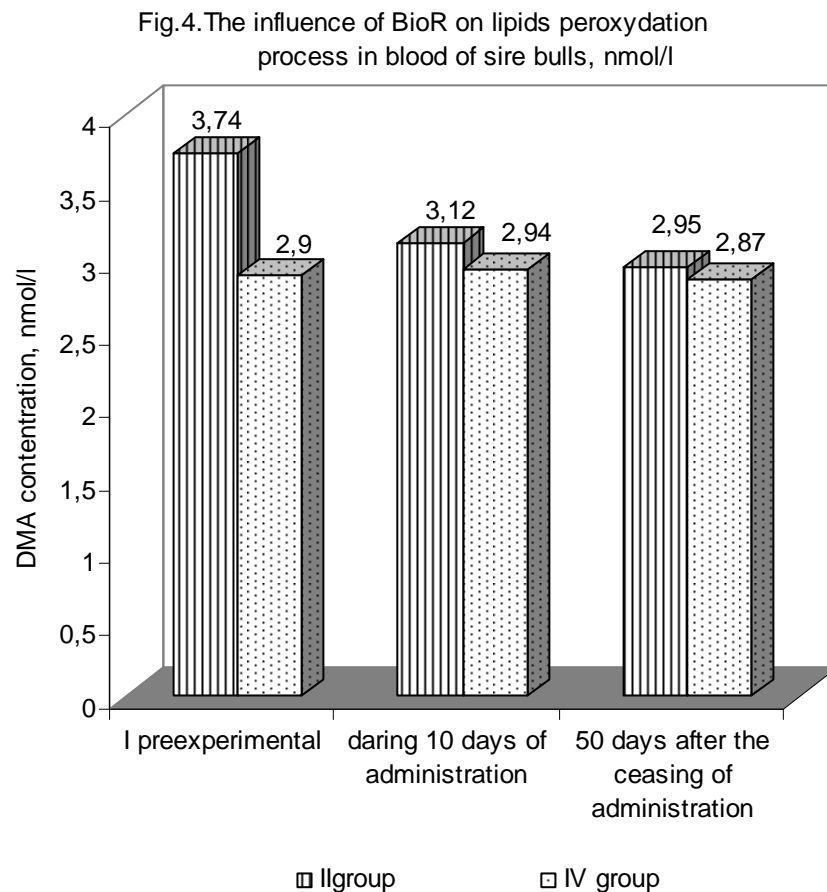
Fig.3. Influence of BioR on the hormonal status of sire bulls



By help of the measurement of the blood testosterone concentration to the experimental animals there was demonstrated that the tested biopreparation has a steroidogenous action

(diag. 3.). In the preexperimental period the testosterone's (diag. 3) concentration in blood for the first group was 6.39 nmol/L and 13.54 nmol/L for the second group. 10 days after the administration we noticed an increase of this indice till 16.13 nmol/L for the first group and till 22.67 nmol/L for the second. or with 152.42% and 6.43%. accordingly ; 50 days after this treatment ceasing the value of studied index is decreased. Considering the biopreparation's influence from *Spirulina platensis* on the hormonal status. it was been noticed also a dependence of the administrated dose (diag. 3.).

The experimental obtained dates demonstrate that the *Spirulina platensis* biopreparation's administration to the sires bulls are an benefic influence on the lipids peroxydation process in the experimental animals. Administration of biopreparation in the 0.1 mL volume/100 kg bodily weiht during 10 days contributed to diminish the frees radical's chain reaction speed. estimated in accordance with concentration of the final product (malonice dialdehyde) in the blood serum (diag. 4).



In the preexperimental period the DMA concentration in blood for the first group was 3.74 nmol/L. 10 days after the administration we established an decrease of this index till 3.12 nmol/L (p 0.05) and 50 days after this treatment ceasing the value of studded index was 2.95 nmol/L (P 0.05). The group carried with 0.4 mL/100 kg bodily weight day shoved a tendency of decrease only 50 days from the ceasing of the preparation administration.

CONCLUSIONS

Some of the conclusions are that the bio extract from *Spirulina platensis* has an evident influence on the reproductive system function of the sire bulls. The cryoresistance and the some cryobiological specific features of spermatozoids, the seminal cells mobility, the hormonal statute efficiency and the lipids peroxydation process inhibition are intensely influenced.

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