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ACHIEVEMENTS IN THE ARTIFICIAL INSEMINATION OF SWINE

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Abstract. The advantages of artificial insemination in swice have been reported previosly by very much athors. The objective of this study was to examine the effect of administration of algal extract from *Spirulina platensis* – BioR. on the quality and fecundity of the sire boars semen. It was utilised two regimes of BioR administration (during10 and 5 days) on the sire boars. The results of the present study indicate that BioR preparation obtained by biosynthesis from *Spirulina platensis* has a beneficial effect on the reproductive function of the sire boars. The optimal period of BioR administration can be reduced till 5 days. Administration of BioR from 5 to 10 days in the sire boars was contributed to increase the ejaculate volume. the mobility of raw spermatozoa. the farrowing rates for sows and the total number of piglets born.

INTRODUCTION

Artificial insemination of porcine has gained a rapid acceptance in the internationally area. especially in the industrial swine. thanks to there advantages reported previously [3; 2; 4; 1] such as: thereby multiplying the number of females that can be inseminated from each ejaculate. utilization intensification of the genetics means of valuables sires boars. speed-up the genetic progress in animals populations. the sanitary-veterinary appearances. Conservation of boar semen at 17°C is a prevalent method. The *in vitro* longevity of the semen material depends on the initial quality of raw semen material which is influenced by the internal and external factors. The primary purpose of increase of survival index of boar semen *in vitro* in to utilise alls scientific achievements.

The objective of this study was to examine the effect of algal extract from *Spirulina platensis* administration on the quality and fecundity of the sire boars semen.

MATERIAL AND METOHODS

The boars were 1.5 – 2 years and where housed in the S.A. “Moldsuinhibrid”. Ejaculates were collected by the gloved-hand technique and the boar were allowed at last 3 days of sexual rest between collection. After collection. samples from each ejaculate were evaluated from the volume. sperm mobility and concentration following established protocols [5].The boar have been maintained during the investigation in adequate conditions from the point of view of microclimate and fodder. The bioextract administrations have been done in accordance with the following protocol:

Table1

Experiment's protocol

Experimental groups	Number of boars	Denomination of preparation	Volume of administrated dose. ml/animal/day	Length of administration period. days
I Control	5	0.9% NaCl	1.5	10
II experimental	5	BioR	1.5	10
III experimental	5	BioR	1.5	5

Having as purpose the research of the biopreparation's effect from algae on the boar's reproductive system function. in these experimental groups the functional indices and the semen's fertility have been studied: the volume of ejaculate. the mobility of the raw spermatozoids; the fecundity of sows after artificial insemination in a single oestrus and a litter size.

These indices have been tested in the preexperimental period (30 days) till the beginning of the extract's injection. during the extract's administration and the next 35 days after the ceasing of *Spirulina platensis* extract administration (the length of a boar spermatogenesis cycle).

A prospective fertility study was carried out at a commercial sow unit in the S.A. "Moldsuinhibrid". Sows were inseminated from April through July 2006. Oestrus detection was performed once a day in the morning and consisted of direct of direct contact with a tethered boar. Experienced AI technicians inseminated each sow approximately 1 to 3 h after being observed in standing oestrus with the semen material collected in the preexperimental and experimental period. respectively. A second insemination was performed 12 to 18 h later. using semen from the same treatment and pool group.

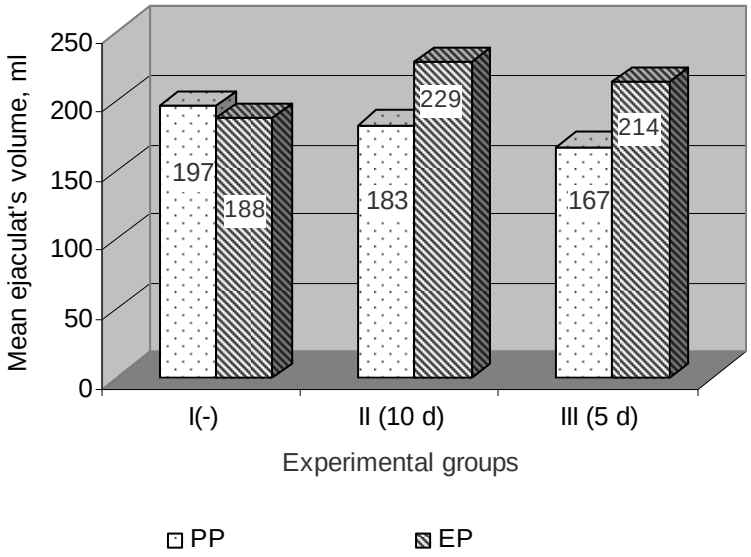
RESULTS AND DISCUSSIONS

The experimental obtained results denote that BioR preparation obtained from microalgae *Spirulina platensis* has a benefice effect on reproductive function of sire boars. especially on semen quality (fig.1.).

In the experimental period was established a variation of the ejaculate volume between 197 ml in the first group. 183 ml for the second groups and 167 ml for the third group. The administration of BioR preparation on the boar was influenced on the value of ejaculate volume. In the experimental period was established an decrease of ejaculate volume (- 4.15%) for boars of first groups In the same time in the second groups treated with BoiR preparation during 10 days was estimated an increase of the value of boar ejaculate volume with 25.14% in comparison with preexperimental period and 21.48 given to the control group (I) in this period.

Similar increase in ejaculate volume over time were observed in the third group which was treated with BioR during 5 days. The increase of ejaculate volume was increased with 27.98% in given the results in preexperimental period. The obtained results in the third group where higher with 13% reported to the control group prevailing the second group.

Fig.1. Influence of BioR on the value of ejacilat's volume of boars



BioR administration was influenced the spermatozoa mobility (fig. 2.). For the three groups used in study. the mean score for mobility estimated from the samples of the raw semen in the preexperimental period were 8.0 points (80%) . 8.2 points (82 %) and 8.0 points (80 %). respectively. BioR administration contributed on the mobility amelioration of boar raw spermatozoa. The mean score of spermatozoa mobility in ejaculate on boar from I groups was increased with 3% in the experimental period given the preexperimental period.

Fig.2.Consequence of BioR administration on mobility of boar raw spermatozoa

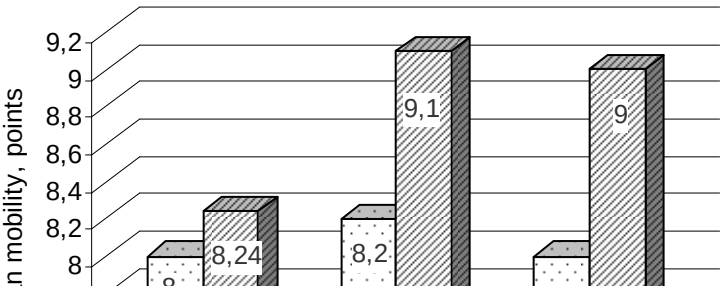
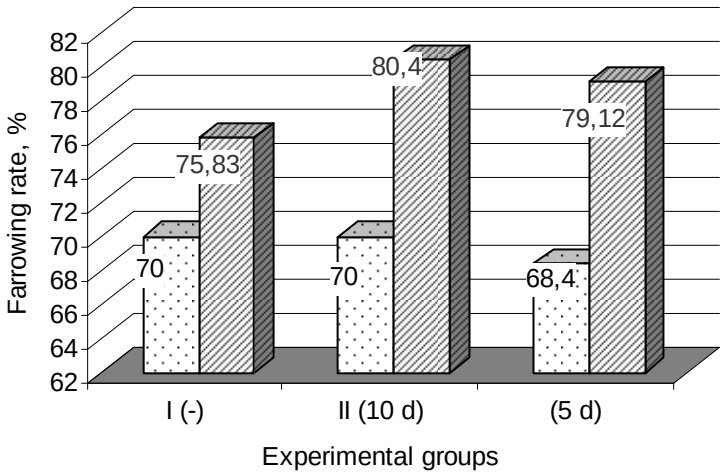


Fig.3. Influence of BioR administration on the fertility of boar semen



From the second group treated during 10 days with BioR the increase is significantly and constitute 10.97% given the preexperimental period and 10.44% given the control (I) group (non treated wit BioR). For the boar treated with BioR during 10 days (III) the mobility was increased given the preexperimental period with 12.5% and respectively given the control group – 9.22%. No difference in mobility was found between second and third groups.

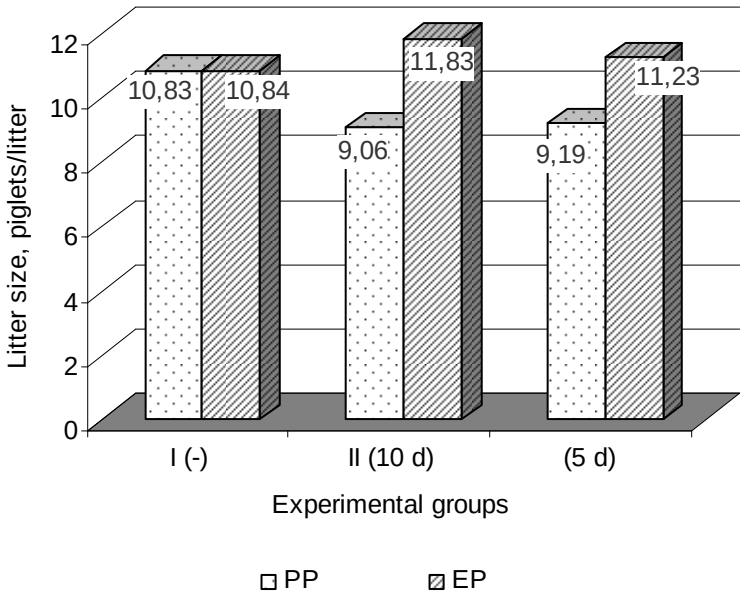
The experimental results of the consequence of BioR

administration on the fertility of boar semen are presented in the fig.3. The analyze of farrowing rate percentage in the preexperimental period did not differ between the studded groups. In the experimental period sows inseminated with the collected semen from the second group boar showed an increase in farrowing rate (+ 4.56 %) compared with sows inseminated with the semen collected from the no treated with BioR boars.

For the third experimental group treated with BioR during 5 days was established an increase in farrowing rate of 3.29% given to first control group. No significant differences were observed in farrowing rate percentage between second and third group.

Figure 4. shows the means for the total data piglets born.

Fig.4. Effect of BioR administration on sow's fertility



Amongst the groups in the preexperimental period the total number of piglets born were situated from 10.83 ± 1.30 (I) to 9.06 ± 0.61(II) and 9.109 ± 0.49 (III). In the experimental period the numerical difference in mean of total number of piglets born noted between control and experimental groups treated wit BioR preparation.

Compared with sows inseminated with the semen collected from second group boars. those inseminated with semen from first group boars. produced smaller in litter sizes between the first control groups and the second group treated with BioR preparation during 10 days. No significant differences were detected in total number of piglets born for sows inseminated with semen collected from second and third groups boars but was established a significant difference for litters size in the experimental period for the second groups (30.57%) and for the third group (22.19%) compared with data obtained in the preexperimental period.

CONCLUSIONS

The results of the present study indicate that BioR preparation obtained by biosynthesis from *Spirulina platensis* has a beneficial effect on the reproductive function of the sire boars. The optimal period of BioR administration can be reduced till 5 days. Administration of BioR from 5 to 10 days in the sire boars was contributed to increase the ejaculate volume. the mobility of raw spermatozoa. the farrowing rates for sows and the total number of piglets born.

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