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COOL PRESERVATION OF DILUTED BULL SEMEN COLLECTED THROUGH DELPLETION TRIALS

(With one Table)

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حفظ السائل المنوى للطلائق المجموع بواسطة الاجهاد الجنسى عند درجه + ٤م

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الهدف من هذه الدراسه هو بيان تأثير التبريد عند درجه + ٤ مئويه على حركة وحيوية السائل المنوى المجموع بواسطة الاجهاد الجنسى من الطلائق المختلفه العمر والسلاله. أستخدم فى تخفيف العينات مخفف صفار البيض + محلول سترات الصوديوم + محلول الفركتوز + جليسرول وكذلك مخفف اللبن الجاموسى بعد تسخينه عند درجه ٩٢-٩٥م لمدة ١٠ دقائق ثم تبريده وترشيحه + محلول الجليسين. وجد أن عدد القذفات التى جمعت من الطلائق صغيرة العمر لا تزيد عن ٧ فى كل محاوله للاجهاد بينما فى المسنه وصل عدد القذفات فى المحاوله الواحده للاجهاد إلى ٢٢ قذفه. لوحظ وجود ارتباط ايجابى بين حركة الحيوانات المنويه والحيويه. تم حفظ السائل المنوى المجموع بواسطة الاجهاد عند + ٤م وقد لوحظ وجود أنخفاض معنوى فى حركة وحيوية السائل المنوى عند اليوم الثالث من الحفظ برغم أن النسبه المئويه للحركه والحيويه كانت أعلى من ٦٠٪. لوحظ أن القذفات ذات الحركه والحيويه المرتفعه بعد التجميع مباشرة أستمرت الحركه فيها تحسن حتى نهاية الحفظ وأن القذفات ذات الحركه والحيويه المنخفضه فقدت نشاطها عند اليوم السابع من الحفظ. أوضحت النتائج أنه يمكن استخدام السائل المنوى المجموع بواسطة الإجهاد الجنسى والمحفوظ عند درجه + ٤م حتى اليوم السابع.

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COOL PRESERVATION, SEMEN

SUMMARY

The present study was carried to investigate the effect of cool preservation on the motility and livability of 7-22 consecutive ejaculates collected through depletion in bulls with variable ages (13 month - 12 years) and breeds (Friesian, Native and their crosses). Egg yolk citrate, fructose, glycerol and milk glycine were used as suitable diluents with no valuable difference. The young bulls were unable to give more than 7 ejaculates per depletion while the aged one reached 22 collection. There was positive correlation between sperm motility and livability among ejaculates (r=0.79). With storage at 3-4 °C there was significant reduction in sperm motility and livability at the 3rd day although the results were still above 60%. Moreover, samples with higher initial activity irrespective of their situations in the depletion remained with best motility till the end of storage (15 days). Samples with relatively low initial motility and livability lost their activity at the 7th day of storage. The obtained results might permit the use of Bull semen collected through depletion trials up to 7th day of Storage at + 4 °C.

INTRODUCTION

Maximum utilization of selected bulls for breeding is of economic importance to live-stock. Different aspects of investigation on semen collected by exhaustion appeared in the literature *(FOSTER* et al., *1970; GHALLAB* et al., *1985 and OSMAN* et al., *1990).* However, there are meagre informations concerning the dilution and preservation of successive ejaculates in bulls and therefore, the present work was designed to study such topic in animals with different ages and breeds.

MATERIAL and METHODS

Consecutive ejaculates were collected from 8 bulls (3 Friesian, 1 Balady and 4 of their growing crosses) of varying ages (13 months - 12 years) and body weight (260 - 700 Kg). One depletion was tried for each bull. Portions of each ejaculate

were extended with both egg yolk citrate, fructose, glycerol and buffalo milk glycine *(SALEH, 1980)* for storage at 4 °C for 15 days. Smears were taken daily from each sample to assess sperm motility and livability *(LAING, 1979)*.

RESULTS

The growing cross-bred bulls (13 - 16 months old) were unable to give more than 7 ejaculates per depletion while the Egyptian Balady bull reached 22 ejaculates and the adult Friesian bull reached 16 ejaculates per trial. Wihtin each depletion there were no valuable differences in the initial sperm motility and livability. However, there was positive significant correlation (r=0.79) between sperm motility and livability in all ejaculates.

The motility and livability percentages stayed above 50% in most samples up to the 6^{th} and 7^{th} of storage respectively (Table 1). Significant reductions in both semen characters were noticed at the 3^{rd} day of preservation. The number of ejaculates with positive motility decreased sharply from the 7^{th} to the 15^{th} day of storage. Ejaculates with higher intial activity irrespective of their situations in the depletion trials remained with best motility.

DISCUSSION

The ability of growing cross-bred bulls to give 7 ejaculates per depletion denoted their high potential for sperm production according to the assumption of *AMANN (1970)*. The absence of significant variations in the initial sperm motility and livability within depletions is in general agreement with *ABDOU* et al. *(1991)*.

The obtained results are in general line with those of *MOULE (1962)* who reported positive motilive up to 15 days for the first ejaculate when kept in different diluents at 4 °C.

Though motility and livability did not show valuable differences between consecutive ejaculations, the pattern of their decrease remained constant till the end of storage where samples with stronger activity remained motile. *AMANN (1970)* cited that ejaculation frequency do not influence the rate of sperm production although accompanied by marked increase in daily sperm output. The outcome of the obtained results might lead us to the persuation that mature bulls can be used successively for breeding at higher rates for more utilization what so ever their libido and semen picture are within normal range.

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TABLE (1) MOTILITY AND LIVABILITY PERCENTAGES OF CONSECUTIVE EJACULATES STORED AT + 4°C

Days of preservation at + 4°c	semen collected through consecutive ejaculation*		
	Number of Ejaculates	Motility(%)	Livability %
1st	58	70.9 +3.4	74.0+1.5
2nd	58	66.6 +1.1	70.5+1.3
3rd	57	63.5 +1.1#	66.7+1.1##
4th	55	58.9 +1.3##	63.0+1.2##
5th	55	57.1 +1.6##	61.1+1.1##
6th	55	50.8 +2.2##	57.0+1.2##
7th	45	45.4 +2.7##	51.9+1.6##
15th	10	35.8 +1.5##	33.3+2.2##

(*) Mean values from 8 bulls, # = p<0.05 ##=p<0.01

N.B. Number.of ejaculates decreased sharply after 7 th day.