



## EFFECT OF THE BREED ON THE QUALITY OF THE DOG SEMEN PRESERVED IN FRESH

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### ABSTRACT

In this work, fresh semen from four different races was analyzed, viability, and acrosomal integrity were evaluated. With the objective of assessing the effect of the breed on the quality of freshly preserved dog semen. The races used were Pitbull, Pomerania, Chihuahua, and Creoles. Obtaining as results. The viability of the sperm ranges from very good to regular, with 65% in all three repetitions, in the Pitbull breed with an acrosomal integrity of  $75 \pm 5\%$  of whole sperm. In the Pomeranian breed,  $63.3 \pm 12.5\%$  were observed in acrosomal integrity. In the Chihuahua breed,  $83.3 \pm 5.7\%$  in acrosomal integrity, while in Creole dogs,  $71.6 \pm$  was obtained and in acrosomal integrity  $71.6 \pm 18.9\%$ . In conclusion it can be said that there is no effect of breed on the quality of freshly preserved dog semen.

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## INTRODUCTION

In Mexico there is little information about reproductive biotechnologies in canines, this is because the conservation of semen either fresh or frozen is not yet an easy tool to achieve in the canine species (Ake-Martínez, 2012). An issue that has concerned researchers for decades is the performance of precise laboratory techniques that can effectively test the fertilizing capacity of sperm, which is why the need to evaluate sperm viability, ejaculate cell count, in each method, membrane integrity and acrosomal integrity (Choez, 2013). Sperm are delicate cells that need a series of processes to survive cryopreservation, with the use of diluents the cell suffers as little damage as possible to these conservation procedures, which is why a protocol that helps to sperm conservation (Martínez et al., 2008). The objective of this work is to assess the effect of the breed of dog on the sperm quality of fresh preserved semen.

## MATERIAL AND METHODS

Semen samples of 4 different breeds of one year of age (Pitbull, Pomeranian, Chihuahua and Criollo) were analyzed, making 3 repetitions of each breed, taking 3 samples from each repetition, with a period between the first and second sampling of two days, and three days between the second and third. The samples were first taken with the gloved hand technique. Once it was obtained, the MRA diluent was administered and it was transported at temperature as quickly as possible to the workplace where its viability and NAR were analyzed.

## RESULTS

When determining the microscopic variables for the seminal evaluation of the four races, in the first ejaculated sample,  $73.3 \pm 5.7\%$  of live spermatozoa were observed in the Pitbull breed

with an acrosomal integrity of  $75 \pm 5\%$  of intact spermatozoa. In the Pomeranian breed,  $63.3 \pm 15.2\%$  of live spermatozoa and  $63.3 \pm 12.5\%$  in acrosomal integrity were observed. In the Chihuahua breed, we could observe that  $61.6 \pm 28.4\%$  and  $83.3 \pm 5.7\%$  were obtained in acrosomal integrity in live spermatozoa, while in Creole dogs,  $71.6 \pm 18.9\%$  were obtained in live spermatozoa and  $71.6 \pm 18.9\%$  in acrosomal integrity. For the second ejaculated sample, we were able to observe  $66.6 \pm 11.5\%$  of live spermatozoa in the Pitbull breed and an acrosomal integrity of  $75 \pm 5\%$ . Corresponding to the Pomeranian race,  $63.3 \pm 15.2\%$  and  $63.3 \pm 12.5\%$  were obtained in live sperm in acrosomal integrity. For the Chihuahua breed we were able to observe  $50 \pm 30\%$  of live sperm and  $83.3 \pm 5.7\%$  in acrosomal integrity. In Creole dogs,  $65 \pm 13.2\%$  of live sperm were obtained and for acrosomal integrity,  $65 \pm 18.9\%$ . In the third ejaculate sample, we had as a result for the Pitbull  $63.3 \pm 11.5\%$  of live spermatozoa and  $78.3 \pm 7.6\%$  in acrosomal integrity. In the Pomeranian race, in live sperm we found  $60 \pm 10\%$  and an acrosomal integrity of  $61.6 \pm 7.6\%$ . For the Chihuahua breed,  $55 \pm 27.8\%$  of live spermatozoa and  $82.6 \pm 2.5\%$  in their acrosomal integrity were obtained. Finally, in the Creole dogs, we obtained  $68.3 \pm 7.6\%$  of live spermatozoa and an acrosomal integrity of  $68.3 \pm 11.7\%$ .

## DISCUSSION

The chosen age of the dogs was one year, since from this age the sperm present the best quality, on the contrary, when the age advances, the quality decreases, as mentioned by Rijsselaere et al., 2007 and Soares. et al., 2009. There are no differences in viability between the 4 evaluated breeds, so all breeds are considered to have a viability valued as good with an average of 60-85%. On the other hand, in motility there is no great difference between the races evaluated and due to the results found in all the races, it is classified as good as established by Butírca et al., 2009, which contradicts what Rijsselaere et al. Wrote. 2007 sperm from large breed dogs move less; According to Root, 2007, it says that frequent sperm collection may be associated with a higher percentage of motility, in our investigation the motility results were not altered between the second and third repetition of the sample collection, the values being very similar to those of the first take. Regarding acrosomal integrity, no differences were found in the 4 breeds evaluated, and all breeds were rated on average as good, in conclusion it can be said that there is no breed

effect on the quality of dog semen, since only a difference was found in the volume values, which according to Root Kustritz, 2006 is not an indicator of the quality of semen in dogs, and the other evaluations that are of importance in the quality as sperm concentration, which may be the most important factor which determines the probability of successful fertilization (Woodall and Johnstone, 1988), motility, and viability and acrosomal integrity. According to the results obtained in the three samples analyzed from the 4 different breeds, there is no difference in seminal quality between dog breeds, the only thing that varies is the amount of sperm cells due to the degree of ejaculation they have in each breed. In conclusion it can be said that there is no effect of breed on the quality of fresh preserved dog semen.

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