

## **The effect of sperm concentration on motility, plasma and acrosomal membranes of frozen Angora goat sperm**

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Egg yolk-based semen extenders have been widely utilized for cryopreservation of semen from farm animals including goat. However, addition of egg yolk reduces the acrosome integrity of goat spermatozoa. Therefore, A soybean lecithin-based extender (Bioxcell<sup>®</sup>, IMV, L' Aigle, France) has been developed and utilized for bovine and ram semen. This investigation was designed with the evaluation of the suitability of Bioxcell extender for the cryopreservation of buck semen. Moreover, we studied the effect of different sperm concentrations using Bioxcell extender on the post-thaw buck sperm parameters. Semen samples from 2 mature Angora goats (2-3 years of age ) were used in this study. A total number of 10 ejaculates were collected twice a week from the bucks using an artificial vagina, during breeding season . Semen extended in Bioxcell diluent to final concentration of 200, 400, 800 x 10<sup>6</sup> sp/ml were loaded into 0.25 ml straws and equilibrated at 5°C for 2 hours . Straws were frozen in liquid nitrogen vapour and then plunged in liquid nitrogen (-196°C) for storage. After thawing (at 37°C for 30 sec), sperm motility, acrosome intact and membrane integrity (HOS test) were assessed. Prefreezing sperm concentration influenced (P<0.001) freezability of spermatozoa and affected negatively all of the tested parameters at 200 x 10<sup>6</sup> and 400 x 10<sup>6</sup> sp/ml. Semen frozen at 800 x 10<sup>6</sup> sp/ml, the rates of motility and HOS test (38 %, 39 %) were significantly (p<0.001) higher than frozen at 200 x 10<sup>6</sup> (20 %, 18 %) and 400 x 10<sup>6</sup> (14 %, 14 %) sp/ml. The lowest percentage of abnormal acrosome was seen in the semen frozen at 800 x 10<sup>6</sup> sp/ml (32 %) with significant differences (P<0.05) compared to 400 and 200 x 10<sup>6</sup> sp/ml (43 %, 50 %). Our results indicate that significant differences exist between dilution rates, and that the high concentrations better protects sperm from damage incurred during cryopreservation. These preliminary findings suggest that different dilution rates and sperm concentrations within the ranges tested may affect the post-thaw sperm characteristics.