



AIA-001: Comparative Evaluation of Propylene Glycol and Glycerol on Freezability of Sirohi Buck Semen
Sikarwar A.K.S., Sinha N.K., Kharche S.D., Ramachandran N., Ranjan R. and Agrawal J.K.
Central Institute for Research on Goats, Makhdoom, Farah, Mathura (UP)

For the present study, a total of 196 ejaculates were utilized from 8 adult Sirohi bucks (2-4 years old) to find out the freezability of buck semen at different levels of two cryoprotectants, different dilution rate and four hour of equilibration period by conventional method of freezing. These ejaculates were extended to maintain sperms concentration approximately 100 million per dose (0.25 ml) with Tris-Citric acid- Fructose (TCF) glycerol and Propylene Glycol at 4, 6 and 8% (v/v) level with 1:8 and 1:10 dilution rate. After 4 hours of equilibration period, filling and sealing of straws were made at 5°C in cold handling cabinet then straws were vapor frozen for 10 minutes above 2 cm of liquid nitrogen and finally kept into liquid nitrogen. Live sperm count, abnormalities and acrosomal integrity positive spermatozoa differed significantly ($p < 0.05$) at different levels of cryoprotectants. Pre freeze motility of glycerol at 1:10 dilution at 4, 6 and 8% (v/v) level was (76.33 ± 0.88) , (88.33 ± 0.88) , (74.66 ± 0.33) respectively. Pre freeze motility of Propylene Glycol at 1:10 dilution at 4, 6 and 8% (v/v) level was (65.67 ± 0.66) , (66.33 ± 0.33) , (65.67 ± 0.33) respectively. Post thaw motility of glycerol at 1:10 dilution at 4, 6 and 8% (v/v) level was (23.33 ± 0.88) , (43.67 ± 0.88) , (26.57 ± 0.33) respectively. Post thaw motility of Propylene glycol at 1:10 dilution at 4, 6 and 8% (v/v) level was (10.30 ± 0.33) , (14.0 ± 0.58) , (11.3 ± 0.33) respectively. The results showed that the 6% Glycerol level and 1: 10 dilution rate was the best for semen freezing and significantly improved sperm post thaw motility (43.67 ± 0.88) , indicating its beneficial effects during the freezing step of cryopreservation.

AIA-02: Cryopreservation of Encapsulated Canine Semen and its Relative Conception and Whelping Rate

Lakde C.K., Kumar U., Patil M.S., Sahatpure S.K., Gawande A.P. and Dhalkari S.V.
Nagpur Veterinary College, Nagpur

Cryopreservation of encapsulated canine semen was carried out by collecting a semen sample by digital manipulation of penis in six (06) healthy dogs. Immediately after semen collection, macroscopic and microscopic examined carried out. The sperm rich fraction was divided in to two equal parts. Part one was utilized for the preparation of encapsulated semen capsules (Group- II Encapsulation) and (Group- I Control). Following cryopreservation, the post thawed semen samples were analysed for motility, viability, plasma membrane integrity of spermatozoa and used for intra vaginal insemination in total 12 bitches. Average volume of 0.69 ± 0.06 , 1.60 ± 0.11 and 2.33 ± 0.13 ml was recorded for fraction- I, II and III of canine semen ejaculates, respectively. Average sperm concentration of $369.94 \pm 13.45 \times 10^6$ sperm/ml was recorded. In the present study, at a concentration of 1.5% Sodium Alginate, 1% Calcium Chloride and 0.1% Poly-l-lysine concentration, the encapsulation of canine semen yield spherical shaped capsules. In freshly collected sperm rich fraction of canine semen, an average of $82.89 \pm 1.05\%$ initial motility was observed which subsequently reduced significantly ($P < 0.01$) to 59.31 ± 1.53 and $71.25 \pm 1.15\%$ following addition of Tris-Citrate-Glucose dilutor in Group-I and 1.5% Sodium Alginate in encapsulated semen, respectively. Significant ($P < 0.01$) reduction in the post thaw average motility to 13.06 ± 0.64 and $22.36 \pm 1.28\%$ was observed in freeze-thawed canine semen sample from Group-I and Group-II, respectively. An average initial viability of $91.65 \pm 0.35\%$ was observed in the freshly collected sperm rich canine semen fraction which on dilution with dilutor in Group- I and Sodium Alginate in Group-II shows significant ($P < 0.01$) reduction in sperm viability to 73.71 ± 0.83 and $78.11 \pm 0.75\%$, respectively. Significant ($P < 0.01$) reduction in the percent viable spermatozoa to 54.36 ± 1.06 and $59.04 \pm 1.53\%$, was observed in the post thawed canine semen sample from Group-I and Group-II, respectively. Plasma membrane