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Acrosomal Integrity, DNA Integrity and Post-Thawing Motility of Goat Semen after Methionine Supplementation

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Abstract : The aim of the present investigation was to evaluate the impact of methionine on the preservation, acrosomal integrity, DNA integrity and post thawing motility of extended goat semen. Semen samples were diluted with a Tris-based extender containing the additive methionine 1.5, 2.5 and 5mM then the diluted samples were kept in glass tubes and cooled from 37°C to 5°C in a cold cabinet, and maintained at 5°C. Sperm motility (SM%), alive sperm (AS%), sperm abnormalities (SA%) acrosomal integrity and DNA integrity were determined at 5°C for periods of 0,24, 48and 72 h of liquid storage. Furthermore, the influence of methionine on post-thawing motility was assessed. The results elaborated that the addition of methionine and L-tyrosine particularly 2.5mM of methionine significantly improved SM% and reduced dead sperm %. Furthermore, the addition of 2.5mM methionine improved post-thawing motility (43.75 ± 1.25% vs. 32.50 ± 3.23 in the control group). Moreover, the frequency of acrosomal defects was lower in treated groups than in control. In conclusion, the addition of methionine induced remarkable physiological effects on goat semen quality during conservation for 7-days-long period at 5°C and improved its freezability.

Keywords : methionine, acrosome, semen, cryopreservation
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