World Academy of Science, Engineering and Technology
International Journal of Animal and Veterinary Sciences
Vol:11, No:01, 2017

Quality of Chilled Indigenous Ram Semen Using Multi-Species Skim Milk Based Extenders

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Abstract : This study was conducted to determine the effects of multi-species skim milk based extenders on sperm quality at 5ºC with the advancement of preservation time. Altogether forty ejaculates, 8 ejaculates for each of the 5 home-made semen extenders: cow skim milk (CSM), goat skim milk (GSM), sheep skim milk (SSM), buffalo skim milk (BSM) and commercial dried skim milk (CDSM) were examined for motility, plasma membrane integrity and normal morphology % of sperm at 0, 24, 48, 72, 96 and 120 hours, respectively. Sperm motility was significantly decreased ($P < 0.05$) with the increase of preservation time. There were no significant difference in motility % among CSM (84.0±1.4, 82.3±2.1), GSM (84.5±1.0, 82.5±0.6) and CDSM (85.0±80.3±1.3) extenders at 0 and 24 hours, respectively. However, the motility in GSM extender was significantly higher than BSM, SSM and CDSM extender at 48, 72, 96 and 120 hours. The plasma membrane integrity % at 0 hour had no significant difference among the extenders. But, the plasma membrane integrity % in GSM (84.3±0.9, 81.8±1.3, 78.0±2.2, 74.8±0.5, 72.0±1.4) and CSM (82.8±0.5, 80.8±1.0, 78.0±1.4, 73.5±1.7, 70.3±0.5) extenders were significantly higher than BSM (81.0±1.4, 76.3±2.5, 72.5±1.7, 63.8±2.5, 54.0±4.6), SSM (78.5±1.5, 75.0±1.6, 71.5±2.4, 64.3±1.7, 56.5±2.4) and CDSM extenders (78.3±2.4, 75.8±3.9, 72.5±3.3, 64.8±1.0, 60.5±3.3) at 24, 48, 72, 96 and 120 hours, respectively. The sperm morphology % had no significant difference at 0 hour among the extenders but were significantly higher in GSM (83.0±0.8, 81.3±1.5, 79.3±1.3, 73.0±2.2, 70.3±1.3) and CSM (81.5±1.7, 79.3±1.5, 75.8±1.5, 70.3±1.3, 66.3±1.5) than BSM (79.0±1.2, 75.0±1.4, 69.5±1.7, 64.5±3.1, 56.8±2.2), SSM (79.8±1.3, 76.8±2.1, 71.3±3.0, 66.0±2.7, 60.3±4.5) and CDSM (80.0±1.6, 77.0±2.2, 72.0±2.5, 66.3±2.5, 62.0±4.0) extenders at 24, 48, 72, 96 and 120 hours, respectively. The motility, plasma membrane integrity and normal morphology % of sperm had shown no significant difference between GSM and CSM but were found to be higher in GSM extenders. In the end, we concluded from the above study that the goat milk based extenders (GSM) had optimum sperm preserving quality. However, further studies are required to validate followed by fertility rate.

Keywords : chilled semen, indigenous ram, multi-species skim milk based extenders, preservation
Conference Title : ICSGL 2017 : International Conference on Sheep and Goat Livestock
Conference Location : Paris, France
Conference Dates : January 23-24, 2017