

Summary of the DVM thesis No 12139 Faculty of Veterinary Medicine, Urmia University.

The academic year: 2022-2023

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Title of thesis: Assessment of lecithin incorporation into low density lipoprotein based diluent for cold storage of ram semen

Summary:

The current study was conducted to evaluate the effect of lecithin nanoliposomes within extender contained purified low density lipoproteins (LDLs) to preservation of ram semen during chilled storage. Semen samples were collected using the artificial vagina from Qezel rams twice a week. If the samples met the criteria, were pooled and used for the experiment. Pooled samples were diluted with tris-citric acid-fructose-purified LDL extender and enriched with nanoliposomes of lecithin (0, 1, 2, 4 and 8 mM). Samples were preserved at refrigerator temperature for up to 72 h, and different variables such as kinematics (evaluated by CASA), viability, and plasma membrane functionality were assessed at 0, 24, 48 and 72 h of experiment. Moreover, malondialdehyde (MDA), as an oxidative indicator, were measured at mentioned time points. Results revealed that semen extender supplementation with 1, 2, 4 and 8 mM lecithin nanoliposomes improved total motility, progressive motility, VCL, VAP, and STR compared to control group at 72 h of storage ($P < 0.05$). Furthermore, 2, 4 and 8 mM nanoliposomes received groups, showed lesser amounts of MDA compared to control group at 48 and 72 h ($P < 0.05$). Nanoliposomes of lecithin (at 2, 4, and 8 mM) was recommended as an cold shock protectant concurrent with purified low LDLs within tris-citric acid-fructose extender for liquid-cold storage of ram semen.

Keywords: Nanoliposomes of lecithin, ram, low density lipoproteins, sperm.