

Summary of the DVSc thesis 11567 , Faculty of Veterinary Medicine, Urmia University.

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**Title: Influence of *trans*-ferulic acid on the quality of ram semen upon chilled storage**

The purpose of the present experiment was to examine the effect of in vitro administration of *trans*-ferulic acid (*t*-FA) on the liquid preservation of ram semen. Semen samples were collected from the Qezel rams, pooled, diluted with tris based extender, enriched with varying amounts of dimethyl sulfoxide (DMSO) dissolved *t*-FA (0, 2.5, 5, 10, and 25 mM), and preserved at refrigerator temperature for 72 h. An untreated sample was set as negative control group. Kinematics, viability, and plasma membrane integrity of spermatozoa were assessed by CASA system, eosin-nigrosin staining, and hypoosmotic swelling test, respectively. Moreover, biochemical variables of samples were determined at 0, 24, 48, and 72 h. Results displayed that 5 and 10 mM *t*-FA improved forward progressive motility (FPM) and VCL compared to other groups at 72h ( $P < 0.05$ ). Samples treated with 25 mM *t*-FA showed the lowest total motility, FPM, and viability at 24, 48 and 72 h ( $P < 0.05$ ). Higher total antioxidant activity levels were observed in 10 mM *t*-FA treated group compared to negative control sample at 72 h ( $P < 0.05$ ). Administration of 25 mM *t*-FA increased malondialdehyde amounts and decreased superoxide dismutase activity compared to other groups at 72 h ( $P < 0.05$ ). Amounts of total nitrate-nitrite and total lipid hydroperoxides were not affected by treatment. Current study indicates the positive and negative influences of the varying concentrations of *t*-FA on the ram semen upon cold storage.

**Keywords:** *Trans*-ferulic acid; Spermatozoa; Ram; Cold preservation.