Summary of the DVM thesis No. 12282, Faculty of Veterinary Medicine, Urmia University.

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Title of thesis: Investigation of protective effects of Apigenin on canine semen during storage at refrigerator temperature

Summary:

Due to the high sensitivity of the dog sperm membrane, the freezing process causes a significant drop in their quality. This process leads to the production of free radicals and as a result peroxidation of the sperm membrane. The aim of the present study was to minimize the harmful effects of oxygen free radicals by adding different concentrations of apigenin to dog sperm at refrigerator temperature. Sperm collection from dogs was done twice a week. In this study, the ejaculates obtained from 3 studied dogs were divided into 6 groups: the control group with 0 mM of apigenin, the second group with 0.05 mM of apigenin, the third group with 0.1 mM of apigenin, The fourth group with 0.2 mM of apigenin, the fifth group with 0.3 mM of apigenin and the sixth group with 0.4 mM of apigenin. After collection, the samples were examined in terms of motility, viability, DNA integrity and plasma membrane integrity at 0, 24, 48 and 72 hours. The results indicate that the evaluation of overall motility decreased significantly with the increase in the storage time of sperm in the refrigerator. Also, at 24 and 48 hours after the test, it was shown that the groups containing 0.2, 0.3 and 0.4 mM of apigenin compared to the control group had a significant increase ($P < 0.05$) in the overall mobility percentage. And they had progressive mobility. In the study of sperm viability, it was shown that with the increase in the storage time of sperm in the refrigerator, the sperm viability decreased significantly and in the groups of 0.2, 0.3 and 0.4 ml There was no significant difference in molar apigenin at 0 and 24 hours and they were higher than the control group. In the evaluation of the percentage of sperm membrane continuity, it was also shown that with the increase in sperm storage time, the percentage of sperm membrane integrity decreased. The percentage of sperm membrane continuity showed that at 48 and 72 hours after the test, there was no significant difference between the 0.2, 0.3 and 0.4 mM apigenin groups, and the highest percentage of sperm membrane continuity was compared to were assigned to the control group. In the examination of sperm DNA damage, it was shown that with the increase in the storage time of sperm in the refrigerator, the percentage of DNA damage increases and the addition of 0.2, 0.3 and 0.4 mM apigenin could significantly reduce the damage. Reduce sperm DNA. As a result, the enrichment of dog semen by adding 0.2, 0.3 and 0.4 mM apigenin has the most positive effect on semen quality during storage at refrigerator temperature.

Keywords: apigenin, semen, dog, oxidative stress, sperm storage