IN VITRO EVALUATION OF CANINE SEMEN FROZEN WITH CAPSAICIN AFTER THAWING

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- ✓ Cryoprotectant
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- ✓ Extender

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THESIS ABSTRACT

The aim of this study is to examine the effects of capsaicin, an antioxidant substance, on the sperm freezing process of valuable breeding male dogs with mating problems. In the study, sperm collected from 5 healthy Labrador Retriever dogs between the ages of 2 and 4 were pooled and divided into four groups. Capsaicin was added to Tris-egg yolk based diluents at the rates of 0.125 mM, 0.250 mM and 0.500 mM, respectively, and no additive was added to the control group. Extensive analyzes of samples frozen and thawed in liquid nitrogen (-196°C) confirmed the expected negative effects of freezing on sperm quality. However, it was determined that adding capsaicin to the extender had positive effects on spermatological parameters and oxidative stress after thawing ($P<0.05$). Especially in the 0.125 mM capsaicin added group, much higher motility and plasma membrane integrity values were obtained compared to the control and other dose groups ($P<0.05$). As a result, it has been revealed that capsaicin has a strong potential to improve the quality of dog sperm after freezing-thawing processes.

APPLICATION AREAS OF THE THESIS RESULTS

At the end of this study, it was shown that capsaicin application could increase fertility potential in dogs after cryopreservation (freezing-thawing) by preserving sperm quality and membrane integrity. This finding may make an important contribution to reintroducing genetically valuable breeders with mating problems into the production process and increasing success rates in artificial insemination programs in dogs.

ACADEMIC ACTIVITIES

1. Aktar, A., Toker, M. B., Koca, D., Uzun, Ü. C., & Alçay, S. (2023). *The effect of supplementation of vitamin D to the egg-yolk extender on cryopreservation of ram semen*. Research Square. https://doi.org/10.21203/rs.3.rs-3013445/v1
2. Toker, M. B., Aktar, A., Uzun, Ü. C., Koca, D., & Alçay, S. (2025). Optimizing gamete cryopreservation in Saanen bucks: The contribution of vitamin D. *Journal of Research in Veterinary Medicine*, 44(2), 104–111. https://doi.org/10.30782/jrvm.1711992