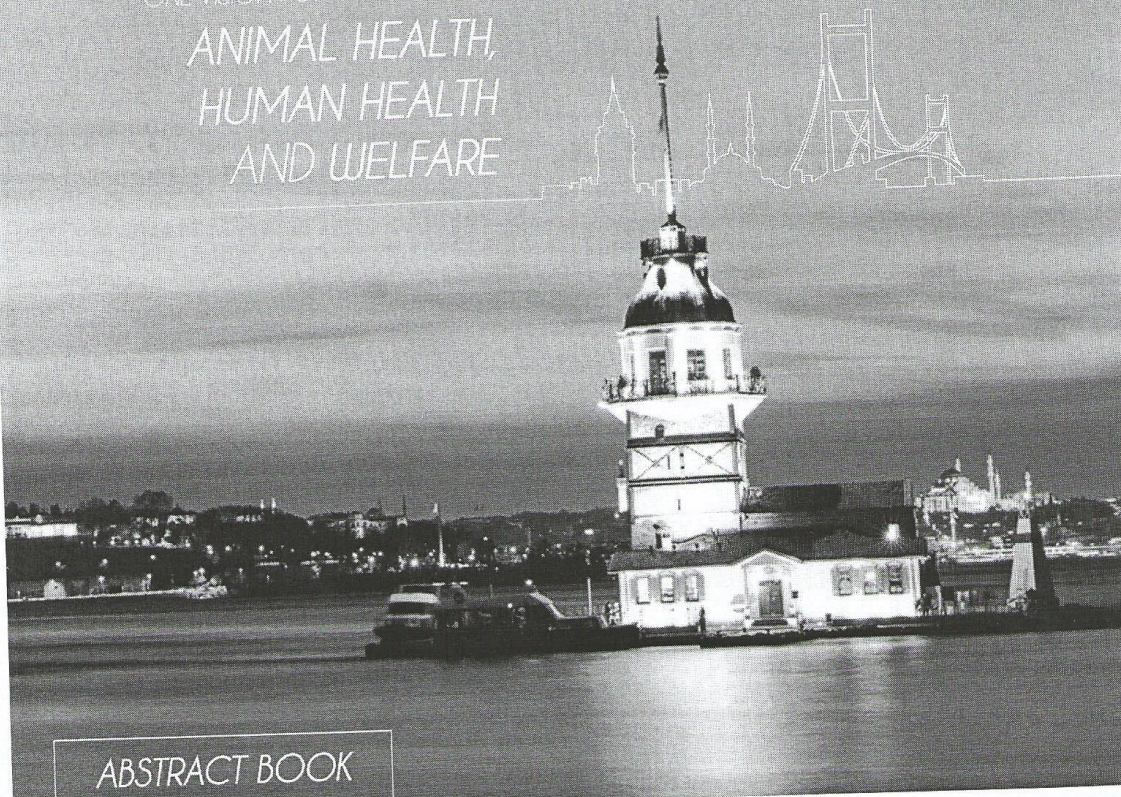
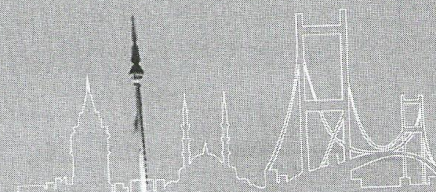


32nd WORLD VETERINARY CONGRESS

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ABSTRACT BOOK

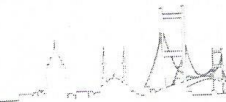


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Effects of Lycopene and Cysteamine on Bull Sperm Quality, DNA Integrity, Oxidative Stress Parameters and Fertility Results

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The objective of this study was to compare the effects of adding antioxidants; lycopene (L) and cysteamine (CY) on the sperm parameters, plasma membrane integrity, chromatin damage, antioxidant activities as well as fertility results in Tris extender for cryopreservation of bull semen. Ejaculates were collected from the three Holstein bulls using an artificial vagina twice a week. After collection, the ejaculates were immersed in a water bath at 35°C until their assessment in the laboratory. The volume of ejaculates was measured in a conical tube and sperm concentration was determined by means of an Accucell photometer. Sperm motility was estimated using phase-contrast microscope (200x). Tris-based extender (T; 189.5 mM Tris, 63.2 mM citric acid, 55.5 mM fructose, 20% v/v egg yolk, 7% G and 1000 ml of distilled water at a pH of 6.8) was used as the base extender. Ejaculates were split into three aliquots and extended to a final concentration of 15x10⁶ spermatozoa/per straw (0.25 ml) with the T containing 500 µg/ml L, 5 mM CY and no additive (C). The extended samples were equilibrated slowly to 4°C for 4 h and then froze using a digital freezing machine. Frozen straws were thawed individually in water bath at 37°C for 30 s to analyse progressive motility and sperm motion characteristics as well as plasma membrane integrity. Biochemical assays were performed in a spectrophotometer using commercial kits. Chromatin damage was evaluated by comet assay using image analysis system. Fertility results based on 60-day nonreturns after rectovaginal insemination. When compared to the control, addition of L and CY did not significantly improve the percentages of post-thaw sperm progressive (22.00±1.46, 24.38±3.17, 8.75±1.19 respectively; P<0.001) and CASA motilities (44.75±2.32, 49.13±3.52, 20.88±1.69 respectively; P<0.001), total abnormality (13.00±1.36, 12.25±0.77, 19.00±0.53 respectively; P<0.05) and plasma membrane integrity (47.50±0.28, 42.00±2.17, 34.50±1.63 respectively; P<0.001). In terms of chromatin damage, L exhibited lower tail intensity (9.78±0.94) compared with other groups (11.47±1.10 in C and 12.70±0.79 in CY respectively; P<0.05) however, these results were not supported with the fertility results (P>0.05). In conclusion, the supplementation of L or CY did not have any influence on fertility results in T extender with 7% G.

Keywords: Antioxidant activity, bull sperm, DNA integrity, fertility, oxidative stress, sperm freezing