

Effect of antioxidants supplementation on boar semen cryopreservation ⁽¹⁾

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Abstract

The aim of this study was to investigate the effects of three antioxidants α -tocopherol, butylated hydroxytoluene (BHT) and glutathione (GSH) were added to freezing extender on the quality of frozen-thawed boar semen. Semen collected from five Duroc boars were diluted with Lactose-egg yolk (LEY) extender as control group, which it brought to 5×10^8 cell/mL in the final concentration. In the first experiment, four groups were divided with adding 5 mM GSH, 1mM BHT and 200 μ g/mL α -tocopherol into freezing extenders. The percentage of sperm motility, rapid progressive motility, motility kinetic variables parameters and acrosome integrity were evaluated. The results showed that the percentage of total motility and rapid progressive motility in 5mM GSH supplemented freezing extender after thawing for 2-6 hrs were lower than in 200 μ g/mL α -tocopherol group ($P < 0.05$). No significant differences in the percentage of total motility and rapid progressive motility were observed either between control group and 200 μ g/mL α -tocopherol or 1mM BHT supplemented. The results showed that the percentage of sperm motion parameters (VAP, VSL and VCL) of semen cryopreserved with freezing extender after thawing for 5min were lower in 5 mM GSH group than in the 1mM BHT group ($P < 0.05$). Acrosome integrity results demonstrated that the intact acrosome was significantly higher in the 1mM BHT or 200 μ g/mL α -tocopherol group than that in the control or than that in 5 mM GSH group ($P < 0.05$). In the second experiment, the experimental designs are separated into 4 groups, inclusive of control group, and the 300, 400 or 500 μ g/mL α -tocopherol supplementation group in the boar semen extender during cryopreservation on post-thawed sperm motility, rapid progressive motility and motility kinetic variables parameters. There is no significant difference between the α -tocopherol supplemented and control group. In conclusion, the addition of 5 mM GSH, 1 mM BHT and 200, 300, 400 or 500 μ g/mL α -tocopherol to the freezing extender demonstrate no any improvement in sperm motility parameters.

Key words: Boar, Frozen Semen, Antioxidant.

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