

Effect of different concentrations of soybean lecithin and virgin coconut oil in Tris-based extender on the quality of chilled and frozen-thawed bull semen

ABSTRACT

Aim: The objective of this study was to evaluate the effects of different concentrations of soybean lecithin (SL) and virgin coconut oil (VCO) in Tris-based extender on chilled and frozen-thawed bull semen quality parameters. **Materials and Methods:** A total of 24 ejaculates were collected from four bulls via an electroejaculator. Semen samples were diluted with 2% VCO in Tris-based extender which consists of various concentrations of SL (1, 1.25, 1.5, and 1.75%). A 20% egg yolk in Tris used as a positive control (C+). The diluted semen samples were divided into two fractions; one for chilling which were stored at 4°C for 24, 72, and 144 h before evaluated for semen quality parameters. The second fraction used for freezing was chilled for 3 h at 4°C, packed into 0.25 mL straws and then cryopreserved in liquid nitrogen. The samples were then evaluated after 7 and 14 days. Chilled and frozen semen samples were thawed at 37°C and assessed for general motility using computer-assisted semen analysis, viability, acrosome integrity and morphology (eosin-nigrosin stain), membrane integrity, and lipid peroxidation using thiobarbituric acid reaction test. **Results:** The results showed that all the quality parameters assessed were significantly ($p < 0.05$) improved at 1.5% SL concentration in chilled semen. Treatment groups of 1, 1.25, 1.5, and 1.75% SL were higher in quality parameters than the control group (C+) in chilled semen. However, all the quality parameters in frozen-thawed semen were significantly higher in the C+ than the treated groups. **Conclusion:** In conclusion, supplementation of 1.5% SL in 2% VCO Tris-based extender enhanced the chilled bull semen. However, there was no marked improvement in the frozen-thawed quality parameters after treatment.

Keyword: Bull semen; Cryopreservation; Quality parameters; Soybean lecithin; Virgin coconut oil