

## **Effect of different concentrations of egg yolk and virgin coconut oil in Tris-based extenders on chilled and frozen-thawed bull semen**

### **ABSTRACT**

The aim of this study was to evaluate the effects of 8% virgin coconut oil (VCO) combined with different percentages of egg yolk in Tris extender on the quality of chilled and frozen-thawed bull semen. A total of 24 ejaculates from four bulls were collected using an electroejaculator. Semen samples were diluted with 8% VCO in Tris extender which contained different concentrations 0% (control), 4%, 8%, 12%, 16% and 20% egg yolk. The diluted semen samples were divided into two fractions: one was chilled and stored at 4°C until evaluation after 24, 72, and 144h; the second fraction was processed by chilling for 3h at 4°C to equilibrate, then packaged in 0.25ml straws and frozen and stored in liquid nitrogen at -196°C until evaluation after 7 and 14 days. Both chilled and frozen semen samples were then thawed at 37°C and assessed for general motility using computer-assisted semen analysis (CASA), viability, acrosome integrity, and morphology (eosin-nigrosin), membrane integrity (hypo-osmotic swelling test) and lipid peroxidation (thiobarbituric acid-reactive substances (TBARS)). The results indicate treatments with 8%, 12%, 16% and 20% egg yolk with 8% VCO had greater sperm quality ( $P<0.05$ ) as compared with the control. The treatment with 20% egg yolk had the greatest sperm quality ( $P<0.05$ ) among the treated groups for both chilled and frozen-thawed semen. In conclusion, the use of 8% VCO combined with 20% egg yolk in a Tris-based extender enhanced the values for chilled and frozen-thawed quality variables of bull sperm.

**Keyword:** Egg yolk; Virgin coconut oil; Extender; Bull semen; Chilling; Cryopreservation