

**THE SUBSTITUTION OF TOMATO (*Lycopersicon esculentum* Mill.)
JUICE IN EGG YOLK CITRATE DILUENT FOR MOTILITY,
VIABILITY AND INTACT PLASMA MEMBRANE
FAT-TAILED SHEEP SPERM
STORED AT 3-5° C**

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ABSTRACT

The purpose of this study was to determine the effect and the best concentration of tomato juice in egg yolk citrate diluent for motility, viability and intact plasma membrane fat-tailed sheep spermatozoa that was stored 3-5° C. The semen was divided into four groups: egg yolk citrate diluent, 20% tomato juice in egg yolk citrate diluent (0.2 ml tomato juice + 0.6 ml citrate + 0.2 ml egg yolk), 40% tomato juice in yolk citrate diluent (0.4 ml tomato juice + 0.4 ml citrate + 0.2 ml egg yolk) and 80% tomato juice and egg yolk diluent (0.8 ml tomato juice + 0.2 ml egg yolk). Spermatozoa quality was observed 1 hour, 24 hours, 48 hours and 72 hours after diluent. The data obtained was analyzed with the analysis of variance (ANOVA), followed by multiple range test duncan. The results showed that the percentage of motility, viability and intact plasma membrane spermatozoa 72 hours after diluent showed a significant difference ($p < 0.05$) between 20% tomato juice diluent (0.2 ml tomato juice + 0.6 ml citrate + 0.2 ml egg yolk) against egg yolk citrate, 40% tomato juice diluent (0.4 ml tomato juice + 0.4 ml citrate + 0.2 ml egg yolk) and 80% tomato juice diluent (0.8 ml tomato juice + 0.2 ml egg yolk). Motility on 72 hours after diluent respectively are 42.00 ± 5.58 , 33.00 ± 9.09 , 27.83 ± 10.34 and 0.00 ± 0.00 . Viability on 72 hours after diluent respectively are 51.00 ± 3.57 , 41.66 ± 9.62 , 35.16 ± 8.54 and 19.33 ± 6.62 . Intact plasma membrane on 72 hours after diluent respectively are 44.66 ± 2.87 , 34.83 ± 8.20 , 30.50 ± 9.60 and 14.50 ± 7.06 . The conclusion of this study was the substitution of 20% tomato juice in egg yolk citrate diluent could increase the percentage of sperm quality until 72 hours after diluent.

Keywords : egg yolk citrate, fat-tailed sheep, sperm quality, tomato juice