# EFFECT OF DIFFERENT CRYOPROTECTANTS WITH OR WITHOUT SUCROSE ON ULTRASTRUCTURE OF DANDARAWI ROOSTER'S FROZEN SPERM

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This experiment was conducted to assess the level of damage occurring to the sperm parts as a result of using different freezing/thawing methods (pellets with dimethylacetamide and slow freezing with glycerol) with or without adding sucrose. The study was carried out using transmission electron microscopy (TEM). Twenty Dandarawi cockerels were selected and used as semen donors. Semen was collected from all cockerels, pooled and diluted 1: 1 (v: v) with Lake and Ravie extender**.** Diluted semen was divided into five aliquots and prepared as the following; aliquot 1 served as a control. Aliquots 2 and 3 were frozen in pellets using dimethylacetamide (DMA) as a cryoprotectant with or without 5% sucrose, respectively. Aliquots 4 and 5 were frozen in straws using 8% glycerol (GLY) with or without 5% sucrose, respectively. Semen aliquots were prepared for transmission electron microscopy and semi-thin sections were prepared and photographed. In general, varying degrees of damages were observed in the acrosome, nucleus, midpiece and tail for all treatments. The damage was more intensive for the treatments without sucrose. Spermatozoa frozen with GLY showed higher degrees of damage than those treated with DMA. Regardless of the freezing method, sucrose inclusion lessened the damage occurring to the sperm. Furthermore, sucrose completely protected the acrosome region from cryo-injures. Moderate damages were seen in the tail region, however, it didn't extend to the nucleus and midpiece. In conclusion, the freezing/thawing process causes damage of varying degrees in different regions of the sperm. The severity of damage differs according to the method used to freeze the sperm and the presence or absence of sucrose.

***Keywords: Transmission electron microscopy, dimethylacetamide, glycerol, sucrose***