

# Pengaruh Glutamin dan EDTA Terhadap Integritas DNA dan Kualitas Membran Plasma Spermatozoa Sapi Friesian Holstein (Bos taurus) Pasca Pengeringbekuan = Effects of Glutamine and EDTA on DNA Integrity and the Quality of Plasmic Membrane Friesian Holstein (Bos taurus) Cattle Spermatozoa After Freeze-Drying

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## Abstrak

### <b>ABSTRAK</b><br>

Penelitian telah dilakukan untuk mengetahui pengaruh penambahan asam amino glutamin dan agen pengkelat EDTA (asam etilen diamin tetraasetat) dalam larutan Tris-buffer pada integritas DNA dan morfometri kepala spermatozoa sapi Friesian Holstein (Boss taurus) pascabeku. Semen dikumpulkan seminggu sekali untuk enam minggu. Sampel semen diencerkan dengan pengencer tris-buffer dan ditambah asam amino glutamin dan EDTA. Kelompok perlakuan dibagi menjadi empat grup hanya berisi larutan penyangga Tris (KK), grup larutan penyangga Tris dengan penambahan EDTA (KP1), kelompok larutan penyangga Tris dengan penambahan asam amino glutamin (KP2), dan kelompok larutan penyangga Tris dengan penambahan EDTA dan asam amino glutamin (KP3). Hasil integritas DNA spermatozoa sapi Friesian

Holstein (Bos taurus) setelah pengeringan beku pada semua perlakuan stabil 100% dan tidak rusak. Hasil analisis varians (ANAVA) menunjukkan bahwa pemberian asam amino glutamin dan EDTA pada morfometri kepala spermatozoa Sapi Friesian Holstein (Bos taurus) pasca pengeringan beku pada semua perlakuan antara kedua kelompok tidak menunjukkan perbedaan yang signifikan ( $P > 0,05$ ). Hasil analisis membran plasma utuh sperma menunjukkan penambahan kombinasi asam amino amino glutamin dan EDTA memiliki efek signifikan dalam menjaga membran membrane plasma ( $P < 0,05$ ).

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### <b>ABSTRACT</b><br>

This study was conducted to determine the effect of adding the amino acid glutamine and the chelating agent EDTA (ethylene diamine tetraacetic acid) in Tris-buffer solution on DNA integrity and sperm head morphometry of Friesian Holstein cattle (Boss taurus) post-frozen. Semen is collected once a week for six weeks. The semen sample was diluted with tris-buffer diluent and the amino acids glutamine and EDTA were added. The treatment group was divided into four groups containing only Tris buffer solution (KK), Tris buffer solution group with the addition of EDTA (KP1), Tris buffer solution group with the addition of amino acid glutamine (KP2), and Tris buffer solution group with the addition of EDTA and amino acids. glutamine (KP3). Friesian bovine spermatozoa DNA integrity results

Holstein (Bos taurus) after freeze drying in all treatments was 100% stable and undamaged. The results of the analysis of variance (ANOVA) showed that the administration of amino acids glutamine and EDTA to the spermatozoa head morphometry of Holstein Friesian Cattle (Bos taurus) after freeze drying in all treatments between the two groups did not show a significant difference ( $P > 0.05$ ). Analysis result intact plasma membrane of sperm showed that the addition of the amino acid combination of glutamine and EDTA had a significant effect in maintaining the plasma membrane ( $P < 0.05$ ).