

TINGKAT KERUSAKAN DNA SPERMATOZOA SEMEN BEKU SAPI ACEH DAN SAPI SIMMENTAL PASCA THAWING

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INTISARI

Penelitian ini bertujuan untuk mengetahui tingkat kerusakan DNA *spermatozoa* sapi Aceh dan sapi Simmental pasca *thawing*. Penelitian ini menggunakan *semen* beku dari Balai Besar Inseminasi Buatan (BBIB) Singosari, Malang, Jawa Timur. *Semen* diperoleh dari 6 ekor sapi pejantan unggul, masing-masing 3 ekor sapi Aceh dan 3 ekor sapi Simmental. *Straw* yang digunakan sebanyak 18 *straw* per pejantan. Penelitian ini terdiri dari beberapa tahapan yaitu persiapan sampel, *thawing*, pengamatan motilitas, pengamatan abnormalitas, pengujian kerusakan DNA dan pengamatan kerusakan DNA. Data yang diperoleh kemudian dianalisis dengan metode analisis *Independent Sample T-Test* menggunakan *software Statistic Package for the Social Sciences* (SPSS) versi 25.0 untuk mengetahui adanya perbedaan kualitas *semen* sapi Aceh dan sapi Simmental. Hasil penelitian menunjukkan rata-rata motilitas dan abnormalitas sapi Aceh dan sapi Simmental masing-masing sebesar $60,28 \pm 4,01\%$ dan $58,61 \pm 3,35\%$, abnormalitas sapi Aceh sebesar $11,22 \pm 4,33\%$ dan sapi Simmental $10 \pm 3,77\%$. Kerusakan DNA *spermatozoa* sapi Aceh sebesar $0,13 \pm 0,34\%$ dan sapi Simmental $0,33 \pm 0,58\%$. Hasil analisis statistik menunjukkan kualitas *semen* meliputi motilitas, abnormalitas dan kerusakan DNA tidak berbeda nyata ($P > 0,05$). Berdasarkan hasil penelitian dapat disimpulkan bahwa tidak terdapat perbedaan pada tingkat kerusakan DNA *spermatozoa* sapi Aceh dan sapi Simmental pasca *thawing*.

Kata-kata Kunci: Kerusakan DNA *spermatozoa*, Kualitas *semen* beku, Sapi Aceh, Sapi Simmental

AFTER THAWING LEVEL OF FROZEN SPERMATOZOA DNA DAMAGE IN ACEH CATTLE AND SIMMENTAL CATTLE

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ABSTRACT

This study aims to determine the level of DNA damage in Aceh and Simmental cattle spermatozoa after thawing. The frozen sperm used in this study came from the Singosari Center for Artificial Insemination (BBIB), Malang, East Java. Eighteen semen straw was obtained from every 6 superior bulls, which were 3 Aceh bulls and 3 Simmental bulls. The following stages were included in this study: sample preparation, thawing, motility and abnormality observation, DNA damage testing, and DNA damage observation. The collected data were then analyzed using the Independent Sample T-Test analysis method with the Statistical Package for the Social Sciences (SPSS) version 25.0 software to determine the difference in semen quality between Aceh cattle and Simmental cattle. The result showed that the average motility of Aceh cattle and Simmental cattle was $60.28 \pm 4.01\%$ and $58.61 \pm 3.35\%$, respectively, with abnormalities of $11.22 \pm 4.33\%$ and $10.00 \pm 3.77\%$. In Aceh cattle, spermatozoa DNA damage was $0.13 \pm 0.34\%$, while in Simmental cattle, it was $0.33 \pm 0.58\%$. Statistical analysis revealed that the quality of the sperm, including motility, abnormality, and DNA damage, did not differ significantly ($P > 0.05$). The study's findings indicate no difference in DNA damage to Aceh and Simmental cattle spermatozoa after thawing.

Keywords: Spermatozoal DNA damage, frozen semen quality, Aceh cattle, Simmental Cattle