

EVALUASI TINGKAT KERUSAKAN DNA SEMEN BEKU SAPI PASUNDAN DAN KEBERHASILAN INSEMINASI BUATAN

INTISARI

M. Mas'ud Chabiburrochman
20/466773/PPT/01115

Keutuhan deoxyribonucleic acid (DNA) spermatozoa berperan penting dalam proses fertilisasi dan perkembangan embrio. Penelitian ini bertujuan untuk mengevaluasi tingkat kerusakan DNA pada semen beku sapi Pasundan terhadap keberhasilan inseminasi buatan ditinjau dari karakteristik semen, nilai *non return rate* (NRR), *conception rate* (CR), dan *service per conception* (S/C). Penelitian dilaksanakan di UPTD BPPIB Ternak Sapi Potong Ciamis, Jawa Barat. Penelitian dilakukan melalui pendekatan studi eksploratif. Materi yang digunakan dalam penelitian ini adalah semen beku yang diperoleh dari penampungan semen tiga pejantan sapi Pasundan yang dibekukan dan 41 ekor akseptor sapi betina Pasundan yang pernah beranak minimal satu kali. Akseptor sapi betina pasundan dipelihara secara intensif dengan pemberian pakan konsentrat dan hijauan segar. Metode analisis tingkat kerusakan DNA spermatozoa menggunakan pewarnaan *toluidine blue* (TB) yang dilakukan pada tiga kode semen beku pejantan. Data dianalisis secara deskriptif dan disajikan secara sederhana dalam bentuk rata-rata dan standar deviasi. Hasil evaluasi karakteristik semen sapi Pasundan secara umum mempunyai kualitas yang baik dengan tingkat kerusakan DNA spermatozoa pada sapi Pasundan sebesar 6%-11%, rata-rata kerusakan DNA spermatozoa yang diperoleh $7,8 \pm 0,26\%$, mampu menghasilkan tingkat kebuntingan yang optimal dengan nilai NRR $77,65 \pm 3,00\%$, CR $68,91 \pm 5,11\%$ dan S/C $1,39 \pm 0,04$. Kualitas semen beku sapi Pasundan yang diproduksi di BPPIB TSP Ciamis memenuhi SNI semen beku sapi 4869-1:2017 dengan tingkat kerusakan DNA spermatozoa dalam standar yang normal untuk digunakan inseminasi dan menghasilkan keberhasilan IB yang optimal.

Kata kunci : Inseminasi Buatan, Kerusakan DNA, Sapi Pasundan, Spermatozoa.

EVALUATING THE DNA DAMAGE LEVEL OF FROZEN SEMEN OF PASUNDAN CATTLE AND THE SUCCESS OF ARTIFICIAL INSEMINATION

ABSTRACT

M. Mas'ud Chabiburrochman
20/466773/PPT/01115

The integrity of deoxyribonucleic acid (DNA) spermatozoa plays an important role in the fertilization and embryo development process. This research aimed to evaluate the level of DNA damage in frozen semen of Pasundan cattle on the success of artificial insemination in terms of semen characteristics, non-return rate (NRR), conception rate (CR), and service per conception (S/C). The research was conducted at UPTD BPPIB Beef Cattle Ciamis, West Java. The research was carried out using an exploratory study approach. The materials used in this research were frozen semen obtained from the semen storage of three Pasundan bulls that were frozen and 41 acceptors of Pasundan cows that had given birth at least once. The acceptors of Pasundan cows were intensively kept by giving concentrate feeds and fresh forage. To analyze the level of DNA damage in spermatozoa, the toluidine blue (TB) staining on three male frozen semen codes was applied. Data were descriptively analysed and were presented in the form of mean and standard deviation. The results showed that in general the characteristics of the semen of the Pasundan cattle had a good quality with the level of DNA damage in the spermatozoa of 6%-11%, the mean of DNA damage in spermatozoa was $7.8 \pm 0.26\%$, and the pregnancy rate was optimal with a value of NRR $77.65 \pm 3.00\%$, CR $68.91 \pm 5.11\%$ and S/C 1.39 ± 0.04 . The quality of the frozen semen of Pasundan cattle produced at BPPIB TSP Ciamis meets the SNI frozen semen of cattle 4869-1:2017 with the level of DNA damage in spermatozoa within normal standards for insemination and showed an optimal success of artificial insemination.

Keywords: Artificial Insemination, DNA Damage, Pasundan Cattle.