

PENGARUH SUPLEMENTASI ARGAN OIL, ROSEMARY OIL, DAN PEPPERMINT OIL DALAM MEDIUM PENCUCIAN SPERMA SETELAH THAWING TERHADAP KUALITAS SPERMATOZOA SAPI SIMMENTAL

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INTISARI

Penelitian ini bertujuan untuk mengetahui pengaruh suplementasi *argan oil*, *rosemary oil*, dan *peppermint oil* pada medium pencucian sperma setelah *thawing* terhadap kualitas *spermatozoa* sapi Simmental. Penelitian dilakukan di Laboratorium Fisiologi dan Reproduksi Ternak Fakultas Peternakan Universitas Gadjah Mada. Materi yang digunakan dalam penelitian ini adalah 40 *straw* sperma beku sapi Simmental yang berasal dari sapi berumur antara 4 sampai 6 tahun produksi UPTD BPBPTDK Dinas Pertanian DIY. Sperma beku di-*thawing* pada suhu 37°C selama 30 detik dan dicuci dengan metode *direct swim up* dengan medium *skim base extender* (SBE) dan ditambah suplementasi *argan oil* (AO), *rosemary oil* (RO), dan *peppermint oil* (PO). Pengujian kualitas *spermatozoa* setelah *thawing* terdiri dari 8 perlakuan yang berbeda yaitu SBE (kontrol), SBE+AR 1%, SBE+RO 1%, SBE+PO 1%, SBE+AR 1%+RO 1%, SBE+AR 1%+PO 1%, SBE+RO 1%+PO 1%, dan SBE+AR 1%+RO 1%+PO 1%. Data yang diperoleh berupa motilitas, viabilitas, abnormalitas, keutuhan tudung akrosom dan integritas membran *spermatozoa* dianalisis dengan menggunakan uji Kruskal-Wallis. Hasil analisis data menunjukkan terdapat perbedaan yang signifikan terhadap motilitas, viabilitas, dan integritas membran ($P < 0,05$). Motilitas dan viabilitas tertinggi yaitu perlakuan penambahan SBE saja masing-masing $29,38 \pm 9,80\%$ dan $68,13 \pm 6,81\%$. Integritas membran tertinggi pada perlakuan SBE+AR 1%+RO 1%+PO 1% yaitu $80,00 \pm 6,23\%$. Kesimpulan dari penelitian ini adalah perlakuan penambahan SBE saja memiliki pengaruh paling baik terhadap motilitas dan viabilitas, sedangkan perlakuan penambahan AR 1%, RO 1%, dan PO 1% paling baik terhadap integritas membran.

Kata kunci: *Argan oil*, *Rosemary oil*, *Peppermint oil* semen beku, *Post-thawing*, *Direct swim up*, *Kualitas spermatozoa*.

EFFECT ARGAN OIL, ROSEMARY OIL, AND PEPPERMINT OIL SUPPLEMENTATION IN DIRECT SWIM UP MEDIUM POST-THAWING SPERM QUALITY OF SIMMENTAL BULL SPERMATOZOA

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ABSTRACT

This study aims to determine the effect of argan oil, rosemary oil, and peppermint oil supplementation on sperm washing medium after thawing on the sperm quality of Simmental cattle. The research was conducted at the Laboratory of Animal Physiology and Reproduction, Faculty of Animal Husbandry, Gadjah Mada University. The material used in this study was 40 straws of Simmental bull frozen sperm from 4 to 6 years produced by UPTD BPBPTDK DIY Agriculture Service. Frozen sperm were thawed at 37°C for 30 seconds and washed by *direct swim up* method with medium skim base extender (SBE) and supplemented with argan oil (AO), rosemary oil (RO), and peppermint oil (PO). *Spermatozoa* quality testing after thawing consisted of 8 different treatments, namely SBE (control), SBE+AR 1%, SBE+RO 1%, SBE+PO 1%, SBE+AR 1%+RO 1%, SBE+AR 1%+ PO 1%, SBE+RO 1%+PO 1%, and SBE+AR 1%+RO 1%+PO 1%. The data obtained in the form of motility, viability, abnormalities, acrosome integrity and *spermatozoa* membrane integrity were analyzed using the Kruskal-Wallis test. The results of data analysis showed that there were significant differences in motility, viability, and membrane integrity ($P < 0.05$). The highest motility and viability with additional SBE treatment were $29,38 \pm 9,80\%$ and $68,13 \pm 6,81\%$. The highest membrane integrity in the SBE+AR 1%+RO 1%+PO 1% treatment was $80.00 \pm 6.23\%$. The conclusion of this study was that the treatment with the addition of SBE only had the best effect on motility and viability, while the treatment with the addition of 1% AR, 1% ROS, and 1% PO had the best effect on membrane integrity.

Keywords: Argan oil, Rosemary oil, Peppermint oil, Post-thawing, *Direct swim up*, Quality of *Spermatozoa*.