

PENGARUH PENAMBAHAN SELENIUM TERHADAP KUALITAS SEMEN BEKU *POST THAWING* PADA SAPI PERANAKAN ONGOLE (PO)

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INTISARI

Penelitian ini bertujuan untuk mengetahui pengaruh penambahan selenium terhadap kualitas *semen beku post thawing* sapi Peranakan Ongole (PO). Penelitian ini dilaksanakan pada bulan Mei 2024 sampai Juni 2024 di Laboratorium Fisiologi dan Reproduksi Ternak Fakultas Peternakan UGM. Penelitian ini menggunakan 15 *straw semen* beku sapi PO dari Balai Besar Inseminasi Buatan (BBIB) Lembang, Jawa Barat. Selenium diencerkan menggunakan *water injection*. Larutan selenium ditambahkan pada *semen* yang telah di-*thawing* pada air hangat 37°C dengan lama *thawing* 30 detik di *waterbath*. Perlakuan meliputi 1) Tanpa penambahan selenium (P0), 2) Penambahan selenium 1 ppm (P1) 3) Penambahan selenium 5 ppm (P2), 4) Penambahan selenium 25 ppm (P3), 5) Penambahan selenium 50 ppm (P4). Data yang diamati meliputi motilitas (%), viabilitas (%), abnormalitas (%), dan membran plasma (%). Analisis data yang digunakan adalah Analisis Varians dengan Rancangan Acak Lengkap Pola Faktorial 5x3, kemudian dilanjutkan dengan uji *Duncan Multiple Range Test* (DMRT) dengan α 5%. Hasil penelitian menunjukkan bahwa penambahan selenium sebesar 0 ppm, 1 ppm, 5 ppm, 25 ppm, dan 50 ppm pada penyimpanan 0 menit, 30 menit, dan 60 menit secara urut menghasilkan motilitas sebesar 42,00±5,45%; 56,11±6,01%; 56,11±2,20%; 58,89±4,17%; 55,00±9,01% dan 50,40±10,20%; 54,40±6,20%; 56,07±7,08%; viabilitas sebesar 57,61±2,77%; 64,28±5,09%; 67,89±7,45%; 71,28±8,49%; 70,94±7,29% dan 64,87±10,00%; 66,17±7,25%; 68,17±6,83%; abnormalitas sebesar 12,15±7,00%; 6,73±2,97%; 7,03±2,61%; 6,95±2,85%; 5,60±2,20% dan 9,18±5,92%; 8,27±3,33%; 5,63±2,79%; membran plasma utuh sebesar 61,56±11,01%; 73,28±9,52%; 76,22±11,97%; 70,78±12,47%; 68,94±14,64% dan 65,40±10,46%; 69,60±13,07%; 75,47±12,57%. Disimpulkan bahwa suplementasi selenium berpengaruh nyata ($P < 0,05$) terhadap motilitas, viabilitas, dan abnormalitas sperma, namun tidak berpengaruh nyata terhadap membran plasma sperma. Suplementasi selenium mampu mempertahankan kualitas *semen beku post-thawing* sapi PO dengan baik.

Kata kunci: Motilitas, *Post thawing*, Sapi Peranakan Ongole (PO), Selenium, *Semen beku*, Viabilitas

THE EFFECT OF SELENIUM ADDITION ON QUALITY OF POST-THAW FROZEN SEMEN OF ONGOLE CROSSBREED CATTLE

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ABSTRACT

This study aims to determine the effect of selenium addition on the quality of post thawing frozen semen of Peranakan Ongole (PO) cattle. This research was conducted from May 2024 to June 2024 at the Laboratory of Animal Physiology and Reproduction, Faculty of Animal Science UGM. This study used 15 straws of PO cattle frozen semen from the Balai Besar Inseminasi Buatan (BBIB) Lembang, West Java. Selenium was diluted using water injection. Selenium solution was added to semen that had been thawed in warm water at 37°C with a thawing time of 30 seconds in a waterbath. Treatments included 1) Without the addition of selenium (P0), 2) Addition of 1 ppm selenium (P1) 3) Addition of selenium 5 ppm (P2), 4) Addition of selenium 25 ppm (P3), 5) Addition of selenium 50 ppm (P4). Data observed included motility (%), viability (%), abnormality (%), and plasma membrane (%). Data analysis used was Analysis of Variance with a 5x3 Factorial Complete Randomised Design, followed by Duncan Multiple Range Test (DMRT) with α 5%. The results showed that the addition of selenium at 0 ppm, 1 ppm, 5 ppm, 25 ppm, and 50 ppm at 0 min, 30 min, and 60 min storage sequentially produced motility of $42.00 \pm 5.45\%$; $56.11 \pm 6.01\%$; $56.11 \pm 2.20\%$; $58.89 \pm 4.17\%$; $55.00 \pm 9.01\%$ and $50.40 \pm 10.20\%$; $54.40 \pm 6.20\%$; $56.07 \pm 7.08\%$; viability of $57.61 \pm 2.77\%$; $64.28 \pm 5.09\%$; $67.89 \pm 7.45\%$; $71.28 \pm 8.49\%$; $70.94 \pm 7.29\%$ and $64.87 \pm 10.00\%$; $66.17 \pm 7.25\%$; $68.17 \pm 6.83\%$; abnormalities of $12.15 \pm 7.00\%$; $6.73 \pm 2.97\%$; $7.03 \pm 2.61\%$; $6.95 \pm 2.85\%$; $5.60 \pm 2.20\%$ and $9.18 \pm 5.92\%$; $8.27 \pm 3.33\%$; $5.63 \pm 2.79\%$; intact plasma membrane of $61.56 \pm 11.01\%$; $73.28 \pm 9.52\%$; $76.22 \pm 11.97\%$; $70.78 \pm 12.47\%$; $68.94 \pm 14.64\%$ and $65.40 \pm 10.46\%$; $69.60 \pm 13.07\%$; $75.47 \pm 12.57\%$. It was concluded that selenium supplementation had a significant effect ($P < 0.05$) on sperm motility, viability, and abnormality, but no significant effect on sperm plasma membrane. Selenium supplementation is able to maintain the quality of post-thawing frozen semen of PO cattle well.

Keywords: Motility, Post-thawing, Ongole Crossbreed Cattle (PO), Selenium, Frozen Semen, Viability