

PENGARUH PENAMBAHAN SELENIUM PADA MEDIUM PENGENCER KOMERSIAL TERHADAP KUALITAS SEMEN CAIR KAMBING SAANEN PADA PENYIMPANAN 5°C

Galuh Rahayu Putri
21/474439/PT/088465

INTISARI

Penelitian ini bertujuan untuk mengetahui pengaruh penambahan Selenium (Se) pada medium komersial terhadap kualitas semen cair kambing Saanen pada penyimpanan suhu 5°C. Penelitian ini dilaksanakan pada bulan Agustus 2024 sampai Februari tahun 2025 di Laboratorium Fisiologi dan Reproduksi Ternak Fakultas Peternakan Universitas Gadjah Mada (UGM). Semen ditampung dari seekor Kambing Saanen berumur tiga tahun. Penampungan semen dilakukan seminggu sekali, dengan lima kali pengulangan. Semen segar dievaluasi secara makroskopis, konsistensi, dan konsentrasi. Semen yang memenuhi standar SNI diencerkan menggunakan pengencer komersial dan ditambahkan selenium dengan perbandingan dosis 0 (tanpa selenium, P0), 5 ppm (P1), 25 ppm (P2), 50 ppm (P3) dan 100 ppm (P4). Selanjutnya, semen disimpan pada suhu 5°C selama 0, 24 dan 48 jam, kemudian diamati motilitas, viabilitas, abnormalitas, keutuhan membran plasma, dan keutuhan tudung akrosom. Data yang diperoleh dianalisis menggunakan uji statistik ANOVA pola searah, dilanjutkan dengan uji *Duncan Multiple Range Test* (DMRT). Hasil penelitian menunjukkan bahwa penambahan selenium berpengaruh nyata terhadap motilitas dan viabilitas spermatozoa ($P < 0,05$), namun tidak berpengaruh nyata terhadap abnormalitas, keutuhan membran plasma dan keutuhan tudung akrosom spermatozoa ($P > 0,05$). Penambahan 5 ppm selenium memberikan hasil terbaik dibandingkan perlakuan lainnya. Pada dosis ini, hasil pengamatan pada 0, 24, dan 48 jam menunjukkan bahwa motilitas spermatozoa (%) berturut-turut sebesar $85,00 \pm 0,00$, $78,00 \pm 2,73$, dan $56,00 \pm 4,18$; viabilitas spermatozoa (%) berturut-turut sebesar $92,80 \pm 0,67$, $90,30 \pm 3,03$, dan $83,50 \pm 1,36$. Tingkat abnormalitas spermatozoa (%) tercatat sebesar $4,10 \pm 0,96$, $5,50 \pm 0,05$, dan $7,80 \pm 1,89$, sedangkan keutuhan membran plasma (%) masing-masing sebesar $94,20 \pm 2,48$, $92,20 \pm 4,98$, dan $90,40 \pm 2,24$. Selain itu, keutuhan tudung akrosom spermatozoa (%) sebesar $97,40 \pm 0,89$, $97,40 \pm 0,89$, dan $96,40 \pm 1,91$. Dari penelitian ini, dapat disimpulkan bahwa penambahan selenium 5 ppm mampu mempertahankan kualitas semen cair kambing Saanen, terutama motilitas dan viabilitas spermatozoa hingga 48 jam pada suhu 5°C.

Kata kunci: Kambing Saanen, Kualitas semen, Selenium, Semen cair, Penyimpanan dingin

EFFECT OF SELENIUM ADDITION IN KOMERSIAL DILUENT MEDIUM ON THE QUALITY OF SAANEN GOAT LIQUID SEMEN DURING STORAGE AT 5°C

Galuh Rahayu Putri
21/474439/PT/08846

ABSTRACT

This study aimed to determine the effect of addition of selenium (Se) into komersial extender on the quality of Saanen goat liquid semen stored at 5°C. The research was carried out from August 2024 to February 2025 at the Laboratory of Animal Physiology and Reproduction, Faculty of Animal Science, Universitas Gadjah Mada (UGM). Semen was collected from a three-year-old. Saanen goat with semen collection performed once a week, with five repetitions. Fresh semen is evaluated macroscopically, including, consistency, and concentration. Semen that met with the quality standart diluted using komersial with addition of selenium at different doses: 0 ppm (without selenium, P0), 5 ppm (P1), 25 ppm (P2), 50 ppm (P3), and 100 ppm (P4). The diluted semen was stored at 5°C for 0, 24, and 48 hour, then evaluated for motility, viability, abnormality, plasma membrane integrity, and acrosome integrity . The data were analyzed using the one way ANOVA, followed by the Duncan Multiple Range Test (DMRT) test. The results showed that selenium addition had a significant effect on the motility and viability of spermatozoa ($P < 0.05$), but did not significantly effect on abnormality, plasma membran integrity, and spermatozoa acrosome integrity ($P > 0.05$). The addition of 5 ppm selenium showed the best results compared to other treatments. At this concentration, observations at 0, 24, and 48 hours showed that the motility of spermatozoa was 85.00 ± 0.00 , 78.00 ± 2.73 , and $56.00 \pm 4.18\%$ respectively, while the viability of spermatozoa was 92.30 ± 1.44 , 90.30 ± 3.03 , and $82.50 \pm 1.76\%$. The abnormality rate was recorded at 4.10 ± 0.96 , 5.50 ± 0.50 , and $7.80 \pm 1.89\%$, while the integrity of the plasma membrane was 94.20 ± 2.48 , $92.20 \pm 4.98\%$, and 90.40 ± 2.24 , respectively. Furthermore, acrosomal cap integrity was 97.30 ± 1.03 , 97.60 ± 0.74 , and $96.40 \pm 1.91\%$. From this research, it can be concluded that the addition of 5 ppm selenium is effectively of maintains the quality of liquid semen of Saanen goat, particulary the motility and viability of spermatozoa, for to 48 hours at a temperature of 5°C.

Keywords: Saanen goat, Semen quality, Selenium, Liquid semen, Chilled semen storage