PENAMBAHAN *GLUTATHIONE* PADA PENGENCER SITRAT KUNING TELUR TERHADAP KUALITAS *SEMEN* KAMBING SAANEN PADA PENYIMPANAN 5°C

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INTISARI

Penelitian ini mengkaji tentang pengaruh penambahan *Glutathione* pada pengencer sitrat kuning telur terhadap kualitas *semen* kambing Saanen pada penyimpanan 5°C. *Semen* diperoleh dari penampungan satu ekor kambing Saanen berumur 1.5 tahun menggunakan vagina buatan 2 kali seminggu. *Semen* segar kemudian dievaluasi secara makroskopis yang meliputi konsentrasi, volume, dan kosistensi. *Semen* yang berkualitas baik diencerkan pada sitrat kuning telur dengan penambahan *Glutathione* (P0 : 0 mM *Glutathione* + 1 mL sitrat kuning telur, P1 : 1 mM *Glutathione* +1 mL sitrat kuning telur, P2 : 3 mM *Glutathione* + 1 mL sitrat kuning telur, P3 : 5 mM + *Glutathione* 1 mL sitrat kuning telur). *Semen* disimpan pada suhu 5ºC dievaluasi secara mikroskopis meliputi motilitas, viabilitas, dan abnormalitas selama 72 jam. Data diolah dengan analisis varian dengan rancangan faktorial pola 4x4. Data yang signifikan kemudian diuji lanjut mengunakan uji DMRT dengan α 5%. Hasil penelitian menunjukkan bahwa penambahan *Glutathione* sebesar 0 mM, 1 mM, 3 mM, dan 5 mM pada penyimpanan 0 jam, 24 jam, 48 jam, dan 72 jam secara urut menghasilkan motilitas (%) sebesar 64,61±13,65; 69,93±13,57; 72,64±13.26; 72,25±13,12 dan 82,07±8,78; 75,25±7,63; 66,93± 8,7; 55,17±11,52; viabilitas (%) sebesar 83,87±8,44; 88,00±5,40; 88,57±4,75; 86.07±5,69 dan 91,27±3,34; 87,09±5,31; 84,80±6,37; 83,35 ±9,20; abnormalitas (%) sebesar 3,59±2,27; 4,09±2,08; 3,64±1,71; 3,32±2,05 dan 3,73±1,71; 3,35±2,35; 3,68±2,01; 3,88±2,07. Disimpulkan bahwa suplementasi *Glutathione* dan lama penyimpanan berpengaruh nyata ($p<0,05$) terhadap motilitas dan viabilitas sperma, namun tidak berpengaruh nyata ($p>0,05$) terhadap abnormalitas sperma. Suplementasi *Glutathione* optimum yang dapat ditambahkan pada media pengencer sitrat kuning telur yaitu 3mM dengan penyimpanan yang masih dapat mempertahanakan kualitas *semen* secara baik yaitu selama 48 jam.

Kata kunci: *Glutathione* (GSH), Kambing Saanen, Makroskopis dan mikroskopis *spermatozoa*, Sitrat kuning telur.

THE EFFECT OF GLUTATHIONE ADDITION TO EGG YOLK CITRATE EXTENDER ON THE QUALITY OF SAANEN GOAT SEMEN DURING STORAGE AT 5°C

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ABSTRACT

The aim of the research was to determine the effect of Glutathione addition to egg yolk citrate extender on the quality of Saanen goat semen during storage at 5°C. Semen was obtained from the collection of one Saanen goat sperm, aged 1.5 years, using an artificial vagina twice a week. The fresh semen was then evaluated macroscopically, including concentration, volume, and consistency. High-quality semen was diluted in egg yolk citrate extender with the addition of glutathione (P0: 0 mM Glutathione + 1 mL egg yolk citrate, P1: 1 mM Glutathione + 1 mL egg yolk citrate, P2: 3 mM Glutathione + 1 mL egg yolk citrate, P3: 5 mM Glutathione + 1 mL egg yolk citrate). The semen was stored at 5°C and evaluated microscopically for motility, viability, and sperm abnormalities for 72 hours. The data is processed using analysis of variance with a 4x4 factorial design. Significant data were further tested using the DMRT test with α 5%. The results showed that the addition of GSH at 0 mM, 1 mM, 3 mM, and 5 mM during storage for 0 hours, 24 hours, 48 hours, and 72 hours, respectively, resulted in motility (%) values of 64.61±13.65, 69.93±13.57, 72.64±13.26, and 72.25±13.12, and 82.07±8.78, 75.25±7.63, 66.93±8.7, 55.17±11.52, viability (%) values of 83.87±8.44, 88.00±5.40, 88.57±4.75, and 86.07±5.69, and 91.27±3.34, 87.09±5.31, 84.80±6.37, 83.35±9.20, and abnormality (%) values of 3.59±2.27, 4.09±2.08, 3.64±1.71, and 3.32±2.05, and 3.73±1.71, 3.35±2.35, 3.68±2.01, 3.88±2.07. It can be concluded that Glutathione supplementation and storage duration have a significant effect ($p<0.05$) on sperm motility and viability, but no significant effect ($p>0.05$) on sperm abnormalities. The optimal Glutathione supplementation that can be added to egg yolk citrate extender is 3 mM with a semen storage duration that can maintain good sperm quality at about 48 hours.

Keywords: Glutathione (GSH), Saanen Goat, Macroscopic and microscopic *spermatozoa*, Egg yolk citrate.