

Kualitas Spermatozoa Ikan Kancra (Tor soro Valenciennes, 1842) Pascakriopreservasi menggunakan Gula Merah sebagai Krioprotektan Alami = Spermatozoa Quality of Kancra Fish (Tor soro Valenciennes, 1842) Post-cryopreservation using Brown Sugar as Natural Cryoprotectant

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Abstrak

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Kriopreservasi merupakan metode penyimpanan material genetik pada suhu rendah dalam jangka waktu tertentu. Kriopreservasi spermatozoa dapat digunakan sebagai usaha konservasi ex situ ikan kancra (Tor soro) yang populasinya semakin menurun. Pemilihan krioprotektan yang tepat dapat meminimalkan kerusakan akibat terbentuknya kristal es dan mempertahankan kualitas spermatozoa selama kriopreservasi. Gula merah sebagai krioprotektan alami dan metanol 10% memiliki potensi untuk kriopreservasi spermatozoa ikan kancra. Tujuan penelitian yaitu mendapatkan konsentrasi optimal dari berbagai konsentrasi gula merah dan metanol 10% terhadap motilitas, viabilitas, dan abnormalitas spermatozoa pascakriopreservasi ikan kancra, serta mengevaluasi persentase fertilitas spermatozoa pascakriopreservasi ikan kancra. Konsentrasi gula merah yang digunakan yaitu 0%, 5%, 10%, 15%, 20%, dan 25%. Rasio antara semen dan larutan pengencer yang digunakan yaitu 1:10. Ekuilibrisasi dilakukan pada suhu 5 °C selama 10 menit. Pembekuan dilakukan pada suhu -10 °C selama 48 jam. Pencairan dilakukan pada suhu 40 °C selama 60 detik. Analisis data dilakukan dengan menggunakan uji ANAVA yang dilanjutkan dengan uji Tukey. Hasil penelitian menunjukkan bahwa krioprotektan gula merah memberikan pengaruh ( $P < 0,05$ ) pada kualitas spermatozoa pascakriopreservasi. Krioprotektan gula merah 15% dan metanol 10% menghasilkan persentase motilitas ( $81,85 \pm 1,11\%$ ), viabilitas ( $83,75 \pm 1,71\%$ ), fertilitas ( $89,75 \pm 1,71\%$ ) tertinggi, serta abnormalitas terendah ( $14,50 \pm 1,73\%$ ) pada spermatozoa pascakriopreservasi.

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**ABSTRACT**

Cryopreservation is a method of storing genetic material at low temperatures for a certain period of time. Spermatozoa cryopreservation can be used as an ex situ conservation method for kancra fish (Tor soro) whose population is declining. Selection of the right cryoprotectant can minimize damage caused by the formation of ice crystals and maintain the quality of spermatozoa during cryopreservation. Brown sugar as natural cryoprotectant and 10% methanol have potential for cryopreservation of spermatozoa. The research objective was to obtain the optimal concentration of various concentrations of brown sugar and 10% methanol on the motility, viability, and abnormalities of kancra fish spermatozoa after cryopreservation, and evaluate the fertility of kancra fish spermatozoa after cryopreservation. The concentration of brown sugar used were 0%, 5%, 10%, 15%, 20%, and 25%. The ratio between semen and diluent solution used was 1:10. Equilibration was carried out at 5 °C for 10 minutes. Freezing was carried out at -10 °C for 48 hours. Thawing was done at 40 °C for 60 seconds. Data was analyzed using ANOVA test followed by Tukey test. The results showed that the cryoprotectant brown sugar had a significant influence ( $P < 0.05$ ) on the quality of post-cryopreserved spermatozoa. 15% brown sugar together with 10% methanol can produce the highest

percentage of motility ( $81.85 \pm 1.11\%$ ), viability ( $83.75 \pm 1.71\%$ ), fertility ( $89.75 \pm 1.71\%$ ), and the lowest abnormality ( $14.50 \pm 1.73\%$ ) in spermatozoa post-cryopreservation.