Analisis kromosom ikan koi kohaku (Cyprinus carpio L) dengan teknik kultur sel darah = Chromosome analysis of kohaku koi fish (Cyprinus carpio L) using blood cell culture techniques

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Abstrak

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Penelitian telah dilakukan untuk menganalisis kromosom ikan koi Kohaku (Cyprinus carpio L.) dengan teknik kultur sel darah. Tujuan dari penelitian adalah untuk mendapatkan informasi mengenai jumlah dan karakter morfologi kromosom ikan koi Kohaku (Cyprinus carpio L.). Preparat kromosom diperoleh dari sel darah ikan koi Kohaku yang dikultur dengan menggunakan medium RPMI 1640, mitogen PHA-M, faktor tumbuh FBS, dan antibiotic antimycotic pada suhu 37°C selama 72 jam dalam inkubator dengan 5% CO2. Perlakuan penghambatan pembentukkan spindel untuk mendapatkan sebaran kromosom metafase dilakukan dengan pemberian 10µg/mL kolsemid kemudian di inkubasi selama dua jam. Sampel kemudian diberi perlakuan hipotonis dengan larutan KCl 0,075 M di inkubasi selama 8 menit, dan perlakuan fiksatif dengan larutan metanol dan asam asetat glasial dalam perbandingan 3: 1 selama 10 menit. Sampel diwarnai dengan Giemsa 5%, dan diamati di bawah mikroskop Leica dengan perbesaran 10x100. Jumlah kromosom dihitung dengan bantuan software ImageJ. Pengamatan sebaran kromosom metafase yang didapatkan menunjukkan ikan koi Kohaku memiliki kromosom yang berjumlah berkisar 2n= ca. 100--102. Hasil yang diperoleh diharapkan dapat menjadi informasi dasar kromosom spesies, melihat kekerabatan spesies, dan pengembangan sitogenetik di Indonesia.
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ABSTRACT
Research to analyze chromosomes Kohaku koi (Cyprinus carpio L.) using blood cell culture techniques has been conducted. The aim of the research was to obtain information about the number and size of chromosome of the Kohaku koi (Cyprinus carpio L.) chromosome. Chromosomes were obtained from Kohaku koi fish blood cell culture. The cells were cultured using RPMI 1640 medium, mitogen from PHA-M, FBS growing factor, and antibiotic antimycotic at a temperature of 37°C for 72 hours in a 5% CO2 incubator. The inhibition of spindle formation to obtain chromosomal metaphase distribution was carried out by two-hours colcemid treatment at a dosage of 10 µg/mL. The samples were subjected to 0.075 M KCl hypotonic solution for 8 minutes, and fixed with a solution of methanol and glacial acetic acid in a 3: 1 ratio for 10 minutes. Samples were tinged with 5% Giemsa and observed under a Leica microscope software with 10 x 100 magnification. The number of chromosomes has been calculated by using ImageJ software. According to the data obtained, Kohaku koi fish chromosome numbers ranged from 2n=ca. 100 to 2n=ca.102. The results were expected to be the basic of chromosome information that would be beneficial for predicting the kinship of species as well as the development of cytogenetics in Indonesia.