

Karakterisasi Sitogenetik Tujuh Kultivar dari Dua Spesies *Fragaria* di Balai Penelitian Tanaman Jeruk dan Buah Sub-Tropika, Malang, Jawa Timur

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INTISARI

Stroberi (*Fragaria* spp.) merupakan tanaman hasil domestikasi yang berasal dari Chili, Amerika. Stroberi lokal di Indonesia memiliki kualitas yang kurang baik dibandingkan dengan stroberi yang dikembangkan di luar negeri, yaitu memiliki ukuran buah relatif kecil dan rasanya sangat masam. Upaya untuk mencari kultivar tanaman stroberi lokal kualitas unggul telah dilakukan oleh Balai Penelitian Tanaman Jeruk dan Buah Subtropika (Balitjestro), akan tetapi penelitian untuk mengkarakterisasi dan mengidentifikasi tingkat ploidi dari tanaman stroberi lokal belum banyak dilakukan di Indonesia. Tujuan dari penelitian ini adalah untuk mempelajari karakter kromosom stroberi dari koleksi kultivar stroberi hasil budidaya di Balitjestro sebagai upaya perbaikan genetis stroberi lokal. Penelitian ini dimulai pada bulan November 2014 sampai dengan Oktober 2015. Pengambilan sampel akar stroberi dilakukan di Balitjestro yang terletak di Desa Tlekung, Kecamatan Junrejo, Batu, Jawa Timur. Pembuatan preparat kromosom dari ujung akar dilakukan dengan metode *squash* menggunakan acetoorcein 1%. Analisis *Flow cytometry* dilakukan di *Animal Physiology Laboratorium* di Universitas Brawijaya menggunakan alat *flow cytometer*. Hasil penelitian menunjukkan bahwa kultivar-kultivar stroberi yang diteliti dapat dibagi menjadi 2 kelompok berdasarkan jumlah kromosomnya (ploidi), yaitu diploid dan tetraploid. Kultivar Californica dan Earlibrite merupakan kelompok diploid ($2n=2x=14$) dan Aerut, Berastagi, Festival, Holland dan Rosa Linda merupakan kelompok tetraploid ($2n=4x=28$). Panjang absolut kromosom stroberi berbagai kultivar ± 0.9 - $2.9 \mu\text{m}$. Bentuk kromosom stroberi didominasi kromosom metasentris dan kromosom submetasentris. Analisis *flow cytometry* menunjukkan adanya variasi tingkat ploidi dari diploid sampai oktaploid. Californica dan Earlibrite memiliki tingkat ploidi diploid. Berastagi dan Rosa Linda memiliki tingkat ploidi tetraploid. Aerut, Festival, dan Holland memiliki tingkat ploidi oktaploid.

Kata Kunci : Stroberi, karakterisasi kromosom, *flow cytometry*, metode *squash*, Balitjestro

**Cytogenetics Characterization of Seven Cultivars of Two *Fragaria* Species at
Indonesian Citrus and Subtropical Fruits Research and Development,
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ABSTRACT

Strawberries (*Fragaria* spp.) is a domestication of plants originating from Chile, USA. Local strawberries in Indonesia has a lower quality than import strawberries, which has small fruit size and its taste is very sour. There was some researches have done by Balai Penelitian Tanaman Jeruk dan Buah Sub-tropika (Balitjestro) to find a superior quality of local strawberries crop, but research to characterize and identify the ploidy level of the local strawberries crop has not been done in Indonesia. The objective of this research was to study the chromosome character of the strawberries from the collection of strawberries which was cultivated by Balitjestro as genetic improvement of local strawberries. This study began in November 2014 to October 2015. Sampling was taken from Balitjestro which located in Tlekung Village, District Junrejo, Batu, East Java. Squash method was chosen as chromosome preparation technic, by using acetoorcein 1% staining. Flow cytometry analysis was done in Animal Physiology Laboratory at Brawijaya University using a flow cytometer. The results showed that strawberries cultivars can be divided into 2 groups based on the number of chromosomes (ploidy), it were diploid and tetraploid. Cultivars Californica and Earlibrite were a group of diploid ($2n = 2x = 14$) and Aerut, Berastagi, Festival, Holland and Rosa Linda were a group of tetraploid ($2n = 4x = 28$). The absolute length of chromosome strawberries cultivars was ± 0.9 - $2.9 \mu\text{m}$. Strawberries consist of metasentris chromosome and submetasentris chromosome. Flow cytometry analysis has showed a result of variation ploidy level from diploid to octoploid. Californica and Earlibrite had diploid ploidy level. Berastagi and Rosa Linda had tetraploid ploidy level. Aerut, Festival and Holland had octoploid ploidy level.

Keywords : Stawberries, chromosome characterization, flow cytometry, squash method, Balitjestro