ABSTRACT

MIFTAKHUL FITRIYAH. A.1310128. Responses of Male and Female Flowers of Oil Palm (*Elaeis guineensis* Jacq.) In *In Vitro* culture. Under immediate supervision of Arifah Rahayu and Nurita Toruan Mathius

Highly productive oil palm can be obtained by applying breeding programs which may take relatively long time, about 25-30 years. Propagation of oil palms of superior breeds through tissue culture application is an alternative solution to overcome this problem. This study was aimed at assessing the growth, production, and quality of oil palm callus originating from male flowers and young female flowers. A factorial completely randomized design with two factors was used. The first factor was a variety of mother plant as explant source with three genotypes (B32, B43, B46). The second factor was type of flowers consisting of female and male flowers. Three replicates were allocated into each treatment. In each replicate, five short tubes sized 10 cm containing one explant of female or male flower each were used. Results showed that the three genotypes used gave different responses to male and female flowers. B32 genotype of male flowers was found to have higher fresh callus weight and GA, ABA, and IAA contents than that of female flowers. B43 genotype of male flowers had higher GA content but lower ABA and IAA than that of female flowers. Genotype B46 male flowers contained higher ABA and IAA but lower GA than female flowers did. GA and IAA content ofcallus of genotype B32 male flower explants was the highest and that of female flower explants was the lowest of all genotypes. Regardless the genotype, male flowers had higher callus dry weight, lower zeatin and protein contents than female flowers did.

***Key words**:* tissue culture, hormone, callus, male flower, female flower

ABSTRAK

MIFTAKHUL FITRIYAH. A.1310128. Respon Bunga Jantan dan Betina Tanaman Kelapa Sawit (*Elaeis guineensis Jacq.*) dalam Kultur *In Vitro*. Di bawah bimbingan Arifah Rahayu dan Nurita Toruan Mathius

Upaya mendapatkan tanaman kelapa sawit dengan produktivitas tinggi dapat dilakukan melalui pemuliaan yang memerlukan waktu relatif lama, sekitar 25-30 tahun. Salah satu alternatif untuk mengatasi masalah tersebut adalah dengan memperbanyak tanaman kelapa sawit unggul dari hasil seleksi menggunakan teknologi kultur jaringan. Penelitian ini bertujuan untuk mengetahui pertumbuhan, produksi dan kualitas kalus kelapa sawit yang berasal dari bunga jantan dan bunga betina muda. Metode penelitian menggunakan Rancangan Acak Lengkap dengan dua faktor, yaitu tanaman induk sumber eksplan satu varietas beda genotipe (B32, B43, B46) dan tipe bunga yaitu bunga betina dan bunga jantan. Setiap perlakuan diulang tiga kali, masing-masing ulangan terdiri atas lima tabung pendek yang berukuran 10 cm yang terdapat satu eksplan bunga betina/bunga jantan. Hasil penelitian menunjukkan ketiga genotipe yang digunakan menunjukkan respon berbeda pada bunga jantan dan betina. Genotipe B32 menunjukkan bobot basah kalus, kandungan GA, ABA dan IAA bunga jantan lebih tinggi dibandingkan dengan bunga betina. Genotipe B43 memiliki kandungan GA bunga jantan lebih tinggi dibandingkan dengan bunga betina, tetapi kandungan ABA dan IAA bunga jantan lebih rendah dibandingkan dengan bunga betina. Bunga jantan genotipe B46 mengandung GA lebih rendah, tetapi ABA dan IAA lebih tinggi dibandingkan dengan bunga betina. Bobot basah kalus genotipe B32 dari eksplan bunga jantan memiliki kandungan GA dan IAA tertinggi, sedangkan dari eksplan bunga betina terendah dibandingkan kedua genotipe lainnya. Bunga jantan menunjukkan bobot kering kalus lebih berat, kandungan zeatin dan protein lebih rendah dibandingkan dengan bunga betina.

Kata kunci *:* kultur jaringan, hormon, kalus, bunga jantan, bunga betina