ORGANOGENESIS LANGSUNG DAN TIDAK LANGSUNG KARAMUNTING (*Rhodomyrtus tomentosa*) SECARA *IN VITRO*

TESIS

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PROGRAM PASCASARJANA

UNIVERSITAS ANDALAS

2020

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Abstrak

Konversi lahan dan kurangnya perhatian menjadi penyebab mulai langkanya tanaman karamunting. Konservasi jangka pendek berupa multiplikasi tunas melalui organogenesis langsung dan tidak langsung secara *in vitro* dapat dilakukan untuk melestarikan tanaman karamunting. Penelitian ini bertujuan mendapatkan protokol perbanyakan karamunting secara *in vitro* dalam rangka langkah awal kegiatan konservasi. Penelitian ini dilaksanakan pada bulan Oktober 2019 hingga April 2020, di Laboratorium Kultur Jaringan Fakultas Pertanian Universitas Andalas. Percobaan organogenesis langsung disusun berdasarkan rancangan acak lengap (RAL) faktorial dengan perlakuan media yaitu beberapa kosentrasi BAP (2, 3, 4, dan 5 ppm BAP) dan posisi nodus dengan empat taraf (2, 3, 4 dan 5 dari pucuk). Percobaan induksi akar menggunakan media WPM dengan penambahan NAA, IAA,dan IBA dengan konsentrasi 0,1 ppm. Percobaan organogenesis tidak langsung disusun berdasarkan Rancangan Acak Lengkap (RAL) dengan perlakuan kombinasi konsentrasi 2,4D, BAP, dan Thidiazuron yaitu 2,5 ppm 2,4D; 5,0 ppm 2,4D; 2,5 ppm 2,4D + 1 ppm BAP; 5,0 ppm 2,2D + 1 ppm BAP; 2,5 ppm 2,4D + 2 ppm TDZ dan 5,0 ppm 2,4D + 2 ppm TDZ. Kalus yang terbentuk disubkultur pada media dengan penambahan 1 ppm BAP untuk induksi tunas. Hasil penelitian pada organogenesis langsung menunjukan bahwa perlakuan 2 ppm BAP dengan posisi nodus nomor 2 dari pucuk memberikan hasil persentase terbentuk tunas dan persentase hidup tertinggi yaitu 100%, serta konsentrasi 2 ppm BAP dan posisi nodus nomor 3 menghasilkan tinggi tanaman paling baik yaitu 0.92 cm. Penambahan 0,1 ppm NAA mampu menghasilkan persentase akar 45.45% dan jumlah akar 10. Hasil penelitian pada organogenesis tidak langsung menunjukan perlakuan 2,5 ppm 2,4D + 1 ppm BAP dan 2,5 ppm 2,4D + 2 ppm TDZ mampu menghasilkan persentase kalus 100%. Perlakuan 2,5 ppm 2,4D + 1 ppm BAP menghasilkan kalus warna hijau dengan persentase paling tinggi yaitu 75%. Subkultur kalus ke media 1 ppm BAP belum mampu menghasilkan tunas karamunting.

Kata Kunci : Benzil Amino Purin, Fitofarmaka, Kalus, Konservasi, Multiplikasi

DIRECT AND INDIRECT ORGANOGENESIS OF KARAMUNTING (*Rhodomyrtus tomentosa*) BY IN VITRO

Abstract

Land conversion and lack of attention are the causes of the scarcity of karamunting. Short-term conservation through shoot multiplication using direct and indirect organogenesis can conserve of karamunting. This study aim to obtain an in vitro karamunting propagation protocol in the framework of the initial steps of conservation. This research was conducted from October 2019 to April 2020, at the Tissue Culture Laboratory of the Faculty of Agriculture, Andalas University. Direct organogenesis experiments were arranged based on a Factorial Completely Randomized Design with media treatment, namely BAP concentrations (2, 3, 4, and 5 ppm BAP) and node position with four levels (2, 3, 4 and 5 of shoots). The root induction experiment used WPM media with the addition of NAA, IAA, and IBA with a concentration of 0.1 ppm. Indirect organogenesis experiments were arranged based on a Completely Randomized Design with a combination treatment of 2,4D, BAP, and Thidiazuron concentrations of 2.5 ppm 2,4D; 5.0 ppm 2,4D; 2.5 ppm 2,4D + 1 ppm BAP; 5.0 ppm 2,2D + 1 ppm BAP; 2.5 ppm 2,4D + 2 ppm TDZ and 5.0 ppm 2,4D + 2 ppm TDZ. The callus formed was subcultured on the media with the addition of 1 ppm BAP for shoot induction. The results of research on direct organogenesis showed that the treatment of 2 ppm BAP with nodal position number 2 from the shoots gave the highest percentage of shoot formation and the percentage of life was 100%, and the 2 ppm BAP concentration and node position number 3 produced the best plant height of 0.92 cm. The addition of 0.1 ppm NAA was able to produce a root percentage of 45.45% and the number of roots 10. The results of indirect organogenesis showed that 2.5 ppm 2,4D + 1 ppm BAP and 2.5 ppm 2,4D + 2 ppm TDZ were able to produce callus percentage of 100%. 2.5 ppm treatment 2,4D + 1 ppm BAP produced green callus with the highest percentage of 75%. Callus subculture to 1 ppm BAP media was not able to produce shoots.

Keywords: Benzyl Amino Purine, Callus, Conservation, Multiplication, Phytopharmaca