

ABSTRAK

Jelutung rawa merupakan salah satu jenis tanaman potensial untuk kegiatan Rehabilitasi Hutan dan Lahan (RHL) pada rawa gambut di Provinsi Jambi, Sumatera Selatan, Kalimantan Tengah dan Kalimantan Selatan. Tanaman yang dianjurkan ditanam adalah jenis kayu-kayuan, jenis tanaman unggulan lokasi, jenis tanaman endemik dan jenis serba guna, jelutung rawa merupakan salah satu jenis tanaman yang memenuhi spesifikasi tersebut. Budidaya jelutung rawa dapat dilakukan secara generatif dan vegetatif. Pada umumnya masyarakat melakukan perbanyakan tanaman secara generatif menggunakan biji atau benih. Namun, untuk menyediakan bibit dalam jumlah besar dengan waktu yang singkat cara ini masih terkendala musim. Salah satu metode perbanyakan vegetatif yang dapat dijadikan alternatif adalah kultur jaringan. Dalam kultur jaringan, terdapat dua sistem utama untuk meregenerasi tanaman yaitu melalui organogenesis dan embriogenesis somatik. Masing-masing sistem tersebut dapat dilakukan secara langsung dari eksplan maupun secara tidak langsung melalui fase kalus. Penelitian ini dilaksanakan di Laboratorium Bioteknologi dan Pemuliaan Tanaman Fakultas Pertanian Universitas Jambi dari Juli hingga Desember 2022. Penelitian ini dilakukan dengan menggunakan Rancangan Acak Lengkap (RAL) pola faktorial 2 faktor. Faktor pertama adalah konsentrasi zat pengatur tumbuh 2,4-D (d) yang terdiri atas 4 taraf perlakuan sebagai berikut: d1 = 1 ppm 2,4-D, d2 = 2 ppm 2,4-D, d3 = 3 ppm 2,4-D, d4 = 4 ppm 2,4-D. Faktor kedua adalah konsentrasi zat pengatur tumbuh BAP (p) yang terdiri atas 3 taraf perlakuan sebagai berikut: p0 = Tanpa BAP, p1 = 1 ppm BAP, p2 = 2 ppm BAP. Dengan demikian dari kedua faktor tersebut diperoleh 12 kombinasi perlakuan. Masing-masing perlakuan diulang sebanyak 3 kali sehingga terdapat 36 unit percobaan. Setiap satuan percobaan terdiri dari 10 botol kultur yang ditanami 1 eksplan, sehingga terdapat 360 botol sampel pengamatan dan semua botol diamati. Variabel yang diamati adalah waktu muncul kalus, persentase kalus, berat kalus, warna kalus dan struktur kalus. Data berat kalus, persentase eksplan berkalus dan waktu muncul kalus dianalisis secara statistik menggunakan Anova dan jika berpengaruh nyata dilanjutkan dengan uji DMRT pada taraf $\alpha=5\%$. Sedangkan data struktur kalus dan warna kalus dianalisis secara deskriptif. Hasil penelitian menunjukkan bahwa terdapat interaksi 2,4-D dan BAP terhadap variabel berat kalus. Pemberian zat pengatur tumbuh sebesar 2 ppm 2,4-D dan 2 ppm BAP adalah konsentrasi terbaik dalam menginduksi kalus eksplan daun jelutung rawa dan memberikan respon terhadap hari muncul kalus paling cepat dengan rata-rata 9 HST serta berat kalus paling tinggi yaitu sebesar 1,08 g serta didominasi kalus berstruktur remah dan berwarna hijau.

Kata Kunci : Jelutung Rawa, Induksi Kalus, Zat Pengatur Tumbuh

ABSTRACT

Swamp jelutung is one of the potential plant species for Forest and Land Rehabilitation (FLR) activities in peat swamps in the Provinces of Jambi, South Sumatra, Central Kalimantan and South Kalimantan. Plants that are recommended to be planted are woody species, location superior plant species, endemic plant species and multi-purpose species. Swamp jelutung cultivation can be done generatively and vegetatively. In general, people do generative plant propagation using seeds or seeds. However, to provide seeds in large quantities in a short time, this method is still constrained by the season. One method of vegetative propagation that can be used as an alternative is tissue culture. In tissue culture, there are two main systems for regenerating plants, namely through organogenesis and somatic embryogenesis. Each of these systems can be carried out directly from explants or indirectly through the callus phase. This research was carried out at the Laboratory of Biotechnology and Plant Breeding, Faculty of Agriculture, University of Jambi from July to December 2022. This research was conducted using a completely randomized design (CRD) with 2 factors factorial pattern. The first factor was the concentration of growth regulator 2,4-D (d) which consisted of 4 treatment levels as follows: d1 = 1 ppm 2,4-D, d2 = 2 ppm 2,4-D, d3 = 3 ppm 2,4-D, d4 = 4 ppm 2,4-D. The second factor was the concentration of BAP growth regulator (p) which consisted of 3 treatment levels as follows: p0 = without BAP, p1 = 1 ppm BAP, p2 = 2 ppm BAP. Thus, from these two factors, 12 treatment combinations were obtained. Each treatment was repeated 3 times so that there were 36 experimental units. Each experimental unit consisted of 10 culture bottles planted with 1 explant, so that there were 360 observation sample bottles and all bottles were observed. The variables observed were callus appearance time, callus percentage, callus weight, callus color and callus structure. The data on callus weight, percentage of callus explants and callus appearance time were statistically analyzed using ANOVA and if it had a significant effect it was continued with the DMRT test at $\alpha=5\%$. While the callus structure data and callus color were analyzed descriptively.

The results showed that there was an interaction between 2,4-D and BAP on the callus weight variable. Administration of growth regulators of 2 ppm 2,4-D and 2 ppm BAP was the best concentration in inducing callus of jelutung swamp leaf explants and responded to the fastest callus appearance day with an average of 9 HST and the highest callus weight of 1.08 g and dominated by callus with crumb structure and green color.

Keywords : Swamp Jelutung, Callus Induction, Growth Regulator