Pengaruh Umur Tunas dan Perlakuan Zat Pengatur Tumbuh 3-*Indole Butyric Acid* terhadap Keberhasilan Induksi Akar pada Kultur Jaringan Cendana (*Santalum album* Linn.)

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INTISARI

Cendana (*Santalum album* Linn.) merupakan salah satu jenis kayu unggulan di Indonesia yang populasi alamnya semakin berkurang karena eksploitasi yang berlebihan. Usaha untuk pelestarian cendana dapat dilakukan dengan kultur jaringan karena dapat dihasilkan bibit cendana dengan sifat genetik yang baik dalam waktu singkat dan material yang terbatas. Beberapa penelitian mengenai kultur jaringan cendana menyebutkan bahwa masih ditemui kendala pada induksi akar. Komposisi media dan ZPT (Zat Pengatur Tumbuh) yang paling sesuai masih belum didapat.

Dalam penelitian ini diuji pengaruh faktor endogen yaitu umur tunas (1, 2, dan 3 bulan). Konsentrasi ZPT IBA yang digunakan adalah 10 mg/l, 20 mg/l, dan 30 mg/l. Komposisi media yang digunakan adalah media ½ MS (bulan 1) dan ¼ MS (bulan 2 dan 3). Pengamatan dilakukan selama 3 bulan. Kombinasi perlakuan dilakukan secara faktorial.

Hasil penelitian menunjukkan bahwa perlakuan umur tidak memberikan pengaruh yang nyata terhadap respon eksplan. Diduga rentang umur yang digunakan terlalu dekat sehingga perbedaan yang nyata antar perlakuan umur tidak nampak. Konsentrasi memberikan pengaruh yang nyata pada bulan pertama dan ketiga. Respon tertinggi pada perlakuan 10 mg/l umur 3 bulan dan 20 mg/l umur 2 bulan. Akar yang tumbuh pada media ½ MS pertumbuhannya stagnan pada media ¼ MS. Tunas umur 3 bulan menunjukkan ketahanan terhadap media ¼ MS dibandingkan tunas yang lain. Perbanyakan massal cendana sebaiknya menggunakan acuan IBA 20 mg/l dengan umur tunas 2 bulan karena pertumbuhan akar yang bagus dan waktu penyiapan eksplannya lebih cepat.

Kata kunci : Cendana , akar, kultur jaringan, ZPT IBA, umur tunas, media MS.

The Effect of Shoot Age and Plant Growth Regulator 3-*Indole Butyric Acid* on Root Induction of Cendana (*Santalum album* Linn.)

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ABSTRACT

Cendana (*Santalum album* Linn.) is one of the popular wood in Indonesia. In recent years the natural population of cendana is decreasing because of over exploitation. Tissue culture technique is one of the effort for cendana conservation. This method is better than other vegetative propagation methods because it produces good seedling in short time using limited plant materials. Several researches tissue culture of cendana showed that it has problem in the root induction. The proper composition media and growth regulator for the root induction of cendana has not well understood.

The objective of this research were to understand about the endogen and exogen factors that affected root induction of cendana. The endogen factor was age of the shoot and the exogen factor was growth regulator concentration. Shoot age were 1, 2, and 3 month old; growth regulator concentration were used 3-Indole Butyric Acid (IBA) in three levels (10 mg/l, 20 mg/l, and 30 mg/l). Root induction media used were half strength Murashige and Skoog's Medium (½ MS medium) for first month and quarter strength MS medium (¼ MS Medium) for the second and third month. The observation was conducted in three month. Treatment combined in factorial design.

The result showed that shoot age had no effect on root induction. The factor that dominantly affected root induction was concentration level of IBA. Concentration gave significant effect in first month and third month. The best response was showed in 10 mg/l IBA with 3 month old shoot and 20 mg/l IBA with 2 month old shoot. Root that were produced by shoot in ½ MS medium were stagnan after being transplanted into ¼ MS medium. Three month old shoots showed good resistance in ¼ MS medium. In conclusion, mass propagation of cendana was best conducted using 20 mg/l IBA and 2 month old shoot because it had good rooting capacity and faster explant preparation.

Keywords : Cendana, root, tissue culture, IBA Plant Growth Regulator, shoot age, MS medium.