

Improving Agarwood (*Aquilaria malaccensis* Lamk.) Plantlet Formation Using Various Types and Concentrations of Auxins

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Author Order	5 of 5
Accreditation	1
Abstract	<p><i>Aquilaria malaccensis</i> Lamk. is one of the most widespread agarwood-producing plants that face extinction due to overexploitation. Agarwood propagation using in vitro culture techniques is capable of producing large quantities of plants in a shorter time and free from pests and diseases. Therefore, this study was conducted to analyze the effect of auxins type and concentration on agarwood plantlet formation using a split-plot design. The main plot was the type of auxin which included IAA, IBA and NAA, while the subplot was the concentration used which consisted of 0; 5; 10; 15 and 20 μM. The variable observed was agarwood plantlet formation with parameters measured including the number of shoots and leaves, plant height, and number of roots. The results showed that the formation of agarwood plantlets was controlled by the type, concentration, and interaction between the type and concentration of auxin. Furthermore, explants cultured on Murashige Skoog (MS) medium supplemented with 10 μM IBA produced the highest number of shoots (3.39 shoots explant⁻¹) and leaves (7.25 leaves explants⁻¹), while the addition of 10 μM NAA resulted in the highest number of roots (2.52 roots explant⁻¹). This is the first time a study is conducted to evaluate the effect of type and concentration of auxins on agarwood plantlet formation. The production of high-quality shoots and plantlets increased agarwood germplasm availability to prevent extinction and support sustainable production.</p>
Publisher Name	Universitas Sebelas Maret
Publish Date	2022-02-27
Publish Year	2022
Doi	DOI: 10.20961/carakatani.v37i1.58370
Citation	
Source	Caraka Tani: Journal of Sustainable Agriculture
Source Issue	Vol 37, No 1 (2022): April
Source Page	142-151
Url	https://jurnal.uns.ac.id/carakatani/article/downloadSuppFile/58370/8839
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