

Neurotrophic Activity of the Carrageenophyte *Kappaphycus alvarezii* Cultivated at Different Depths and for Different Growth Periods in Various Areas of Indonesia

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<b>Abstract</b>	<p>The carrageenophyte <i>Kappaphycus alvarezii</i> (Rhodophyta) has neurotrophic activity in primary hippocampal neurons. This seaweed is abundant and easily cultivated in tropical coastal areas. To determine the best growth conditions for neurotrophic activity, thalli were grown at different depths and for different periods in various areas of Indonesia. Neurotrophic activity was measured based on the number of primary neurites, the total length of the primary neurites, and the length of the longest neurite. <i>K. alvarezii</i> had higher neurotrophic activity than carrageenophytes <i>K. striatum</i> and <i>Eucheuma denticulatum</i> cultured under the same conditions. <i>K. alvarezii</i> grown at the surface for 45 days had higher (1.4- to 1.8-fold) neurotrophic activity than thalli grown at depth (2 m) or harvested sooner (15 days) (<math>P &lt; 0.05</math>). Relatively high activities were detected in thalli cultured at Ternate and Garut, Indonesia. Therefore, from a commercial perspective, the culture conditions at the surface for 45 days were optimal for the production of both neurotrophic compounds and carrageenan. <i>K. alvarezii</i> produced neurotrophic compounds under various environmental conditions, although some conditions were optimal.</p>
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