

The ethanol extract of the rhodophyte *Kappaphycus alvarezii* promotes neurite outgrowth in hippocampal neurons

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Abstract	Neurodegenerative disorders, which affect memory, cognition, and social functions, can be treated using neurotrophic agents to support neuronal development and protect mature neurons from atrophy. We screened 34 tropical seaweed species collected from Indonesian coastal areas for their neurite-outgrowth-promoting activity (NOPA) in fetal rat hippocampal neurons in vitro. Based on the number and total length of primary neurites, red seaweeds had greater NOPA than green and brown seaweeds. The red seaweed <i>Kappaphycus alvarezii</i> showed the highest NOPA. Addition of the ethanol extract to the culture (1 μ g mL ⁻¹) significantly accelerated initial neuronal maturation from stage I to stage II (70 %; P < 0.05) within 24 h and increased the number of neurites that developed multipolar characteristics (48 %; P < 0.05). These results indicate that the aquaculturable carrageenan producer <i>K. alvarezii</i> might be a promising source of neurotrophic compounds to enhance memory and learning.
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