

The tropical carrageenophyte *Kappaphycus alvarezii* extract promotes axodendritic maturation of hippocampal neurons in primary culture

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<b>Abstract</b>	<p>Neurotrophic factors are essential to support neuronal development and to protect mature neurons from atrophy in neurodegenerative disorders. To investigate effects of the carrageenan-producing seaweed, <i>Kappaphycus alvarezii</i>, on the development and complexity of neuronal cytoarchitecture, ethanol extract of the seaweed was added to primary cultures of fetal rat hippocampal neurons. The neuronal morphology was observed under phase-contrast microscope and analyzed using ImageJ software. With an optimal concentration of 1 <math>\mu</math>g mL<sup>-1</sup>, the extract significantly increased axonal length, number of secondary axonal collateral branches, length of primary dendrites, and number of secondary dendritic branches by 58%, eightfold, 68%, and 2.6-fold, compared with control (<math>p &lt; 0.05</math>). In Sholl's analysis, the extract also significantly increased numbers of axodendritic intersections, branching points, and branching tips. It is assumed that several kinds of lipophilic compounds provide the neurotrophic activities to enhance neurites in a robust form. Thus, the <i>K. alvarezii</i> may be useful as a diet supplement or pharmaceuticals for people who are prone to neurological disorders.</p>
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