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Studies on the Pharmacological Activities of Jeju Marine Plants

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Much use has been made of marine plants and animals for food but, probably because of their inaccessibility, serious consideration of these organisms as sources of biologically active compound has been confined to the last 40 years. Marine macroalgae, or seaweeds as they are more generally known, have been used as crude drugs in the treatment of iodine deficiency states, such as goiter, Basedow's disease and hypothyroidism. Some seaweeds have been utilized as sources of additional vitamins and in the treatment of anaemia during pregnancy. They have also been taken for the treatment of various intestinal disorders, as vermifuges, and as hypocholesterolemic and hypoglycemic agents. Numerous novel compounds have been isolated from marine organisms and many of these substances have been demonstrated to possess interesting biological activities.

Jeju island is the biggest in korea and there are many marine plants and animals under the sea. We investigated the anti-inflammatory activities of Jeju seaweeds through the evaluation of their inhibitory effects on the production of inflammatory markers (TNF-alpha, IL-6, IL-1 beta, iNOS, and COXII) in macrophage cell line RAW264.7. Among the crude extracts obtained from 50 seaweeds, *Gracilaria verrucosa* inhibited the production of TNF-alpha and IL-6 in LPS-stimulated RAW264.7 cells. From the sequential solvent fractionation of crude extract, EtOH fraction showed potential inhibitory activity on the inflammatory markers.

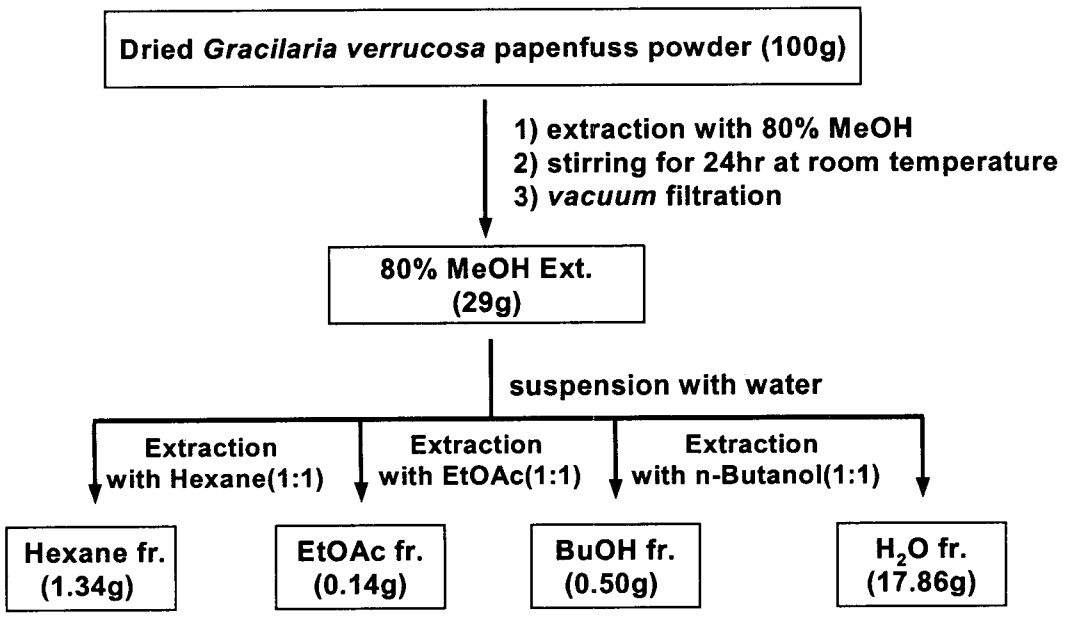

Fig. 1. Systematic purification using solvent partitioning from *Gracilaria verrucosa papenfuss*.

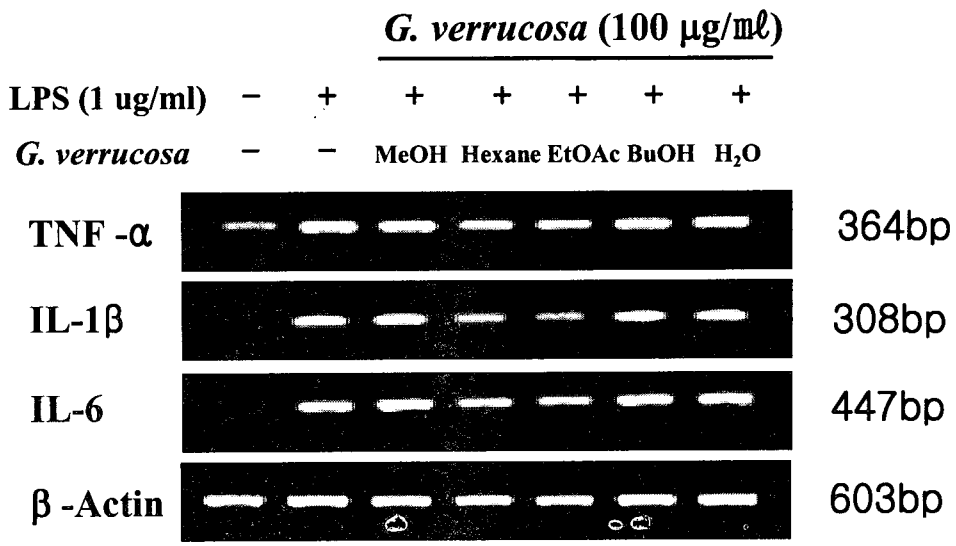

Fig. 2. Inhibitory effects of solvent fractions of G. verrucosa on the mRNA expression of proinflammatory cytokine in RAW 264.7 cells.
RAW 264.7 macrophages (1.5×10^6 cells/mL) were pre-incubated for 18 hr, and the mRNA expression were determined after 6 hr stimulation with LPS (1 μg/mL) in the presence of testing samples (100 μg/mL).

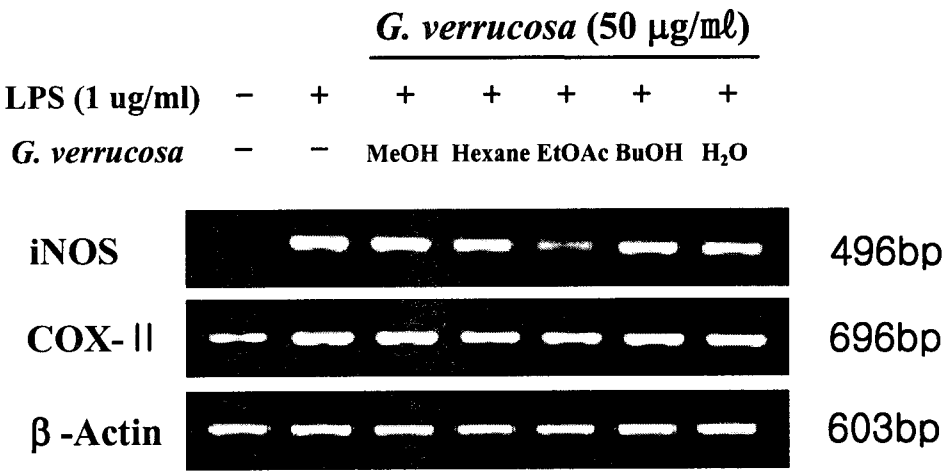

Fig. 3. Inhibitory effects of solvent fractions of G. verrucosa on the mRNA expression of iNOS and COX-Ⅱ in RAW 264.7 cells.
RAW 264.7 macrophages (1.0×10^6 cells/mL) were pre-incubated for 18 hr, and the mRNA expression were determined after 24 hr stimulation with LPS (1 μg/mL) in the presence of testing samples (50 μg/mL).