Soradakorn Phimla 2009: Variations in Phenology and Biomass of the Green Seaweed *Caulerpa racemosa* (Forsskål) J. Agardh var. *macrophysa* (Sonder ex Kützing) Taylor Occurs on the Coast of Chon Buri and Rayong Provinces and Antimicrobial Activity of Extracted Polysaccharides. Master of Science (Fisheries Science), Major Field: Fisheries Science, Department of Fishery Biology. Thesis Advisor: Associate Professor Anong Chirapart, Ph.D. 140 pages.

Phenology and biomass of *Caulerpa racemosa* (Forsskål) J.Agardh var. *macrophysa* (Sonder ex Kützing) Taylor were observed at coral reef area along Haad Samaesan, Ampho Sattahip in Chon Buri province (Samaesan) and from abandoned cement tanks on the shorefront of the Easthern Marine Fisheries Research and Development Center (EMDEC), Phe district in Rayong province (Ban Phe). The specimens were collected in a quadrat of 25×25 cm^2 in area (20 replication) placed randomly along transect lines. The sample of alga and seawater were collected monthly from July 2005 to June 2006. This study thallus of plant from the Samaesan site was wide spreading with long and coarse branching stolon similar to Ban Phe specimens, which had slightly branch with long thin stolon. The phenological characters of the Samaesan and Ban Phe plants were varied depending on period and environmental factors, but not for the length of frond interval ($p<0.05$). At the Samaesan site fertile plant was found when the alga biomass reached to a maximum value in April 2006 (185.25±55.03 g dry wt m^{-2}) and dissolved inorganic nitrogen was highest. The biomass was declined and gave a minimum value in July 2005 (57.49±39.96 g dry wt m^{-2}). In contrast, biomass at the Ban Phe site reached to a maximum value in July 2005 (119.78±71.75 g dry wt m^{-2}), and decreased to a minimum value in September 2005 (76.91±47.16 g dry wt m^{-2})

In this study the collected alga was also used for extraction of the polysaccharide. Yield and chemical compositions (total carbohydrate and sulfate content) in the crude extracts were determined. Yield and chemical compositions of the crude extracted polysaccharide of the Samaesan and the Ban Phe algae was slightly varied which depend on season ($p>0.05$). Yield, total carbohydrate and sulfate content in the Samaesan crude extract were varied of 0.66±0.08 to 0.87±0.09, 30.27±0.02 to 35.94±0.58 and 7.92±0.01 to 8.03±0.06 %, respectively. While those of the Ban Phe samples ranged from 0.56±0.05 to 0.61±0.05, 31.87±1.23 to 37.31±1.12 and 7.66±0.04 to 7.68±0.00 %, respectively. Sulfate content of the crude extracted from the Samaesan alga was significant higher than that of Ban Phe ($p<0.05$). This study antimicrobial activity of the crude polysaccharide was assayed against one species of gram-positive and six species of gram-negative bacteria, one species of fungi and one species of yeast. The result showed that the extract was able to inhibit growth of *Bacillus subtilis* and the yeast *Candida albicans* at concentration of 0.64 mg/ml.

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