Attachai Kantachumpoo 2008: Components and Antimicrobial of Polysaccharide Extracted from some Species of Brown Seaweeds. Master of Science (Fisheries Science), Major Field: Fisheries Science, Department of Fishery Biology. Thesis Advisor: Associate Professor Anong Chirapart, Ph.D. 84 pages.

Seven species of brown marine algae, *Colpomenia sinuosa* (CS), *Hydroclathrus clathratus* (HC), *Dictyota dichotoma* (DD), *Padina australis* (PA), *Padina minor* (PM), *Sargassum polycystum* (SP) and *Turbinaria conoides* (TC), were gathered from Chonburi (01), Chumporn (02) and Rayong (03) provinces. Crude polysaccharides of the dried seaweeds were extracted by boiling in hot water at 100 °C (E1) and in HCl 2 mol/L at 75 °C (E2). Yield, total carbohydrate, sulfate content, and sugar components of the E1 and E2 extracts were determined. The crude polysaccharides extracted with E1 had a maximum yield of 1.97 ± 1.15% (w/w) obtained from the sample of SP03. The E1 extracts had rather high content of carbohydrate of 55.95 ± 0.72% and 51.94 ± 0.08% that obtained from the PM02 and PA03 plants, respectively. The maximum sulfate content was 18.10 ± 0.25% (w/w) obtained from HC01 plant. In contrast, the E2 extraction gave a maximum yield of 19.69 ± 0.23% (w/w) in the sample of HC01 while total carbohydrate was the highest in the PM02 species (44.41 ± 0.94% w/w). Highly sulfate contents were obtained from the E2 extracts of 14.22 ± 0.69% in plant of CS01 and 13.82 ± 0.18% in plant of HC01. The contents of carbohydrate and sulfate in the crude extracts were varied depend on the extraction method and algal species.

In this study, the techniques TLC and HPLC were used for analysis of sugar composition of the E1 and E2 crude extracts using glucose, fructose, fucose, galactose and mannose as standard. The results showed fucose as a main component in all extracts which the highest value of 12.35% obtained from the species of HC01. Beside, mannose was observed in the samples of CS01, PA03, PM02, SP01 and SP03, but not in the DD02, HC01, PA01 PA02 and TC02. However, each sugar rather low amounts were detected in all algal species. Both the E1 and E2 crude extracts were assayed for antimicrobial activity as well. Two species of gram positive and five species of gram negative bacteria, one species of fungi and one species of yeast, were used as references. The assay at concentration of 2 mg/ml showed the crude extract of SP01 species that only had the activity against *Candida albicans* (E1 = 0.122 ± 0.004 mm, E2 = 0.123 ± 0.003 mm) as well as the E2 of CS01 (0.156 ± 0.035 mm). In contrary, most of the E1 and E2 extracts had not only inactivity against the tested microbial but also they caused the microbial growth particularly in the extracts that had mannose.

_____ _____ ___ / ___ / ____

Student's signature Thesis Advisor's signature