Santi Saraphol 2012: Diversity and Distribution of Algae in Khlong Kamphuan, Kamphuan Subdistrict, Suk Samran District, Ranong Province. Master of Science (Botany), Major Field: Botany, Department of Botany. Thesis Advisor: Miss Nuttha Sanevas, Ph.D. 256 pages.

Diversity, abundance and distribution of algae, including the water and biomass assessments in Khlong Kamphuan, Kamphuan subdistrict, Suk Samran district, Ranong province were studied bimonthly at 10 sampling points from October 2008 to August 2009. The physical and chemical factors of water were determined at all sampling points. The planktonic algae were collected from water surface for 3 liters which were filled through a plankton net (21 μm mesh size) into the 300 milliliters plastic bottle. The benthos algae were carried out from the stones and the bottom of water.

The results showed that the transparency of water in Khlong Kamphuan was very clear along the canal which had an average water depth about 29.47±15.32 cm. The average of the water temperature, pH, dissolved oxygen (DO), total dissolved solids (TDS), salinity, electrical conductivity, NO_3^--N, NH_3-N and PO_4^{3-}-P was 29.61±3.01 °C, 6.36±0.52, 8.08±0.78 mg/l, 0.322±1.968 ppt, 0.270±1.600 ppt, 0.443±2.583 mS/cm, 0.175±0.071 mg/l, 0.057±0.088 mg/l and 1.010±0.765 μg/l, respectively. Biomass of algae as chlorophyll a contents was 0.075±0.045 μg/l. Five divisions and 41 genera of algae were identified from the water samples. They were Chlorophyta (21 genera), Bacillariophyta (15 genera), Cyanophyta (3 genera), Charophyta (1 genus) and Euglenophyta (1 genus). The cell abundance of algae varied from 17,319 unit/l in April to 1,363 unit/l in September with an annual average of 9,917 unit/l. The algae were more abundance during the summer than those of the other seasons. The large community was Bacillariophyta that its average abundance was 7,092 unit/l and followed by Chlorophyta, Cyanophyta and Euglenophyta which was 2,689, 105 and 31 unit/l, respectively. The genus *Cymbella*, *Navicula* and *Staurastrum* were the dominated algae in the study area. The diversity index, richness index, equitability index and similarity index of algae was 2.48, 4.35, 0.68 and 35.41, respectively. The algae in Khlong Kamphuan were classified to 3 groups by the cluster analysis and MDS method which found to relate to all water factors analyzed by Pearson's correlation coefficient and PCA analysis. Moreover, the water quality in Khlong Kamphuan was classified to be in the oligo-mesotrophic status (clean-moderate) by using AARL-PC score and AARL-PP score.

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