

Sineenart Akhosuwan 2007: Effect of Processing and Storage Temperature on C-Phycocyanin and Antioxidant Capacity of Spirulina Extract (*Spirulina platensis*). Master of Science (Food Science), Major Field: Food Science, Department of Food Science and Technology. Thesis Advisor: Ms. Sasitorn Chantanawarangoon, Ph.D. 103 pages.

In this study, pigments (β -carotene, chlorophyll and C-Phycocyanin) and protein contents in *Spirulina platensis* processed using different drying methods were investigated. Antioxidant capacity of samples was also evaluated using total phenols assay, 2,2-Diphenyl-1-picrylhydrazyl (DPPH) and 2,2'-azobis (3-ethylbenzthiazoline-6-sulfonic acid) diammonium salt (ABTS) radical scavenging capacity and Oxygen Radical Absorbance Capacity (ORAC) assay. Results showed that the drying affected pigments, protein and antioxidant capacity. Spray-dried sample had highest content of pigments, protein and antioxidant capacity followed by freeze-dried, tray-dried 1 and tray-dried 2 samples, respectively. There was a good correlation between pigments and antioxidant capacity in the *Spirulina* samples ranging from 0.72-0.99. Moreover, The results showed that different antioxidant capacity were correlation with correlation coefficients ranging from 0.67-0.98. In addition, kinetics of C-Phycocyanin and antioxidant capacity was also evaluated at 4 °C, room temperature and 60 °C. The degradation of C-Phycocyanin and antioxidant capacity followed the first-order kinetic model. According to degradation rate constant (k), spray-dried sample was the most stable sample at all storage temperatures in this study.

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