



CHAPTER V

SUMMARY

The results of the present investigation can be summarized as follows :

1. Of the total 100 water samples collected , 20 samples were observed to contain Spirulina. Only 2 samples from Makkasan pond and Wat Benjamaborpit pond could be isolated. These 2 samples together with the sample donated by the National Inland Fisheries Institute could be purified as unialgal culture by the Single Cell Isolation technique.

2. The optimum conditions for 3 strains of Spirulina to produce high yield of phycocyanin were prepared by adjusting the components of Zarrouk medium to contain 8.6 g/l NaHCO_3 , 2.5 g/l NaNO_3 , 0.185 g/l K_2HPO_4 and 1 g/l NaCl . When spirulina (BP), Spirulina

(NIFI) and Spirulina (MP) were grown under optimized conditions with light intensity of 4,000 lux, the highest phycocyanin contents for all 3 strains were approximately the same, accounting for about 290 mg/g dry weight.

3. The optimum light intensity to produce high yield of phycocyanin were found to be 5,000 lux in Spirulina (BP) and Spirulina (NIFI) and 6,500 lux in Spirulina (MP). The quality of light also had the effect on phycocyanin content in that both red and green light stimulated higher phycocyanin production than white light.

4. A sudden change of the level of NaNO_3 in the medium from 2.5 g/l to 10 g/l seemed to increase the phycocyanin content.

5. Partial purification of phycocyanin was accomplished by 2 successive runs on DEAE-cellulose column and finally on Sephadex G-150 column. The results indicated the coexistence of another blue pigment, allophycocyanin, with phycocyanin. The subunit molecular weight of phycocyanin by SDS-PAGE for Spirulina (BP), Spirulina (NIFI) and Spirulina (MP) were 14,000, 13,000 and 13,000 respectively.