CHAPTER V

CONCLUSION

The present study using *Synechocystis* sp. PCC 6803 has revealed the following findings:

1. ATG rather than GTG should be the start codon of *sll0337* histidine kinase.
2. Positively charged residue at position 214 inactivates Sll0337.
3. Asp-88 is the phosphorylation site of the Slr0081 response regulator.
4. Endogenous acetyl phosphate cannot phosphorylate Slr0081.
5. Exogenous acetyl phosphate can provide a source of phosphate to produce energy for the cells even though acetate kinase and phosphotransacetylase are absent.
6. Acetate kinase and phosphotransacetylase mRNA levels are up-regulated under phosphate-limiting condition.
7. Acetate kinase can be partially purified by 30% ammonium sulfate and phenyl-Sepharose column chromatography with a specific activity of 2.486 unit/mg protein.
8. The subunit molecular weight determined by SDS-polyacrylamide gel electrophoresis was 48 kDa.
9. The apparent K_m for acetate and ATP are 20 mM and 0.7 mM, respectiviely.
10. Acetate kinase showed optimum activity at 40°C with a broad pH range.
11. Acetate kinase has an optimal Mg^{2+}/ATP ratio of 1:1.
12. Acetate kinase is specific toward the substrate acetate and ATP.