CHAPTER 6

CONCLUSION

From this study, five morphological patterns of 36 *Spirogyra* populations from each locality were found. In accordant with the DNA markers investigations, 10 ISSR and 5 HAT-RAPD primers were used to generate the difference polymorphic DNA profiles in all 36 tested *Spirogyra*. Both of PCR techniques were amplified 111 and 69 fragments, respectively. The analyses of the DNA fragments can be grouped 36 *Spirogyra* samples by ISRR-PCR and HAT-RAPD PCR which are separated were divided into five groups. Regard the sequences of 5 morphological Patterns of *rbcL* gene was analyzed by BLAST program. The sequences data of Pattern 1 and Pattern 3 indicated definitive identity matches with *S. ellipsospora* (99%) and *S. neglecta* (93%), respectively. While, indicated definitive identity matches in the range only 93% with *S. neglecta*. The DNA sequences of the ITS 2 region of five Patterns of *Spirogyra* are close to the *Chlorella* with only 89-96%.

In term of the phylogenetic analysis, both *rbcL* and ITS 2 sequences can determine the relation of each morphological pattern used by yielding similar results. Five distinct clusters were defined according to their morphological characteristic appetence. So, the *rbcL* and ITS 2 sequences, allowing discrimination with in *Spirogyra* species, can be performed with in 2 hr for PCR. The results of this study support the recommendation to use *rbcL* and ITS 2 sequences for routine discrimination of *Spirogyra* species.

In conclusion, this work is attempted to introduce multi-vision aspects regarding *Spirogyra* such as, taxonomic status, geographic distribution, DNA markers, and phylogenetic relationships for understanding of biology and systematic. Hence, the authors expect that the results of this study will help to stimulate the undertaken of the further comparative studies, employing larger sampling schemes and involving more comprehensive evaluation of *Spirogyra*.

The authors expect that the results of this study will help to stimulate the undertaken of the further comparative studies, employing larger sampling schemes and involving more comprehensive evaluation of various species of *Spirogyra* sp. in natural environment .