Chapter 5
Conclusion

In Conclusion the following points are highlighted:

- Various tea cultivars available in North Bengal region were collected and maintained.
- Genomic DNA isolation from fresh & tender leaf samples of various cultivars was done.
- Detection of genetic variability and the Phylogenetic relationship among the tea cultivars were established using various PCR based fingerprinting methods like Random Amplified Polymorphic DNA (RAPD), Restriction Fragment Length Polymorphism (RFLP) and Microsatellite markers.
- Sequencing was done for ten cultivars of tea chosen on the basis of PCR-RFLP method revealing maximum polymorphism.
- Induction of somatic embryos and regeneration of whole plantlet from cotyledon and embryogenic callus of tea was done.
- Histological studies of embryogenic stages of tea was done.
- Different gene transfer methods like *Agrobacterium* mediated transformation and Particle bombardment using gene gun were standardized for transformation of tea.
- Induction and multiplication of callus tissue from the genetically transformed explants was achieved on the antibiotic selective medium.
- Differentiation was done of genetically transformed tissue by subjecting it various hormone combination &concentrations.
- Confirmation for the integration of transgene into tea nuclear genome using GUS assay and by PCR analysis using *nptII* specific primer was done successfully.