Summary and Conclusion
7. SUMMARY AND CONCLUSION

1. Goruguntepalya strain (GRP), Bangalore of An. stephensi one of the 31 strain maintaining in our Insectary has been used to conduct genetic and biochemical studies for the insecticides DDT, Chloropyrifos, Carbofuran and Cyfluthrin.

2. The homozygous resistant and susceptible strains were established by the process of selective inbreeding for the insecticides DDT, Chloropyrifos, Carbofuran and Cyfluthrin using diagnostic concentrations of 3.0 ppm, 0.2 ppm, 0.5 ppm and 0.005 ppm respectively.

3. Genetic crosses were made for the said insecticide resistant and susceptible strains. The genetic basis of DDT, Chloropyrifos, Carbofuran and Cyfluthrin resistance has been established based on the dosage – mortality of the progeny of different crosses. The data of the genetic crosses clearly showed the gene $ddr$ is intermediate, genes $cpr$, $cbr$ and $cfi$ are incompletely dominant. However, the degree of dominance 'D' value varied among the $cpr$, $cbr$ and $cfi$ genes, the gene $cbr$ showed highest 'D' value with a tendency towards dominance.

4. Biochemical studies revealed an increase in the total and soluble proteins in the resistant strains. Electrophoretic studies showed marked variation in the number, mobility and intensity of bands between the susceptible and
insecticide resistant and susceptible strains with a poor expression among the resistant strains.

9. Increased activity of Glucos-6-phosphate dehydrogenase (G6pdh) was observed in resistant strains. A single band was observed both in resistant and susceptible strains during the developmental stages with varied relative mobility.

10. Increased activity of Xanthine dehydrogenase (Xdh) was observed in resistant strains. A single band was observed both in resistant and susceptible strains during the developmental stages with varied relative mobility.

11. Effect of sublethal dose of 0.1 and 0.25 ppm of DDT; 0.01 and 0.025 ppm of Chloropyrifos; 0.025 and 0.05 ppm of Carbofuran; 0.0001 and 0.00025 ppm of Cyfluthrin have been used to study the effect on different parameters like fecundity, egg hatchability and sex-ratio for GRP strain. The insecticide resistant strains for the above mentioned insecticides have also been used to know the effect on the said parameters.

12. The insecticides Cyfluthrin, Chloropyrifos and DDT were found to highly effective on the fecundity, egg hatchability and sex-ratio of *An. stephensi*. Decline in the fecundity and reduced hatchability were observed in the above said insecticide treated strains when compare to the control.