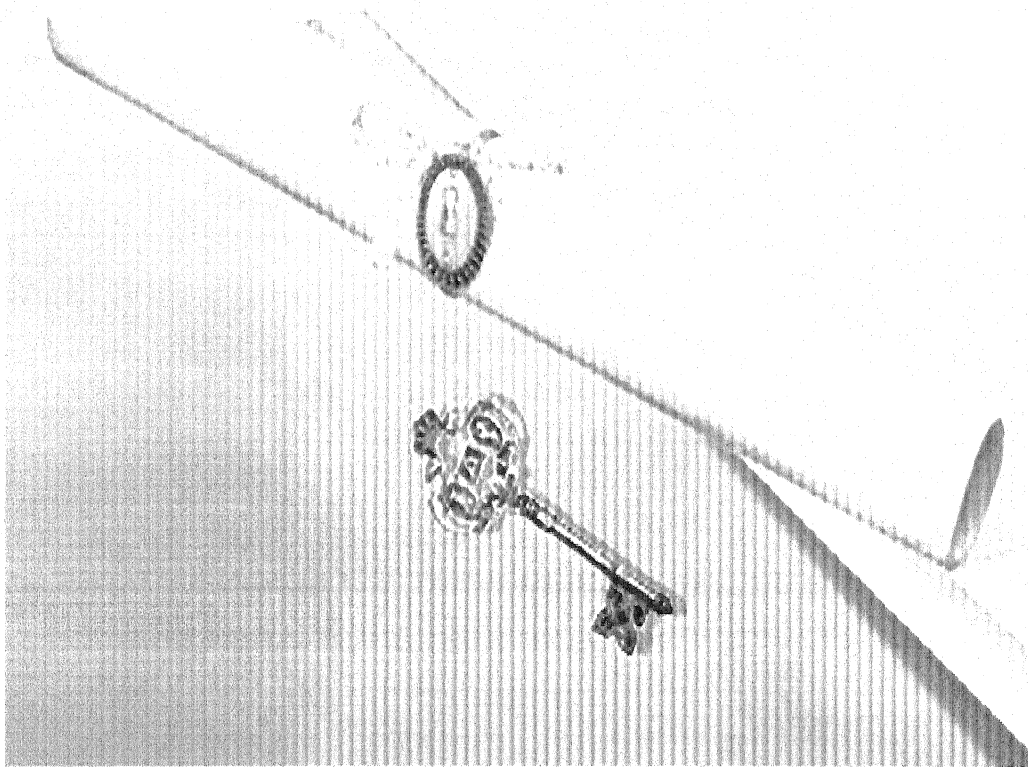


CHAPTER – 5



Summary and Conclusion

SUMMARY

The conclusion of this study indicated that there was substantial genetic variation and polymorphism across the loci studied in the goat breeds and the population was neither in Hardy-Weinberg equilibrium nor in mutation drift equilibrium under two phase and single step mutation models. The population appears to be divided into significantly differentiated small subpopulations, which resulted in mating among close relatives leading to a high level of inbreeding observed in this study especially in Jamunapari. This could be due to small flock sizes in each unit in village conditions. Thus crossing with other overlapping population of goats in breeding region cannot be ruled out. Appropriate breeding strategies should therefore be designed under field conditions for conservation and improvement of these goat breeds having unique attributes. Bottleneck expected and speculated in all the four breeds was found to be absent.

The present study revealed that microsatellites analysis can be used to classify Indian goat populations into distinct genetic groups or breeds, substantial genetic differentiation between Jamunapari, Malabari, Osmanabadi and Sangamneri goat breeds that are in consonance with their phenotypic well as their geographical distribution. Phylogenetic and principal component analysis showed the clustering of goats according to their geographical origin, inspite of overlapping breeding regions of Osmanabadi and Sangamneri and they are spread over all the parts of the country, they still maintain genetic distinctness in their natural habitat; it would be prudent to manage the different populations individually to preserve their genetic uniqueness. The result also revalidates the heterologous microsatellite markers' effectiveness in analyzing close population/breeds.

The data generated in microsatellite diversity study could be utilized for studies on differentiation and relationship among other Indian goat breeds. The present study reveals that these goat breeds has substantial genetic variation and genetic potential but there is fairly high degree of inbreeding. The past population dynamics provided by bottleneck analysis may be used as an input in formulation of conservation policy. It becomes more pertinent especially in a country like India where breed wise census is not available. This is the high time but still safe enough to strengthen the conservation programme. In conservation prioritization it was important to know the these breeds/population's genetically uniqueness and they can differentiated to become OTU (Operational Taxonomic Units), because study clearly pinpointed the need for suitable genetic management so as to retain the founder alleles to the extent possible in the population and retain these for verge to genetic endangerment.