CHAPTER V

Summary and Conclusions

The parasites responsible for human filariasis in India are *W. bancrofti* and *B. malayi*. The non availability of human filarial parasites necessitates the use of animal filarial worms for biochemical and immunological studies. The model used for work reported in this thesis is *S. digitata*, a cattle filarial parasite.

The thesis consists of two parts. The first part (Chapter III) is a clinical study on human filariasis. Section A is a study on enzymes - mainly the assay of clinically important enzymes like LDH, MDH, SGOT, SGPT and alkaline phosphatase in mf-positive and control human sera. Section B deals with the development of a biochemical method for the detection of filariasis, followed by Section C on haematological study.

The major findings are;

1. The action of heat on LDH isoenzymes carried out at 60°C for 40 minutes using mf-positive sera and control sera showed that mf-positive cases retained more activity than controls under identical conditions. When 40-90% of the activity is retained in mf-positive cases, under
similar conditions only 20-40% of the activity is retained in control cases. The mf-positive samples behaved more or less like cases of myocardial infarction.

2. The A and AB blood groups are more susceptible to filariasis.

3. There is no correlation between the peripheral eosinophil level and mf-positivity.

The second part (Chapter IV) is a study with S. digitata, the cattle filarial parasite used due to the non availability of W. bancrofti adult worm. In this Chapter, Section A deals with the purification and characterization of LDH from S. digitata. Section B is an antigenic study with S. digitata. The development of a laboratory model in the study of filariasis is given in Section C.

The major findings are:

1. The amniotic fluid and the covering of the egg of S. digitata are antigenic and the ES materials of biological importance released into the incubation medium can be nothing but the material contained in the hatching fluid escaping with the release of mf.

2. The LDH isoenzymes of S. digitata have a molecular weight almost equal to the human and rat LDH.
3. The action of heat on the LDH isoenzymes showed that the LDH of *S. digitata* is stable at 60°C for more than one hour and thus resembles the heart type isoenzyme.

4. The Km value for *S. digitata* LDH is 2.7 mM which is almost the same as that of the Km of *S. cervi* LDH which is reported to be 2.2 mM.

5. The action of DEC from 5 mM to 30 mM concentration has no inhibitory action on the LDH of *S. digitata*, quite contradictory to the previous report that DEC at 15 mM concentration inhibited 76% of the LDH activity in *S. cervi*.

6. The peritoneal cavity of rat (Sprague dawley strain) is a good environment for placing the *S. digitata* mf for the study of filariasis.