Chapter-7

CONCLUSION

Based on the results of this study, the following conclusions could be made:

- Of 495 samples collected from different sources, 76 (15.35 %) were found to be positive for *Salmonella* belonging to 10 different serovars.

- Isolation rate of *Salmonella* was highest from poultry (21.36%) and *Salmonella* Weltevreden was found to be the most predominant serotype, irrespective of the host species.

- A multiplex PCR assay was developed which could simultaneously detect seven major virulence genes (*inv*A, *inv*H, *stn*, *sop*B, *sop*E, *sef*C and *pef*A) of *Salmonella*.

- The *invH* gene of *S.* Typhimurium MTCC 98 could be amplified using specific primers designed in the present study.

- Amplified *invH* gene of *S.* Typhimurium MTCC 98 could be cloned successfully using pET303 expression vector and introduction into *E. coli* BL21 (DE3) as a suitable host for expression of the *invH* gene.

- Sequencing of *invH* gene could be successfully accomplished.

- Optimum condition for *invH* production by genetically engineered *E. coli* was achieved by the induction of the cell culture with 1mM IPTG for 3 hours at 37°C.

- Recombinant InvH protein could be purified successfully from expressed *E. coli* culture with Ni-NTA affinity chromatography column using batch purification of 6X His-tagged proteins under denaturing conditions.

- The recombinant InvH protein has good immunogenic properties as observed after inoculation into mice and subsequent assessment of antiobody titre by indirect ELISA.

- The immunized mice were completely (100%) protected against challenge with $10^{7.5}$ LD_{50} of homologous *Salmonella* serovar, while protection against challenge with the same dose of heterologous serovars was 95 per cent.