5. Conclusion

In the present study, a total of 130 samples were collected from major cities in Tamil Nadu from which 87 *Salmonella* strains were isolated and 13 isolates were identified as multiple drug resistant (MDR) *Salmonella* which was confirmed by antibiotic sensitivity pattern.

MDR *Salmonella* was further incorrigible by varies biochemical tests and concluded the species as *typhi* (*S. typhi*). Multidrug resistant strains were subjected to multidrug treatment which showed a prominent susceptibility to all combinations of antibiotics. A prominent zone of inhibition was recorded with ofloaxacin, ampicillin, co-trimaxazole and gentamicin and lowest was recorded with amoxicillin, tetracycline and nalidixic acid.

Plasmid DNA was isolated from 13 isolates of MDR *S. typhi* which revealed single band was observed. The results showed that there was a similarity in plasmid DNA banding pattern.

The nuclear protein was extracted from the selected isolates and concentrations of the extracted proteins were also estimated to be 0.4μg/μl. Total
nuclear protein pattern was found with several bands from the ranges of 10-116 KDa. From this PhoP/PhoQ protein was found between the ranges of 25-60 KDa.

To confirm the DNA binding ability of PhoP/PhoQ protein isolated from the MDR *S. typhi*, it was treated with different concentration of DEPC. When the DNA complexed with PhoP/PhoQ protein, migrated slowly rather than the free DNA. The maximum shift in the DNA mobility was observed at 3.0 µl of DNA binding protein. The PhoP/PhoQ DNA binding proteins were modified with DEPC and it was subjected to GMSA. Histidine present in the PhoP/PhoQ DNA binding proteins were modified when exposed with DEPC. At 0.5 mM concentration of DEPC, there was no modification in the histidine, because the PhoP/PhoQ protein interacts with the DNA and results in the mobility shift. The minimum concentration of DEPC required to modify the Histidines present in PhoP/PhoQ DNA binding proteins were found to be 1mM.

Wild type DNA and protein sequence of *S. typhi* was retrieved and recombinant phoP/Q proteins with augmented basic nature were constructed. Altered Pho *p/q* gene sequence was transferred to MDR *S. typhi* and blue white colony was observed on the surface of the plate. The transformed colony was visible in blue colour and the non-transformant was in the white colour colony.