VI. SUMMARY

The prevalence of *Salmonella* in seafood samples collected from the southwest coast of India was studied by conventional culture and by a DNA based molecular technique, polymerase chain reaction (PCR). While conventional culture techniques detected *Salmonella* in only 20 out of the 100 samples analyzed, direct enrichment lysate PCR detected 52 as positive for *Salmonella*. A set of three different PCR primers viz., *hns*, *invA* and *invE* were used. It was observed that *hns* primer detected *Salmonella* in a significantly higher number of samples. Fourteen out of nineteen isolates belonged to serovar *S. enterica* Weltevreden. *S. Weltevreden* isolates were genotyped yielding 4 different patterns both by RAPD and ERIC-PCR but when combined, the overall results discriminated the isolates of *S. Weltevreden* into 6 different types. This suggests that genetically diverse *Salmonella* Weltevreden are prevalent in seafood.

The intracellular survival of *Salmonella enterica* serovar Virchow, *S. Bareilly*, *S. Weltevreden*, *S. Newport*, *S. Typhi* and *S. Paratyphi* were studied using the murine macrophage cell line J774.A1. In case of *S. Bareilly*, *S. Weltevreden* and *S. Newport* survival up to 72 hours was observed and was related to macrophage viability. In case of *S. Virchow*, the bacterial counts became undetectable in 24 hours, though macrophages remained viable up to 72 hours. The human adapted serovars *S. Typhi* and *S. Paratyphi* was found to survive much longer even though macrophage viability came to nil by 48 hours. In the case of nontyphoidal serovars of *S. enterica* the loss of viability in macrophages was accompanied by bacterial cell death.

The seafood isolates had a very low frequency of resistance. The phenotypic expression of resistance in antibiogram was always accompanied by the presence of the corresponding gene encoding for the particular resistance determinant. The observation of class I integrons for the very first time in *S. Paratyphi* C and *S. Weltevreden* indicates that the aquatic medium of these seafood isolates may promote dissemination of antibiotic resistance in future.