The discussion in the previous chapter shows that much of the work has been done on rhizobia from various regions and on various aspects of plant rhizobium association. These studies include studies on rhizobia of cultivated leguminous plants as well as on the rhizobia of wild leguminous plants. One of the significant studies is the stresses imposed by extreme environments on the survival and growth of rhizobia as well as on symbiotic nitrogen fixation.

There are studies on the adverse effects of salinity on agriculture. There are also studies on the reclamation of salt affected soils. Unfortunately most of the ways of reclamation include physico-chemical approaches, which can be very expensive. However, the biological systems of reclamation which can be convenient and comparatively in-expensive may be used as an alternative. Such biological systems to full fill the aim of reclaiming saline soils may be salt tolerant systems of legume-rhizobial association. If bacteria are non-tolerant to salt then the presence of higher amount of salt is a stress condition and for salt tolerant bacteria the same condition may not be equally stress full. Salt tolerant rhizobial strains of corresponding plants may prove effective in symbiotic nitrogen fixation compared to other rhizobial strains of the same plants. There are studies on active symbiotic association by salt tolerant rhizobia on corresponding plants. Tejera et al. (2004) found that common bean plants inoculated with salt tolerant *Rhizobium tropici* wild type strain CIAT899 developed a more active symbiotic association than did its decreased salt-tolerant (DST) mutant derivatives (HBB, HB10, HB12 and HB13). These observations indicate that salt tolerant rhizobia can establish active symbiotic association with their corresponding plant. There are studies on salt tolerant legumes, and salt tolerant rhizobia as well.

Extent of saline soils is increasing day by day. This is definitely a serious problem with respect to its use in agricultural productivity. As a part of local problem it needs to perform studies on screening salt tolerant
rhizobia from saline soils of Krishna river basin. Hence, in current study, screening and studies on salt tolerant rhizobia from saline soils of Krishna river basin nodulating cultivated pulse legumes was undertaken.

As a principle of natural selection saline soils can be the best sources for salt tolerant rhizobia. It can be then possible by using trap hosts in the laboratory, as well as nodulated pulse leguminous plants from the saline itself, to screen the salt tolerant rhizobia and to study them.

In this context, saline soils in the southern regions in Satara district and northern regions in Sangli district from Krishna river basin in Maharashtra were selected.

Soil samples and nodulated pulse legumes from these regions were collected and subjected to the following studies.

1. Electrical conductivities and pH values of the soil samples.

2. Nodulation status of the native pulse legumes from the saline soils.

3. Screening of the salt tolerant rhizobia from the saline soil samples.

4. Morphological, cultural, biochemical and physiological characteristics of these salt tolerant rhizobia.

5. Symbiotic studies including cross inoculation and symbiotic effectiveness.