CONTENTS

1. Introduction
   1. Review of literature
      I. Tissue culture studies in Tomato 6-8
      II. In vitro selection for agronomically important traits-
          Different approaches
          1. In vivo selection vs. somaclonal variations 9-13
          2. Induced mutation and selection 13-16
          3. Selection for stress tolerance
             A. Abiotic stresses 16-19
             B. Development of stress tolerance in vitro
                General features of in vitro selection for salt tolerance 19-23
             C. Physiology and biochemistry of salt stress 24-31

2. Materials and Methods
   1. General tissue culture methods 32-39
   2. In vitro selection for NaCl tolerance 39-42
   3. Physiological and Biochemical experiments 42-56

3. Results
   I. General tissue culture programmes
      1. Explant sterilization 57
      2. Indirect adventitious organogenesis 57-73
      3. Direct regeneration 73-78
      4. Shoot tip/nodal segment culture 78-81
      5. Anther culture 81-83
      6. Rooting, hardening and planting out 83-84
   II. In vitro selection for NaCl tolerance
      1. Exp.I-Selection for callus lines tolerant to NaCl 85-94
      2. Exp.II-Selection of Gamma irradiated callus for
         NaCl tolerance 95-104
      3. Exp.III&IV- Selection of chemical mutagen treated
         callus for NaCl tolerance 105-121

4. Discussion
   1. General tissue culture programmes 122-138
   2. In vitro selection for NaCl tolerance 138-145
   3. Biochemical analysis 145-157

5. Summary and Conclusions 158-166

6. References 167-222