## CONTENTS

1. INTRODUCTION  

2. MATERIALS AND METHODS  
   I. a. Physico-chemical parameters  
   b. Estimation of heavy metals  
   c. Multiple pesticide residue analysis  
   d. Suitability for irrigation  
   e. Water quality indices  
   II. Biological parameters  
      a. Quantitative analysis of phytoplankton  
      b. Qualitative analysis of plankton  
      c. Estimation of primary productivity  
      d. Estimation of pigments  
      e. Computation of indices  

3. RESULTS  
   I. Physico-chemical parameters  
      Inter-relationship between factors  
      Ionic balance  
      Ionic composition  
      Heavy metals  
      Pesticide residues  
      Assessment of water quality for drinking purpose
Inter-relationship between stations 51
Suitability for irrigation 51
Computation of indices 51
a) Bhargava's water quality index (WQI) 52
b) Tiwari's water quality index 53
c) Duncan's multiple range test 53
Self purification capacity 54

II. Biological Parameters
Phytoplankton—quantitative estimation 58
Qualitative estimation 86
Primary productivity 142
Pigments 144
Biological assessment 149
Saprobian classes 149
Shannon-Weiner's index 149
Margalef's index 150
Scrensen's similarity indices 151
Jaccard similarity index 153
Bacteriological quality of water 153

4. DISCUSSION
Physico-chemical parameters 155
Heavy metals 174
Pesticide residue 177
Suitability of water for irrigation 178
Water quality index 180
Duncan's multiple range test 182
Biological parameters
Distribution and Periodicity of Phytoplankton 184
Pigments 204
Primary productivity 206
Biological assessment 210
Bacteriological quality 212

5. SUMMARY 217

LITERATURE CITED 222

APPENDICES

Tables Ia - XIVb.
Table XV-Algae encountered in the study.

* * *