

Table of Contents

| Title | Page No. |
|--|-----------------|
| Abstract | i |
| Declaration | iii |
| Acknowledgement | iv |
| Table of Contents | v |
| List of tables | ix |
| List of figures | x |
| Abbreviation | xi |
| Chapter -1 Introduction | 1-11 |
| Chapter - 2 Review o Literature | 12-31 |
| Chapter - 3 Aims and Objectives | 32 |
| Chapter - 4 Materials and methods | 33-51 |
| 4.1. Study area | 33 |
| 4.2. Collection and Preservation of samples | 34 |
| 4.3. Physico-chemical characteristics of soil | 34 |
| 4.4. Physico-chemical characteristics of water | 41 |
| 4.5. Heavy metal analysis (water and sediment) | 46 |
| 4.6. Diversity of plankton in the mouth of Haldi river | 48 |
| 4.7. Data analysis | 51 |
| Chapter- 5 Results | 52-79 |
| 5.1. Physico-chemical characteristics of soil | 52 |

| | |
|--|----|
| 5.1.1. pH | 52 |
| 5.1.2. Organic carbon | 52 |
| 5.1.3. Available nitrogen | 53 |
| 5.1.4. Available phosphorous | 53 |
| 5.1.5. Available potassium | 54 |
| 5.1.6. Soil texture | 54 |
| 5.2. Physico-chemical characteristics of water | 55 |
| 5.2.1. Temperature | 56 |
| 5.2.2. pH | 56 |
| 5.2.3. Dissolved Oxygen | 56 |
| 5.2.4. BOD | 56 |
| 5.2.5. COD | 57 |
| 5.2.6. Alkalinity | 57 |
| 5.2.7. Salinity | 57 |
| 5.2.8. Nitrate | 58 |
| 5.2.9. Phosphate | 58 |
| 5.3. Heavy metals | 58 |
| 5.3.1. Trace metals in sediment samples | 59 |
| 5.3.2. Metals content in water samples | 60 |
| 5.3.3. Bioaccumulation of heavy metals in mouth of Haldi river fish tissues | 62 |

| | |
|---|---------------|
| 5.4. Diversity of phytoplankton and zooplankton in the mouth of Haldi river | 62 |
| 5.4.1. Diversity indices of plankton | 64 |
| 5.5. Diversity of fish available in the mouth of haldi river | 66 |
| 5.6 Tables | 67 |
| Chapter – 6 Discussion | 80-104 |
| 6.1. Physico-chemical characteristics of soil | 80 |
| 6.1.1. pH | 81 |
| 6.1.2. Organic carbon | 82 |
| 6.1.3. Available nitrogen | 83 |
| 6.1.4. Available phosphorous | 84 |
| 6.1.5. Available potassium | 85 |
| 6.2. Physico-chemical characteristics of water | 86 |
| 6.2.1. Temperature | 86 |
| 6.2.2. pH | 87 |
| 6.2.3. Dissolved Oxygen | 88 |
| 6.2.4. BOD | 89 |
| 6.2.5. COD | 90 |
| 6.2.6. Alkalinity | 91 |
| 6.2.7. Salinity | 92 |
| 6.2.8. Nitrate | 93 |
| 6.2.9. Phosphate | 94 |

| | |
|--|---------|
| 6.3. Heavy metals | 95 |
| 6.3.1. Trace metals in sediment samples | 95 |
| 6.3.2. Metals content in water samples | 97 |
| 6.3.3. Bioaccumulation of heavy metals in mouth of Haldi river fish tissues | 100 |
| 6.4. Diversity of phytoplankton and zooplankton in the mouth of Haldi river | 101 |
| 6.5. Diversity of fish available in the mouth of haldi river | 103 |
| Conclusion | 104-107 |
| Summary | 108-114 |
| Bibliography | 115-161 |
| Annexure I | 162-169 |