

## CONTENT

|  | PAGE NO. |
|--|----------|
| PREFACE  |          |
| ACKNOWLEDGEMENT  |          |
| 1. INTRODUCTION  |          |
| 1.1 General  | 01       |
| 1.2 Review of Medicinal Plants   | 02       |
| 1.3 Reasons that lead to undertaking of the present work                     | 03       |
| 1.4 Choice of the Plant  | 04       |
| 1.4.1 Botanical Consideration  | 04       |
| 1.4.2 Biological Properties  | 07       |
| 1.4.3 Chemical composition   | 07       |
| 1.5 Reasons for selecting <u>Picrorhiza kurroa</u> for present investigation | 08       |
| 1.6 Choice of the parameters of study  | 08       |
| 1.7 Presentation of the thesis   | 11       |
| 2. MATERIAL AND METHODS  |          |
| 2.1 Material   | 13       |
| 2.1.1 Selection of animals   | 13       |
| 2.1.2 Maintenance of rat colony  | 14       |
| 2.1.3 Plant material   | 14       |
| 2.2 Methods  | 14       |
| 2.2.1 Methods of extraction  | 14       |
| 2.2.2 Preparation and administration of dose                                 | 14       |
| 2.2.3 Dose and duration  | 15       |
| 2.2.4 Weight   | 15       |
| 2.2.5 Histology  | 16       |
| 2.2.6 Bioassay of enzymes  | 17       |

### 3 HISTOLOGY

|   |    |
|---|----|
| 3.1 Fertility Test                                | 21 |
| 3.2 Alterations in body weight                    | 22 |
| 3.3 Testis  | 23 |
| 3.3.1 Review of literature                        | 23 |
| A> chemicals                                      | 23 |
| B> Plant preparations                             | 26 |
| 3.3.2 Observations                                | 31 |
| A> Alteration in wet weight of testes             | 31 |
| B> Histological alterations                       | 34 |
| i) Control  | 34 |
| ii) Experimental                                  | 35 |
| 3.3.3 Discussion                                  | 40 |
| 3.4 Epididymis                                    | 51 |
| 3.4.1 Review of Literature                        | 51 |
| A> Chemical                                       | 52 |
| B> Plant preparations                             | 53 |
| 3.4.2 Observations                                | 56 |
| i) Alteration in wet weight of<br>Caput and Cauda | 56 |
| ii) Histological alterations                      | 58 |
| 1. Caput epididymis                               | 58 |
| A) Control  | 58 |
| B) Experimental                                   | 59 |
| 2. Cauda epididymis                               | 62 |
| A) Control  | 62 |
| B) Experimental                                   | 63 |
| 3.4.3 Discussion                                  | 66 |
| 3.5 Seminal Vesicle                               | 72 |
| 3.5.1 Review of Literature                        | 72 |
| A> Chemicals                                      | 72 |
| B> Plant preparations                             | 74 |

|   |    |
|---|----|
| 3.5.2 Observations                                | 75 |
| i) Alteration in wet weight<br>of Seminal Vesicle | 75 |
| ii) Histological alterations                      | 77 |
| A) Control  | 77 |
| B) Experimental                                   | 78 |
| 3.5.3 Discussion                                  | 80 |
| 3.6 Prostate Gland                                | 84 |
| 3.6.1 Review of Literature                        | 84 |
| A) Chemicals                                      | 84 |
| B) Plant preparations                             | 85 |
| 3.6.2 Observations                                | 87 |
| i) Alteration in wet weight<br>of Prostate        | 87 |
| ii) Histological alterations                      | 88 |
| A) Control  | 88 |
| B) Experimental                                   | 89 |
| 3.6.3 Discussion                                  | 91 |

#### 4. ENZYMOLOGY

|                            |     |
|----------------------------|-----|
| 4.1 Testis                 | 95  |
| 4.1.1 Review of Literature | 95  |
| 4.1.2 Observations         | 99  |
| A) Acid Phosphatase        | 99  |
| B) Alkaline Phosphatase    | 100 |
| 4.1.3 Discussion           | 102 |
| 4.2 Epididymis             | 106 |
| 4.2.1 Review of Literature | 106 |
| 4.2.2 Observations         | 109 |
| I) Caput                   | 109 |
| A) Acid Phosphatase        | 109 |
| B) Alkaline Phosphatase    | 110 |
| II) Cauda                  | 111 |
| A) Acid Phosphatase        | 112 |
| B) Alkaline Phosphatase    | 113 |
| 4.2.3 Discussion           | 114 |

|                                   |     |
|-----------------------------------|-----|
| 4.3 Seminal Vesicle               | 118 |
| 4.3.1 Review of Literature        | 118 |
| 4.3.2 Observations                | 121 |
| A) Acid Phosphatase               | 121 |
| B) Alkaline Phosphatase           | 123 |
| 4.3.3 Discussion                  | 124 |
| 4.4 Prostate gland                | 125 |
| 4.4.1 Review of Literature        | 125 |
| 4.4.2 Observations                | 129 |
| A) Acid Phosphatase               | 129 |
| B) Alkaline Phosphatase           | 130 |
| 4.4.3 Discussion                  | 131 |
| 5. SUMMARY AND CONCLUDING REMARKS | 134 |
| BIBLIOGRAPHY                      | 142 |