

CONTENTS

	P A G E
ACKNOWLEDGEMENTS	
INTRODUCTION	1-3
LITERATURE SURVEY	4-47
A. INFECTION OF TREMATODES IN NATURAL POPULATION OF SNAILS	4-16
A.1. Topography of the Field	4
A.2. Rate of Infection of Snail and its Seasonal Variations	4-7
A.3. Cercarial Emergence	7-9
A.4. Snail Size and Rate of Infection	9-10
A.5. Factors Affecting the Infection of Snails	10-16
B. EGGS AND INTRAMOLLUSCAN STAGES	17-32
B.1. The Morphology of Egg	17
B.2. Factors and the Egg Hatching	17-19
B.3. Viscous Cushion and Hatching	19-20
B.4. Morphology of Miracidia	20-21
B.5. Miracidial Behaviour	21-22
B.6. Miracidial Choice and Penetration to the Snail Host	22-26
B.7. Morphology of Sporocysts	26-28
B.8. Morphology of Rediae	28-29
B.9. Morphology of the Cercaria	29-32
C. PATHOLOGY OF INFECTED SNAIL	33-47
C.1. Histopathology of Snail	33-39
C.2. Histochemistry of the Infected Snail and Nature of Pigment	39-42
C.3. Haematological and Other Biochemical Alterations in the Infected Snails	42-45
C.4. Tissue Response in Snails to Infection	46-47

	P A G E
MATERIALS AND METHODS	48-105
A. DETERMINATION OF INFECTION OF <u>ISOPARORCHIS</u> <u>HYPSELOBAGRI</u> IN THE NATURAL POPULATION OF SNAILS	48-53
A.1. Topography of the Field	48
A.2. Determination of Rate of Infection of <u>I.</u> <u>hypselobagri</u> in the Field and its Seasonal Fluctuation	48-49
A.3. Release of Cercariae	50
A.4. Snail Size Infection Relationship	50-51
A.5. Determination of Physico-chemical Parameters	51-53
A.5.1. Determination of pH	51
A.5.2. Recording of Temperature	51
A.5.3. Estimation of Free Carbon di-oxide (CO ₂) in Water	52
A.5.4. Estimation of Dissolved Oxygen (DO) in Water	52-53
B. EGGS AND INTRAMOLLUSCAN LARVAL STAGES	54-62
B.1. The Morphology of Egg	54-56
B.2. Experimental Hatching of the Egg	56-57
B.3. Viscous Cushion and Hatching	57-58
B.4. The Morphology of Miracidia	58-59
B.5. The Behaviour of the Miracidia	59
B.6. Miracidial Choice and Penetration to the Snail Host	59-60
B.7. Structure of the Sporocysts	60
B.8. The Morphology of Rediae	60-61
B.9. Morphology of Cercariae	61-62
C. PATHOLOGY OF INFECTED SNAIL	63-105
C.1. Histopathology of the Infected Snails	63
C.2. Histochemistry of the Infected Snails	63-73
C.3. Haematological and Other Biochemical Alterations in the Snails on Infection	73-105

	P A G E
C.3.1. Determination of Glucose	74-76
C.3.2. Determination of the Total Plasma Proteins	76-78
C.3.3. Determination of Amino Acid Nitrogen in Haemolymph	78-79
C.3.4. Estimation of Haemolymph Cholesterol	79-81
C.3.5. Determination of Enzyme Activity	81-88
C.3.6. Qualitative Analysis: Gel Electrophoresis	88-105
C.4. The Tissue Response of the Snails to the Infection	105
OBSERVATIONS	106-145
A. INFECTION OF <u>ISOPARORCHIS HYPSELOBAGRI</u> IN THE NATURAL POPULATION OF SNAILS	106-116
A.1. Topography of the Field	106
A.2. Rate of Infection	107-110
A.2.1. Physical Features of the Sampling Sites	107
A.2.2. Availability of the Snails	107-108
A.2.3. The Rate of Infection of Snails	108-109
A.2.4. Incubation Period and Rate of Infection in Snails	109
A.2.5. Rediae in Snails and Rate of Infection	109-110
A.3. Cercarial Emergence	110-112
A.3.1. Diurnal Rythmicity	110-112
A.4. The Snail Size-Infection Rate	112-113
A.5. Prevalent Factors in the Field	113-116
A.5.1. Host Density	113-114
A.5.2. Temperature	114-115
A.5.3. Free CO ₂	115
A.5.4. pH	115-116
A.5.5. Dissolved Oxygen (DO)	116
B. EGGS AND INTRAMOLLUSCAN STAGES	117-130
B.1. Morphology of the Eggs	117-119

	P A G E
B.2. Factors and Egg Hatching	119-122
B.2.1. Maturity of Eggs	119
B.2.2. Temperature	119-121
B.2.3. pH	121
B.2.4. Salinity	121-122
B.3. Viscous Cushion and Hatching	122-123
B.4. The Miracidia	123-125
B.5. Miracidial Behaviour	125-126
B.6. Miracidial Choice and Penetration to Snail Host	126-127
B.7. Morphology of the Sporocysts	127
B.8. Morphology of the Rediae	128-129
B.9. Morphology of Cercaria	129-130
C. PATHOLOGY OF INFECTED SNAIL	131-145
C.1. Histopathology of the Snails	131-133
C.2. Histochemistry of the Infected Snail: Bleaching, Solubility, Histochemistry and Chemistry of Pigments Developed	133-141
C.2.1. Distribution of Pigment	133-134
C.2.2. Bleaching and Solubility of Pigment	134-136
C.2.3. Histochemistry	136-141
C.3. Haematological and Other Biochemical Alterations in Infected Snails	142-143
C.4. Tissue Response in Snail to Infection	144-145
DISCUSSION	146-220
A.1. Topography of the Field	146-147
A.2. Rate of Infection and its Seasonal Fluctuation	147-154
A.3. Cercarial Emergence	154-159
A.4. Snail Size and Rate of Infection	159-161
A.5. Physico-chemical Factors and Rate of Infection	161-168
B.1. Morphology of the Egg	169-170
B.2. The Factors Affecting Hatching	171-174

	P A G E
B.3. Viscous Cushion and Hatching	175-176
B.4. Morphology of Miracidium	177-178
B.5. Miracidial Behaviour	178-179
B.6. Miracidial Choice and Penetration to the Snail Host	179-183
B.7. Morphology of Sporocysts	183-186
B.8. Morphology of Redia	187-188
B.9. Morphology of Cercaria	188-191
C.1. Histopathology of Snails	192-201
C.2. Histochemistry of the Infected Snail	201-212
C.3. Haematological and Other Biochemical Alterations in Snails	212-217
C.4. Tissue Response	217-220
SUMMARY	221-234
REFERENCES	235-296
PUBLICATIONS	

