

Cambridge University Press

0521022142 - Practical Exercises in Parasitology

Edited by David W. Halton, Jerzy M. Behnke and Ian Marshall

Table of Contents

[More information](#)

CONTENTS

*List of contributors page xi**Preface xvii*

General advice 1

1 Observational Exercises on Parasites

A Local wild and domestic hosts as sources of parasites

- 1.1 Parasites of the earthworm: *Monocystis* (Protozoa) and *Rhabditis* (Nematoda) 11
D. WAKELIN, D. I. DE POMERAI & J. M. BEHNKE
- 1.2 Parasites of marine molluscs (*Littorina*) 19
R. E. B. HANNA & D. W. HALTON
- 1.3 Parasites of fish:
(a) Whiting and *Diclidophora merlangi* (Monogenea) 31
D. W. HALTON
- 1.4 Parasites of fish:
(b) Plaice/flounder and *Lepeophtheirus pectoralis* (Copepoda) 37
P. A. HEUCH & T. A. SCHRAM
- 1.5 Parasites of domestic livestock:
(a) Pig and *Ascaris suum* (Nematoda) 45
J. M. BEHNKE
- 1.6 Parasites of domestic livestock:
(b) Sheep and *Fasciola hepatica* (Trematoda) 53
C. E. BENNETT
- 1.7 Parasites of crops:
Potato cyst nematode (PCN) *Globodera pallida* (Nematoda) 63
J. T. JONES

vi Contents

B Laboratory maintained species

- 1.8 Protozoan parasites of the intestinal tract of the cockroach,
Periplaneta americana 73
J. E. WILLIAMS & D. C. WARHURST
- 1.9 Protozoan parasites of the mouse intestinal tract 77
J. E. WILLIAMS & D. C. WARHURST
- 1.10 Rodent malaria 81
J. E. SMITH
- 1.11 Malaria: an example of a vector transmitted parasite 89
H. HURD & R. E. SINDEN
- 1.12 Larval and adult *Echinostoma* spp. (Trematoda) 97
B. FRIED
- 1.13 *Schistosoma mansoni* (Trematoda) 107
M. J. DOENHOFF, L. H. CHAPPELL & J. M. BEHNKE
- 1.14 *Hymenolepis diminuta* (Cestoda) 115
J. M. BEHNKE
- 1.15 *Heligmosomoides polygyrus* (Nematoda) 123
J. M. BEHNKE, L. H. CHAPPELL & A. W. PIKE

2 Ecology

- 2.1 Pinworms (Nematoda, Oxyuroidea) in the American cockroach,
Periplaneta americana 133
W. M. HOMINICK & J. M. BEHNKE
- 2.2 Distribution and microhabitat of a monogenean on the gills of
mackerel 141
C. R. KENNEDY
- 2.3 Population dynamics of *Gyrodactylus* on stickleback 147
R. C. TINSLEY
- 2.4 Intraspecific competition in the cestode *Hymenolepis diminuta*, in
rats 161
C. R. KENNEDY & J. M. BEHNKE
- 2.5 Transmission dynamics and the pattern of dispersion of the
cestode *Hymenolepis diminuta*, in the intermediate host
population 167
C. R. KENNEDY & J. M. BEHNKE

Cambridge University Press

0521022142 - Practical Exercises in Parasitology

Edited by David W. Halton, Jerzy M. Behnke and Ian Marshall

Table of Contents

[More information](#)Contents **vii**

3 Physiology and Biochemistry

- 3.1 Hatching *in vitro* of oncospheres/hexacanth larvae of *Hymenolepis diminuta* 175
C. E. BENNETT
- 3.2 Activation of the cysticercoids of *Hymenolepis* species *in vitro* 183
J. M. BEHNKE
- 3.3 Membrane transport in the cestode *Hymenolepis diminuta*, *in vitro* 191
C. ARME
- 3.4 Glycogen utilisation and deposition in flatworm parasites 201
D. W. HALTON
- 3.5 Effects of classical transmitters on the motility of parasitic roundworms and flatworms 209
A. G. MAULE, N. J. MARKS & J. W. BOWMAN
- 3.6 Electrophysiology of *Ascaris suum* body muscle 219
R. J. MARTIN
- 3.7 Immunocytochemical localisation of neuroactive substances in helminth parasites 231
N. J. MARKS, A. G. MAULE & D. W. HALTON

4 Pathology and Immunology

- 4.1 Encapsulation of foreign matter (not-self) by earthworms 243
D. WAKELIN, D. I. DE POMERAI & J. M. BEHNKE
- 4.2 Opsonisation of trypanosomes 249
C. M. R. TURNER
- 4.3 Production and screening of monoclonal antibodies against *Leishmania* promastigotes 255
M. HOMMEL & M. L. CHANCE
- 4.4 Pathological effects of *Mesocestoides corti* and *Schistosoma mansoni* 267
J. CHERNIN
- 4.5 Quantification of lymphocyte populations in the spleen and thymus 277
J. CHERNIN

viii Contents

- 4.6 Use of basic indirect ELISA for the detection of antibodies produced by experimental immunisation 283
D. A. JOHNSON & C. MCGUIRE
- 4.7 SDS PAGE and Western blotting for the detection of antibodies produced by experimental immunisation 293
C. MCGUIRE & D. A. JOHNSON

5 Chemotherapy

- 5.1 Sensitivity of a coccidial parasite, *Eimeria*, to an ionophore, monensin 305
M. W. SHIRLEY
- 5.2 Egg hatch assay for determination of resistance of nematodes to benzimidazole anthelmintics 313
F. JACKSON, E. JACKSON & R. L. COOP
- 5.3 Larval migration inhibition assay for determination of susceptibility of nematodes to levamisole 321
F. JACKSON, E. JACKSON & R. L. COOP
- 5.4 Effect of anthelmintics on nematodes 329
D. L. LEE & J. E. SMITH

6 Molecular Parasitology

- 6.1 Purification of DNA 335
P. A. BATES, T. KNAPP & J. M. CRAMPTON
- 6.2 DNA digestion and gel electrophoresis 343
P. A. BATES, T. KNAPP & J. M. CRAMPTON
- 6.3 Restriction enzyme mapping 349
P. A. BATES, T. KNAPP & J. M. CRAMPTON
- 6.4 Construction of a genomic library 357
P. A. BATES, T. KNAPP & J. M. CRAMPTON
- 6.5 Detection and differentiation of *Entamoeba histolytica* and *E. dispar* by PCR 365
J. E. WILLIAMS & D. BRITTON
- 6.6 Differentiation between parasite species by agglutination and detection of parasite surface carbohydrates, using non-conjugated lectins 375
G. A. INGRAM

Cambridge University Press

0521022142 - Practical Exercises in Parasitology

Edited by David W. Halton, Jerzy M. Behnke and Ian Marshall

Table of Contents

[More information](#)

Contents **ix**

- 6.7 Tentative identification of parasite and tissue surface carbohydrates by conjugated lectins 385

G.A. INGRAM

7 Behaviour

- 7.1 Behaviour of the miracidia of *Fasciola hepatica* and demonstration of other larval stages 397

C. E. BENNETT

- 7.2 Effects of age and environmental factors on the swimming behaviour of the cercariae of *Cryptocotyle lingua* (Trematoda) 407

J. G. REA & S. W. B. IRWIN

- 7.3 Changes in host behaviour as a consequence of parasite infection 415

H. HURD

- 7.4 Behaviour of the amphipod *Gammarus pulex*, infected with cystacanths of acanthocephalans 423

D. B. A. THOMPSON & A. F. BROWN

- 7.5 Effects of *Schistocephalus solidus* (Cestoda) on stickleback feeding behaviour 433

I. BARBER

Appendix 1 Reagent index 445

Appendix 2 UK suppliers 447

Appendix 3 US suppliers 450

Index 452