

BOOK REVIEW

B.E. Olson, M.E. Olson, P.M. Wallis (Eds.): *Giardia. The Cosmopolitan Parasite*. CABI Publishing, New York, NY, USA and Wallingford, UK, 2002. ISBN 0-85199-62-4, hardback, 352 pp. Price: £ 65.00 (US\$ 120.00).

This book is based on papers presented at the 2000 *Giardia* in the Rockies conference held in Alberta, Canada. In its six parts it covers all aspects of research into *Giardia* as an organism and giardiasis as the disease.

Part 1 is related to the biology of *Giardia*. The first chapter is devoted to the investigation into the life cycle of *Giardia muris*. Using videomicroscopy and field emission SEM the time periods for the process of encystment and excystation of *Giardia* were determined (S. Erlandsen et al.). The second chapter summarizes the current state of knowledge relating to *Giardia* cyst wall filaments and N-acetylgalactosamine synthesis during encystment and presents original data obtained by biochemical and molecular analyses (E.L. Jarroll et al.). The results presented in the third chapter analysing the oxygen homeodynamics in *Giardia* (D. Lloyd et al.) are useful for understanding the efficacy of chemotherapy. The last chapter of this part brings together results of a study of the prevalence and infection patterns of naturally acquired giardiasis in beef calves and their dams from birth to weaning (B.J. Ralston et al.).

The title of part 2 claims that giardiasis is a zoonosis. This conclusion can be found in the review chapter by R.C.A. Thompson "Towards a better understanding of host specificity and the transmission of *Giardia*: the impact of molecular epidemiology" while other chapters are devoted to the occurrence of *Giardia* in various animal hosts. The risk of possible waterborne human infection by cysts originating from animals can be estimated using flow cytometry as described by B.R. Dixon et al. in a preliminary study of the prevalence of *Giardia* sp. in beavers in Gatineau Park, Quebec. A survey of prevalence of *Giardia* in dogs presented to Canadian veterinary practices (S.R. Jacobs et al.) shows that almost 80% of dogs infected by *Giardia* do not suffer from diarrhoea. Two similar studies, "Prevalence of *Giardia* in companion animal populations in the United States" (A. Zislin et al.) and "Prevalence of *Giardia* spp. in dogs in Germany" (D. Barutzki), found advantages of using *Giardia* specific coproantigen, 65 kDa, rather than classical microscopic examinations used in routine veterinary procedures. The last chapter of part 2, "*Giardia* in farm animals" (R.M. O'Handley), claims that *Giardia* has emerged as an important parasite of dairy calves.

Chapters related to transmission and pathogenesis of giardiasis are assembled in part 3. Giardiasis is described in the introductory chapter "Pathophysiology and pathogenesis" (A.G. Buret et al.) as a multifactorial process which implicates both parasitic and host factors. I believe that the two chapters "The role of public health agencies in preventing *Giardia* outbreaks" (N. Fok et al.) and "Epidemiologic risk analysis study of *Giardia* sp. in domestic and wild animals" (S.E. Wade et al.) should have been included into the fifth part of the book since these chapters are related to waterborne giardiasis. The chapter dealing with *Giardia* immunoprophylaxis and immunotherapy (M.E. Olson et al.) starts with a concise summary of the immune response against giardiasis but the conclusion sounds more as an advertisement to *Giardia* vaccines. It is claimed that they may be pivotal in controlling giardiasis in animals and even in humans!

On the contrary, part 4 "Treating giardiasis: pharmacology" is homogenous. It starts by a very good introductory review "Therapeutics and new drug targets for giardiasis" (J.A. Reynoldson) and follows by papers devoted to therapeutical efficacy of several anti-giardials: Pyrantelembonate, Febantel and Praziquantel. It was evaluated in naturally infected dogs (A. Giangaspero et al.) as well as using *in vivo* and *in vitro* experiments (A. Schlüsche et al.). Anti-giardial effect of garlic and some of its components were studied using UV and TE microscopy (J.C. Harris et al.).

Part 5 is devoted to drinking water treatment and legal implications. The introductory chapter "Update on the control of *Giardia* in water supplies" (W. Jakubowski and G.F. Craun) critically describes methods of filtration and disinfection. The chapter "Rethinking disinfection of *Giardia* cysts with ultraviolet light: old light through a new window" (P.M. Wallis and A.T. Campbell) is based on the idea that the ultraviolet (UV) dosage necessary for cyst inactivation evaluated by animal infection experiments is considerably lower than those obtained by nucleic acid staining methods. Similar results are presented in the chapter "Effect of ultraviolet light on *Giardia muris* cysts in drinking water determined by loss of infectivity in mice" (S.A. Craik et al.). Basic information about the risk of waterborne giardiasis and cryptosporidiosis is given in the chapter "Occurrence of *Giardia* cysts and *Cryptosporidium* oocysts in surface and treated waste waters of the Moscow region, Russia" (V.E. Larin and G.P. Kashkarova). The last chapter of this part "Legislation and policy: *Giardia* and *Cryptosporidium* as lithogens" (D.W. Eryou) is a discussion about risk communication and legislation.

The last part is devoted to the taxonomy of *Giardia*. The starting review entitled "An overview of *Giardia* taxonomy, a historical perspective" (H. van Keulen) is extremely short, and does not summarize the recent knowledge about intraspecific polymorphism. It basically repeats the historical background given by Kulda and Nohýnková in Krier's monograph (1995) that is the only reference in this chapter. Almost half of this chapter deals with the "problem" of correct species name of *G. intestinalis* (*G. duodenalis*, *G. lamblia*?). The fact that both junior synonyms are used in more than half of the chapters in this book indicates that many (especially American) authors do not respect the International Code of Zoological Nomenclature. The chapter "Characterisation of a novel genotype of *Giardia* from a quenda (*Isodon obesulus*) from Western Australia" (P.J. Adams and R.C.A. Thompson) describes a new isolate genetically different from all previously known species. In the last chapter "Phylogenetic relationships between human and calf isolates of *Giardia intestinalis*" (C.L. Hunt et al.) the data obtained by molecular biological methods do not confirm transmission of *G. intestinalis* between the human and calf hosts in the Waikato region.

Additional 29 short abstracts of papers presented at the *Giardia* in the Rockies conference are attached at the end.

The book can be recommended to all interested in parasitic protists. However: "Hurry up!" as the progress in the research is rapid and in a few years this book will be out-of-date.

Oleg Ditrich