Sarcocystinae: 
Nomina Dubia and Available Names

J.K. Frenkel¹, A.O. Heydorn², H. Mehlhorn³, and M. Rommel⁴

¹ Department of Pathology and Oncology, University of Kansas Medical Center, Kansas City, Kansas 66103, USA
² Institut für Parasitologie der Freien Universität Berlin, Königsweg 65, D-1000 Berlin 37 Federal Republic of Germany
³ Institut für Zoologie II der Universität Düsseldorf, Universitätsstraße 1, D-4000 Düsseldorf 1, Federal Republic of Germany
⁴ Institut für Parasitologie, Tierärztliche Hochschule, Bünteweg 17, D-3000 Hannover-Kirchrode, Federal Republic of Germany

Summary. Examination of the original descriptions of the species of Sarcocystis in cattle, sheep, and swine, and of isosporid oocysts shed sporulated by dogs, cats, man, and other carnivores, has shown that it is not possible in most instances to identify unambiguously recently recognized taxa. The original descriptions are insufficient, and because no type specimens exist, could apply to two or more of the presently recognized taxa. We consider the following nomina dubia:

- Sarcocystis hirsuta
- Isospora bigemina (S. bigemina)
- S. miescheriana
- I. hominis (S. hominis)
- S. tenella
- I. buteonis (Frenkelia buteonis)
- S. cruzi
- S. bertrami

Because the former type species, Sarcocystis miescheriana, is an indeterminate nomen dubium, we are proposing S. muris as the new type species. Historically, it was the first species described clearly and unambiguously even in the light of present knowledge, and the stages of its life cycle are probably completely known; it was the second species to be named. Old and recent descriptions are reviewed, and definitions are proposed for the following taxa:

- S. bovifelis
- S. ovifelis
- S. suihominis
- S. equicanis
- S. bovicanis
- S. ovicanis
- S. suicanis
- Frenkelia microti
- S. bovihominis
- S. muris (type species)
- F. glareoli

for which neotypes¹ will be prepared and deposited with designated institutions and curators. A new subfamily, Cystoisosporinae, is created.

Introduction

The recognition of predator-prey type life cycles for several Sarcocystis spp. (for review, see Levine, 1977) has made possible the definition of certain taxa by their morphology and their host specificity. While this has permitted us

¹ The Committee of Nomenclature now (Warschau, 1978) proposes to create 'hapantotypes' in Protozoa comprising of all significant stages of a life cycle.
Fig. 1. Diagrammatic representation of the life cycle of *Sarcocystis suihominis*. 1. Sporozoite. 2. Within endothelial cells two generations of schizonts are formed giving rise to 50–90 merozoites (each) by simultaneous division of the giant nucleus. 3. Merozoite. 4. Cyst formation within muscle fibers with globoide merozoites and elongate bradyzoites. 5. After eating raw meat containing cysts, bradyzoites are set free within the intestine of man. 6., 7. Micro- and macrogamonts develop in a parasitophorous vacuole within the cells of the lamina propria. 8., 9. The stationary macrogamete (8) is fertilized by a motile microgamete (9). 10. The zygote is surrounded by a wall and becomes an 'oocyst.' 11. Two sporocysts are formed in the interior of an oocyst while still in the host cell. 12. The oocyst wall is broken and the two sporocysts are set free, containing four sporozoites.