

Kurze Mitteilungen

The African *Bitis nasicornis* (SHAW 1802) as final host of an unknown *Sarcocystis* species¹

Up to the present only Serpentes of the subfamily Pythoninae have been described as final hosts of Sarcosporidia species (RZEP CZYK 1974; ZAMAN & COLLEY 1975, 1976; BREHM 1979).

Both *Sarcocystis singaporensis* and *Sarcocystis* sp. have species of the genus *Rattus* as intermediate hosts. The biology of *Sarcocystis singaporensis*, which has been found in *Python reticulatus*, is fairly well outlined by experimental investigations (BREHM 1979). In contrast, the developmental biology of *Sarcocystis* sp., which has been described in *Morelia spilotes variegata*, needs a more detailed examination.

Both *Sarcocystis* species and their final hosts have been located in and described for Asia and Australia.

The developmental biology of all examined *Sarcocystis* species is very similar. The final host infects itself by ingesting prey infected with cysts. The cystozoites invade the mucosa of the small intestine, where they develop and differentiate into micro- and macrogametes. After the formation of the zygote, the oocysts sporulate inside the villi (HEYDORN & ROMMEL 1972; MEHLHORN & HEYDORN 1978). Usually the oocyst wall disappears so that predominantly sporocysts are excreted. The development in the obligate intermediate host starts with the oral intake of sporocysts and leads via schizogonic stages in the endothelia of numerous organs to the formation of cysts in the skeletal muscles or heart muscle.

Cysts as well as sporocysts have been discovered in numerous vertebrates, including man, and have been described according to their appearance in intermediate and final hosts as specific *Sarcocystis* species. While many mammals have become known as intermediate or final hosts, only few equivalent investigations have been made in parasitizing *Sarcocystis* species in birds and particularly in reptiles. A summary on *Sarcocystis* parasites in Reptilia is given by LAINSON & SHAW (1971) and BREHM (1979).

In the faeces of two *Bitis nasicornis*, which were brought to our institute for examination, *Sarcocystis* sporocysts were detected by the floatation method (fig. 1). The average size of the sporocysts was $9,2 \times 7,6 \mu\text{m}$. Both snakes (δ and f) were of a similar size and had been directly imported from East Africa about three months before.

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Fig. 1. Sporocyst from faeces of *Bitis nasicornis*. — 2400 \times .

The snakes, with a length of approximately 60 cm were fed in captivity on laboratory mice only. They rejected rats and other animals. Since the snakes excreted only very few sporocysts and died shortly after the first examination it was not possible to recover much infective material. After the oral application of sporocysts to each of respectively ten Wistar rats (*Rattus norvegicus*), Gerbils (*Meriones unguiculatus*), NMRI-mice (*Mus musculus*) and *Mastomys natalensis* no symptoms of illness and no mortalities occurred. This result contrasts with the findings of ZAMAN & COLLEY (1975) and BREHM (1979) on the infection of rats with *Sarcocystis singaporensis* and of RZEPczyk (1974) on the infection of rats with *Sarcocystis* sp. The numbers of sporocysts applied to each rodent had to be limited to approximately 100 because of the shortage of infective material.

Schizonts or merozoites could not be found in Giemsa stained dab smears of kidney, liver, lungs, spleen, intestinal lymphnodes or brain of the tested animals on either the seventh and eighth day p. i. or on the 14th and 16th day p. i. The examination of muscles and brain of the experimental animals four months later was also negative. Neither macroscopic nor microscopic cysts could be detected. Since no further *Bitis nasicornis* specimens were available, it has not been possible to reinfect the final host in order to rule out definitely the possibility of the rodents used here being intermediate hosts for this species of *Sarcocystis*.

This is the first report of the presence of a *Sarcocystis* species in an African species of the family Viperidae. The sporocysts correspond in their size to the two *Sarcocystis* species which have been described recently for snakes of the family Pythonidae (RZEPczyk 1974; ZAMAN & COLLEY 1975, 1976; BREHM 1979). The present findings concerning final and intermediate hosts of *Sarcocystis*, however, leads to the conclusion that the species reported above is different from those already described.

Aus dem Kot zweier frisch aus Ostafrika importierter *Bitis nasicornis* (SHAW 1802) konnten Sarkosporidien-Sporozysten isoliert werden. Die bereits sporulierten Sporozysten hatten eine Größe von $9,2 \times 7,6 \mu\text{m}$. Infektionsversuche mit Labornagern als Zwischenwirte blieben erfolglos. Nach den bisherigen Erkenntnissen zur End- und Zwischenwirtspezifität der Sarkosporidien ist anzunehmen, daß *Bitis nasicornis* der Endwirt für eine bisher unbekannte Sarkosporidienart ist.

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