

## PRELIMINARY SEM OBSERVATIONS OF THE CERCARIA OF A *SANGUINICOLA* SP. (DIGENEA : SANGUINICOLIDAE)

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**SUMMARY.** Some data concerning the external ultrastructure of the cercariae of a *Sanguinicola* sp. observed with SEM are offered and the similarities and differences found when these cercariae are compared with those of *Aporocotyle simplex* are discussed.

### Observations préliminaires au MEB des cercaires d'un *Sanguinicola* sp. (Digenea : Sanguinicolidae)

**RÉSUMÉ.** Les auteurs présentent des données sur l'ultrastructure externe des cercaires d'un *Sanguinicola* sp. selon la technique MEB. Les ressemblances et les différences trouvées en comparant ces cercaires avec celles d'*Aporocotyle simplex* sont discutées.

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There are few studies on the morphological features of adult sanguinicolids using SEM (Thulin, 1980 ; Koie, 1982 ; Simón Martín and Rojo Vázquez, 1984), and the number of works of this type referring to the larval stages of these worms are still more limited. As far as we know only Koie (1982), has studied the rediae and cercariae of *Aporocotyle simplex*. The present work shows the results of the preliminary SEM observations on the cercaria of a *Sanguinicola* sp. whose adult stage has already been studied (Simón Martín and Rojo Vázquez, 1984). This cercaria is shed by the snail *Ancylus fluviatilis* infected naturally. The material was processed as previously described (Simón Martín and Rojo Vázquez, 1984).

The anterior organ (cephalic organ) is separated from the rest of body by a deep constriction (*fig. 1 and 3*). This organ is 12-15  $\mu\text{m}$  long and 12-14  $\mu\text{m}$  in diameter at its base. In the anterior part of the organ there is a circular groove with setae like structures inserted inside (*fig. 2*). Presumably at the bottom of this groove the aperture of the penetration gland is located. Two sensillae of about 4  $\mu\text{m}$  long can be seen in the apical-ventral portion (*fig. 2*). The organ is encircled by 6 rows of barbed-spines of 1,5  $\mu\text{m}$  in size approximately (*fig. 2 and 3*). The mouth opens on a protuberance ventrally situated and surrounded by cephalic spines (*fig. 5*). The body surface is apparently rough. There is an undulated crest on the dorsal line occupying

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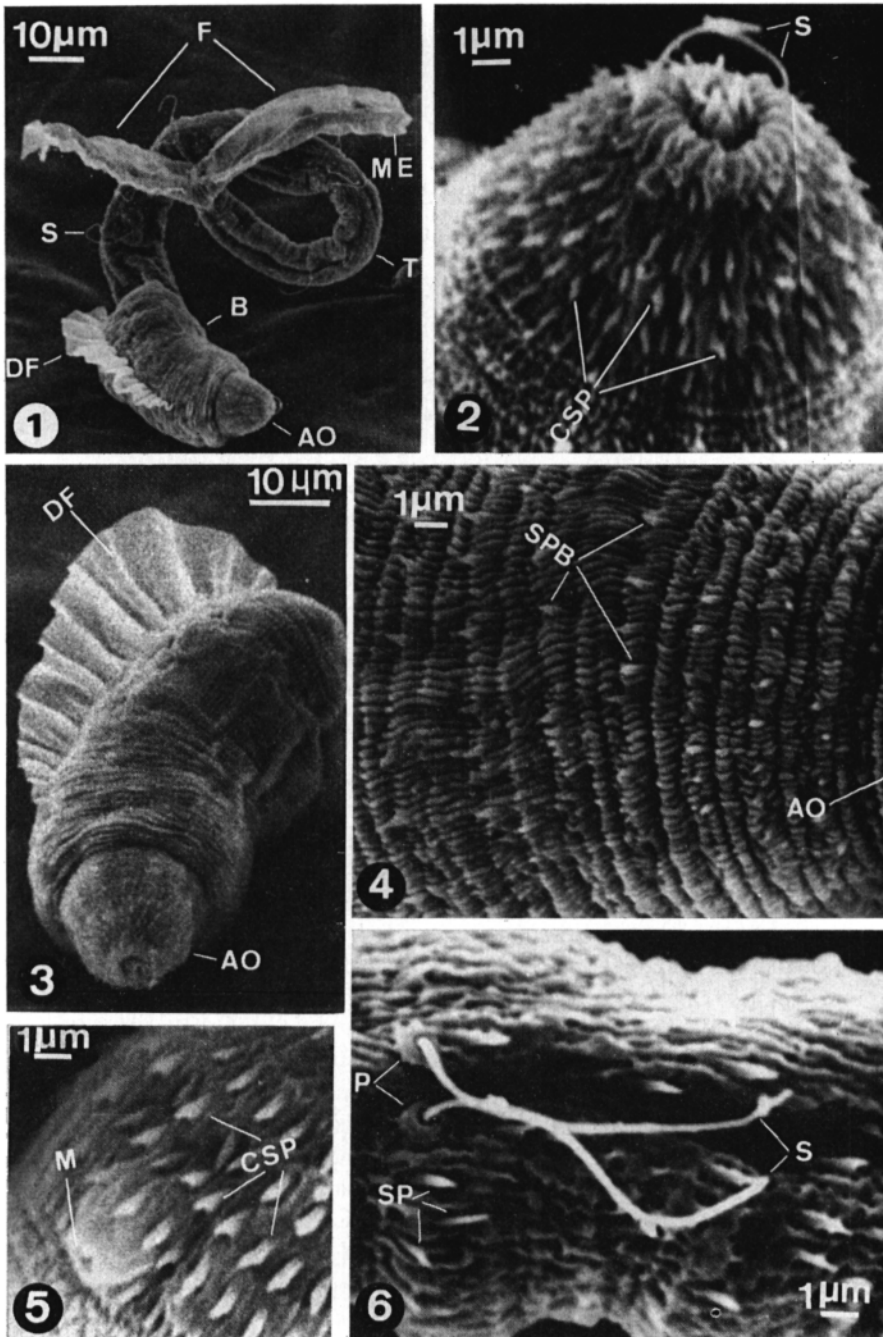


FIG. 1-6. — Scanning electron micrographs of the cercaria of *Sanguinicola* sp. 1. General view : body (B), tail (T), anterior organ (AO), dorsal fin (DF), furca (F), membranous expansions (ME), sensillae (S). 2. Detail of the anterior organ : sensillae (S), cephalic spines (CSP). 3. Cercarial body : anterior organ (AO), dorsal fin (DF). 4. Body tegument : beginning of anterior organ (AO), spines of body (SPB). 5. Detail of the ventral view of the anterior organ : mouth (M), cephalic spines (CSP). 6. Detail of the tail trunk : spines (SP), sensillae (S), papillae (P).

approximately 3/4 of the total body length. It is 13-14  $\mu\text{m}$  high (fig. 3). Conical spines less than 1  $\mu\text{m}$  are observed on the lateral parts of the zone near the anterior organ (fig. 4). In the remainder of the body no other types of structures are apparent. An undetermined number of sensillae about 12  $\mu\text{m}$  in length are distributed along the tail (fig. 1). These are inserted in papillae of 1  $\mu\text{m}$  in diameter. There are also numerous conical spines of more than 1  $\mu\text{m}$  (fig. 6). The branches of the furcae are surrounded by a membranous expansion 3  $\mu\text{m}$  high (fig. 1).

It appears this is the first SEM study of a sanguinicolid cercaria spontaneously emerged from its intermediate host, in view of the fact that those examined by Koie (1982) were obtained from the rediae. However they were considered as fully developed by the authoress because some of them were infective. The structures observed in the cercariae of *Sanguinicola* sp. and their disposition are very similar to those of the *A. simplex*. Nevertheless it is possible to note differences, such as the presence in *Sanguinicola* sp. of two sensillae at the tip of the anterior organ, the dorsal crest, and the membrane of the furca; these have not been described in *A. simplex*. On the other hand, in this latter species the caudal sensillae are grouped in the central zone of the tail trunk whereas in *Sanguinicola* sp. the caudal sensillae are distributed all over the tail.

As pointed out by Kuntz and coll. (1979) the information obtained on the SEM characteristics of schistosomes species in general could be used for establishing clearer differences between them. In the case of sanguinicolids it is also possible that accurate works in this sense could contribute positively to systematic tasks and to the question of whether Aporocotylidae and Sanguinicolidae belong to the same Family or not.

#### REFERENCES

- KOIE M. : The redia, cercaria and early stages of *Aporocotyle simplex* Odhner, 1900 (Sanguinicolidae). A digenetic trematode which has a polychaete annelid as the only intermediate host. *Ophelia*, 1982, 21, 115-145.
- KUNTZ R. E., DAVIDSON D. L., HUANG T. C., TULLOCH G. S. : Scanning electron microscopy of the integumental surfaces of *Schistosoma bovis*. *J. Helminthol.*, 1979, 53, 131-132.
- SIMON MARTIN F., ROJO VASQUEZ F. A. : Scanning electron microscope study of mature and immature worms of a *Sanguinicola* sp. (Digenea : Sanguinicolidae). *Ann. Parasitol. Hum. Comp.*, 1984, 59, 353-360.
- THULIN J. : Scanning electron microscope observations of *Aporocotyle simplex* Odhner, 1900 (Digenea : Sanguinicolidae). *Z. Parasitenkd.*, 1980, 63, 27-32.
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