

MORPHOLOGY AND HISTOCHEMISTRY OF THE CERCARIA AND METACERCARIA OF *HASSTILESIA OVIS* (ORLOFF, ERSCHOFF ET BADANIN, 1914)

The adult specimens of *Hasstilesia ovis*, the life-cycle of which is secondarily simplified (secondary diheteroxeny), parasitize in the sheep intestine. According to Gvozdev and Soboleva (Parazitologiya 6: 436—438, 1972), miracidia leave the eggs swallowed by terrestrial snails *Pupilla muscorum* and *Vallonia costata* and penetrate into the hepatopancreas. Here they change to sporocysts consisting of thin unbranched processes running from the central part in all directions. The processes are filled with a number of germinal balls, which later give rise to oval cercariae provided with small tails and large suckers. The cercariae change to the metacercariae directly in the sporocysts. The definitive host becomes infected by swallowing the grass with infected snails containing a large number of metacercariae.

The thin-walled sporocyst contains 800—1500 metacercariae. The metacercariae are of oval shape and small size, measuring only 0.062—0.075 mm. They possess two large suckers, 0.024—0.030 mm in diameter. Behind the relatively large pharynx are two intestinal branches reaching behind the ventral sucker. The intestinal branches give a weak positive reaction for proteins with tyrosine and tryptophan and exhibit a low activity of acid phosphatase and non-specific esterase. Of the excretory system are visible the excretory bladder and two main collecting canals forming a loop at the level of pharynx. The body surface of cercariae and metacercariae is covered with glycocalyx which is a part of the tegument and is not sharply demarcated on the surface. There is a coalescence of glycocalyx surfaces of metacercariae laying close to one another.

Histochemical studies revealed only neutral and acid mucosubstances in the glycocalyx. Its layer does not form a separate cyst as it was thought by Gvozdev and Soboleva (1972), but it follows the tegument up to the oral cavity and ventral sucker. Thus the metacercaria of *H. ovis* is covered by a layer of glycocalyx, but not enclosed in a cyst. The body of cercaria and metacercaria does not contain gland cells.

The tegument of cercaria and metacercaria of *H. ovis* is identical with the tegument of *Brachylaimus aequans* studied by Žďárská and Soboleva (Folia parasit. (Praha) 27: 337—342, 1980). Like in the cercaria and metacercaria of *B. aequans*, the tegument of *H. ovis* cercaria and metacercaria is covered with a high layer of glycocalyx firmly united with the unit membrane of the tegument. Due to the small size of the cercaria and metacercaria of *H. ovis*, the subtegumental cells could not be detected by histochemical methods. In contrast to the cercaria of *B. aequans*, the penetration gland cells are not developed in the cercaria of *H. ovis*. They lost their significance because the cercaria does not penetrate into the second intermediate host. The general morphology of the cercaria and metacercaria of *H. ovis* shows that all morphological structures necessary for active leaving of the first intermediate host, which occur in other cercariae of the superfamily Brachylaimoidea, were reduced in this species. According to the classification by Dönges (Z. Parasitenk. 31: 340—366, 1969), the metacercaria of *H. ovis* belongs to the type of metacercaria without cyst formation.

From the ecological viewpoint, the life-cycle of *H. ovis*, compared to the life cycles of other trematodes associated with terrestrial snails, exhibits a marked adaptation to the existence under terrestrial conditions. The cercariae are never subjected to the direct effect of terrestrial physical factors (as it is the case, e.g., with the cercariae of *B. aequans*) and a massive infection of the definitive host is ensured by the fact that the cercariae change directly to metacercariae inside the first intermediate host.

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