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HISTOCHEMICAL STUDIES ON HORSE STRONGYLES

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(Summary of Master's thesis directed by Dr. J. YAMASHITA)

The author investigated the distribution of glycogen, protein, lipid, nucleic acids, alkaline phosphatase, zinc and calcium in the body of *Strongylus edentatus* and *S. vulgaris*. He used various histochemical methods which have been fairly well improved as compared with the original procedures. Findings obtained were compared with those of *Anoplocephala perfoliata* used as a control material.

Results obtained are summarized as follows:

1. Glycogen is found most densely in the submuscular-reticular layer of strongyles and in the parenchyma cells of *A. perfoliata*. These findings indicate that glycogen is stored in these tissues. In *S. edentatus* the ovarian eggs show increase of glycogen and to the contrary decrease of RNA as they develop. In *S. vulgaris* glycogen is always found loosely in the ovarian eggs without any relationship with their development. Much glycogen is found in the cervical glands in general.

2. Protein exists abundantly in the muscle cells of strongyles and *Anoplocephala* and is also to be found in the nuclei of the germinal cells, epithelial cells of the mid-gut etc., generally almost without quantitative variations.

3. Lipid occurs most densely in the eggs in strongyles and in the parenchyma in *A. perfoliata*.

4. In strongyles, DNA is always found densely in the nuclei of sperm cells, but it decreases in the nuclei of the eggs as is also the case of RNA of the sperm cells and eggs with their development. In *A. perfoliata*, DNA is detected most prominently in the immature proglottids just behind the scolex.

5. In strongyles alkaline phosphatase is found in the striated border of the mid-gut, endoplasm, lateral line, muscular layer, around the excretory canal, in nuclei of germinal cells of both sexes and most strongly in the wall of the seminal receptacle and uterus, inner membrane of the ovijector and sperm in the testis and seminal vesicle. On the other hand, in *A. perfoliata*, it is detected most densely in the wall of the excretory canal and parenchymal tissue. Alkaline phosphatase reaction, in general, is more sensitive in *A. perfoliata* than in strongyles.

6. Zinc is detected around the sphaerocrystal, endoplasm and lateral line of strongyles. It is not found anywhere in *A. perfoliata*.

7. Calcium is found in the near part of the basal layer of mid-gut of strongyles and in the so-called calcareous corpuscles of *A. perfoliata*.