

Diagnostic methods for intestinal helminthes including morphology

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Helminthes

- Nematodes
 - Hookworm, Strongyloides, Ascaris, Trichuris, Enterobius, Toxocara
- Trematodes
 - Schistosoma, Fasciola, Clonorchis
- Cestodes
 - Taenia, Hymenolepis, Echinococcus

What are we looking for?

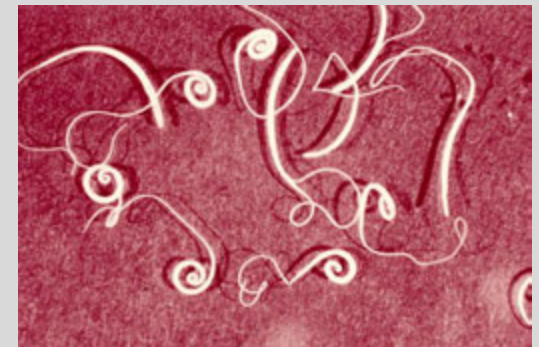
- Adult worms / proglottides
 - Larvae
 - Eggs
-
- Adult worms and eggs are to be found in the definitive host only!

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Nematodes

- *Trichuris trichiura*
- Size: 3-5 cm
- Anterior thin
- Posterior thick



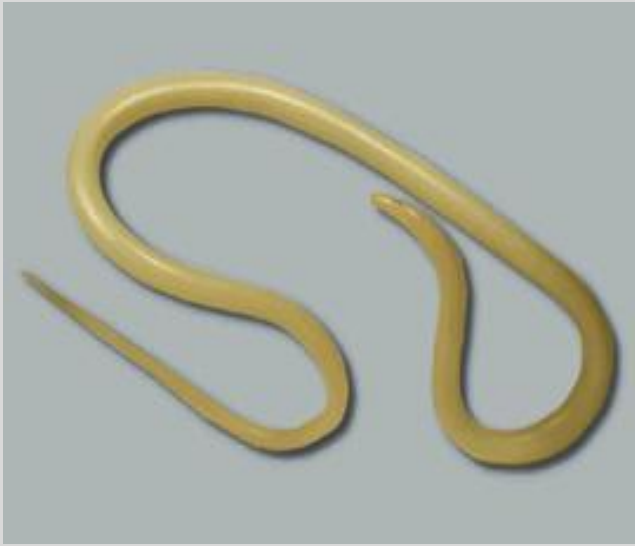
Nematodes

- *Ascaris lumbricoides*
- 10-40 cm x 2-6 mm
- Pinkish / white
- Male: curved tail



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Nematodes

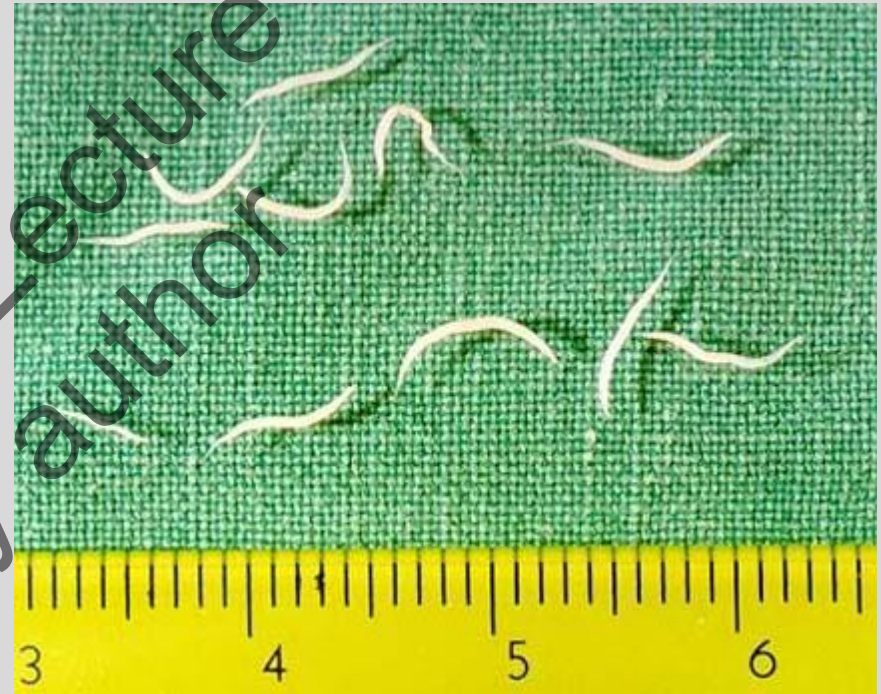
- Hookworm
- Size: 1- 1.5 cm



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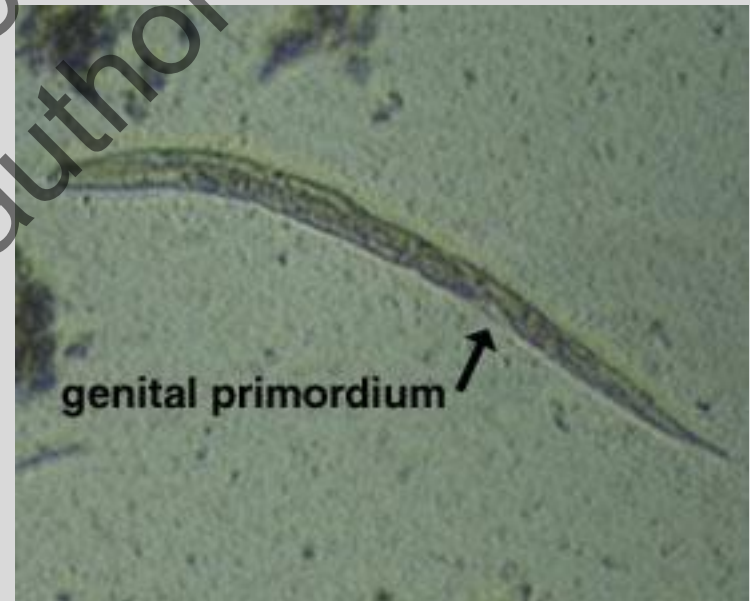
Nematodes

- *Enterobius vermicularis*
- Size 10 mm



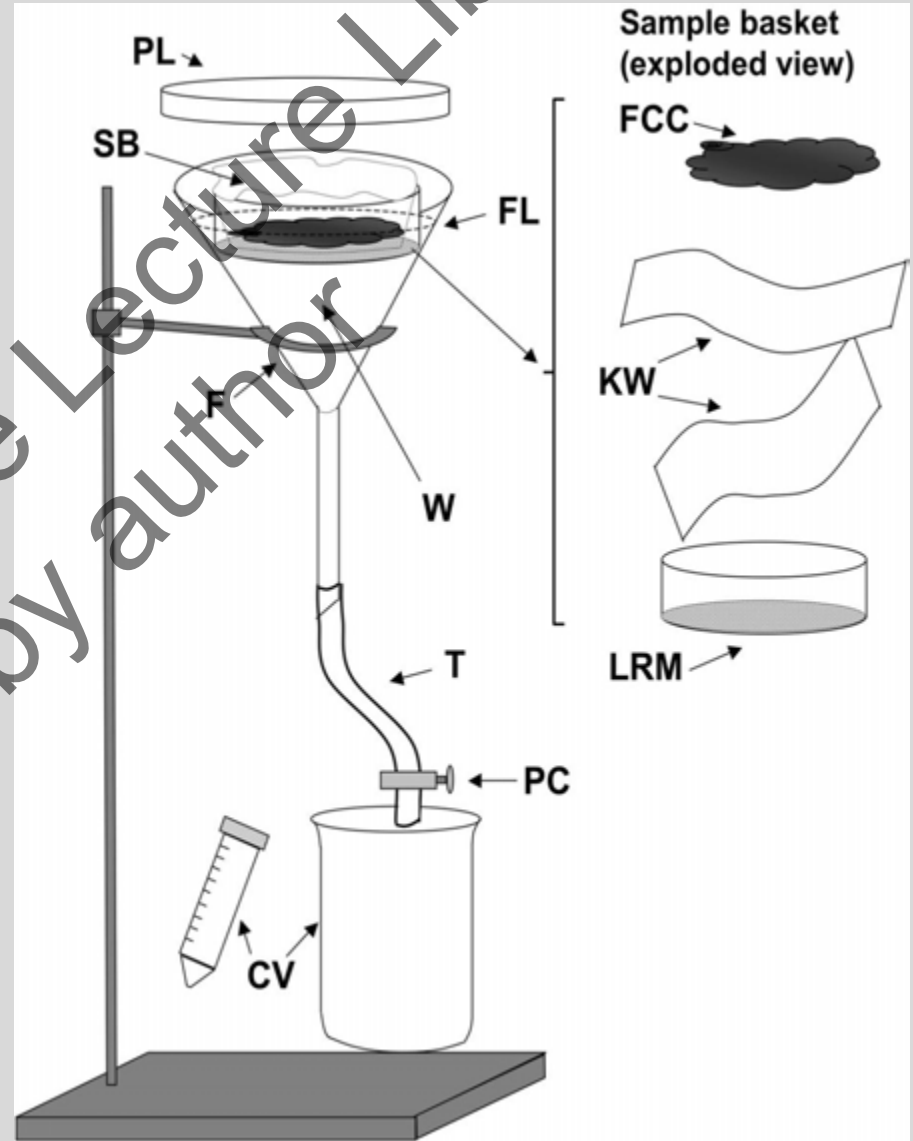
Nematodes

- *Strongyloides stercoralis*
- size 200-300 μm
- rhabditiform larvae



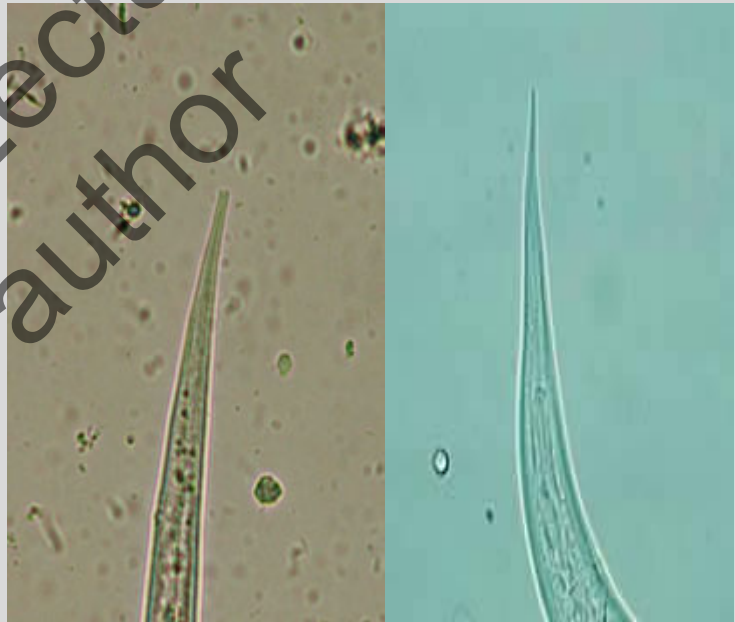
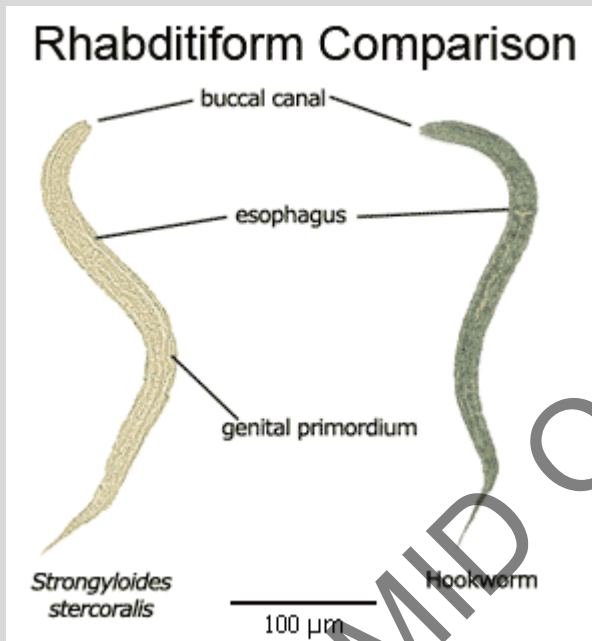
Nematodes

- *Strongyloides stercoralis*
 - Fresh stool sample
 - Baermann
 - Culture (filariform larvae)



Differentiation *Strongyloides stercoralis* / hookworm

Filariform larvae
(after culture)



short mouth opening	long mouth opening
large genital primordium	small/no genital primordium

<i>S. stercoralis</i>	hookworm
forked tail	tapered tail
unsheathed	sheathed

Tips & Tricks

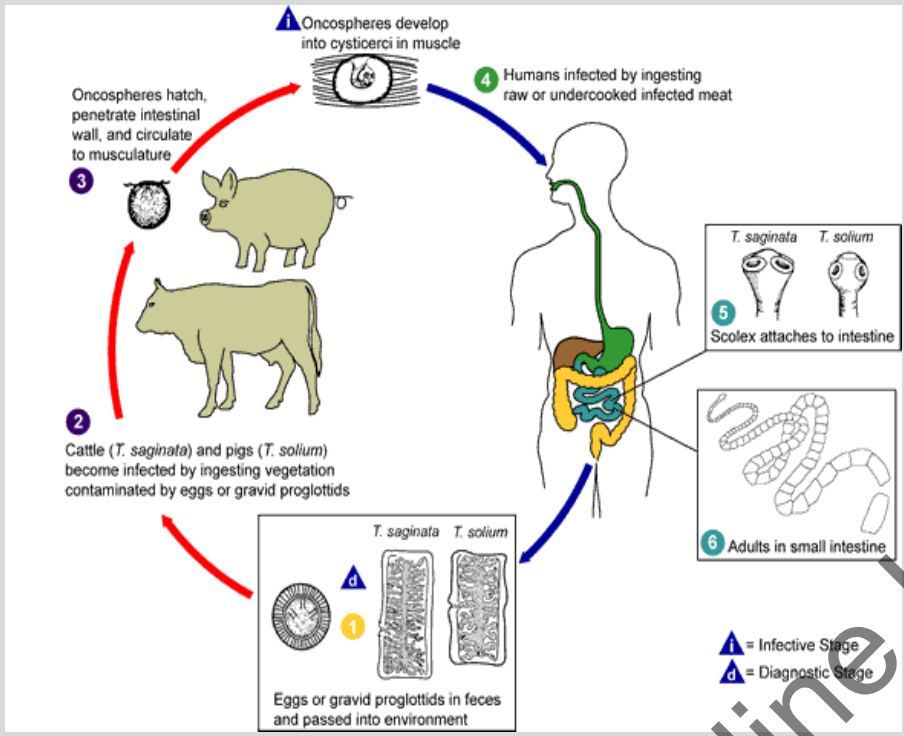
- Add some JKJ to paralyse the larvae



Cestodes

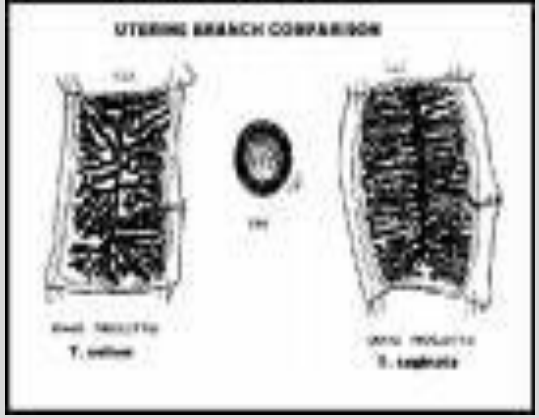
- *Taenia saginata* / *solium*
- size: 5-12-20 m
- Mostly proglottides are shed

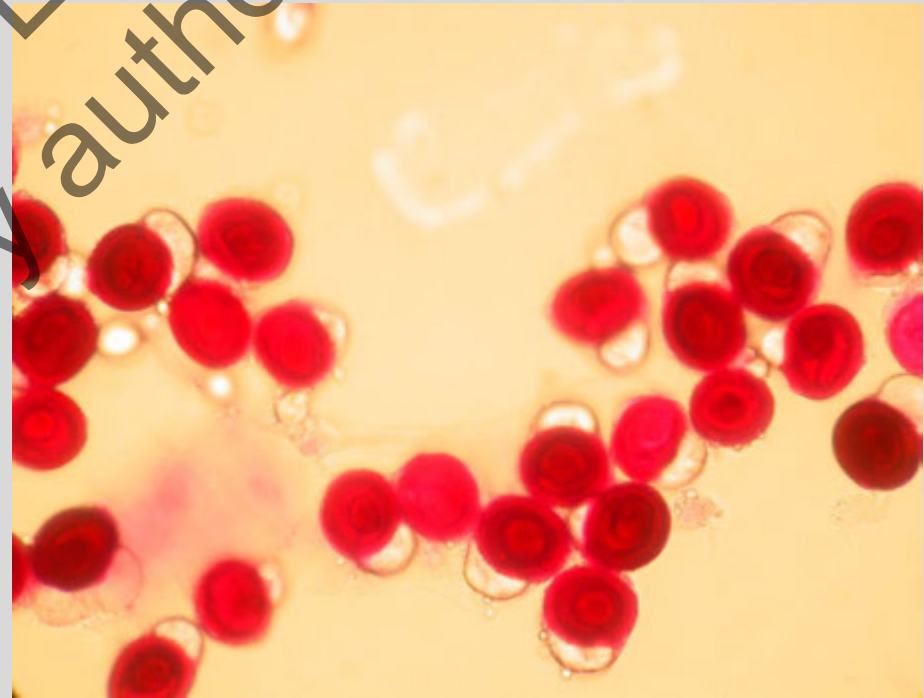
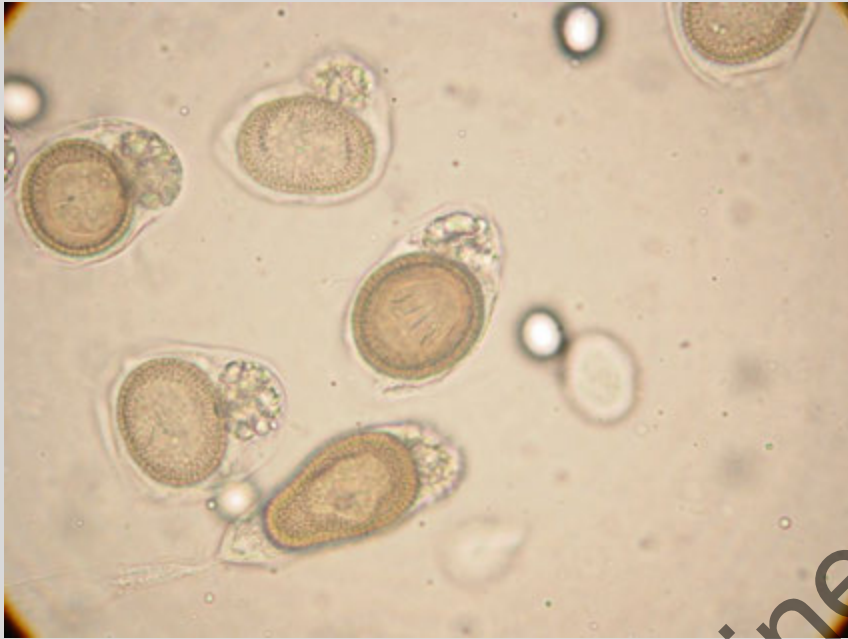




T saginata: 15-32 branches on each side of uterus

T solium: 7-13 branches on each side of uterus





Acid fast: *T saginata*
Blue: *T saginata* or *T solium*

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Diphyllobotrium latum



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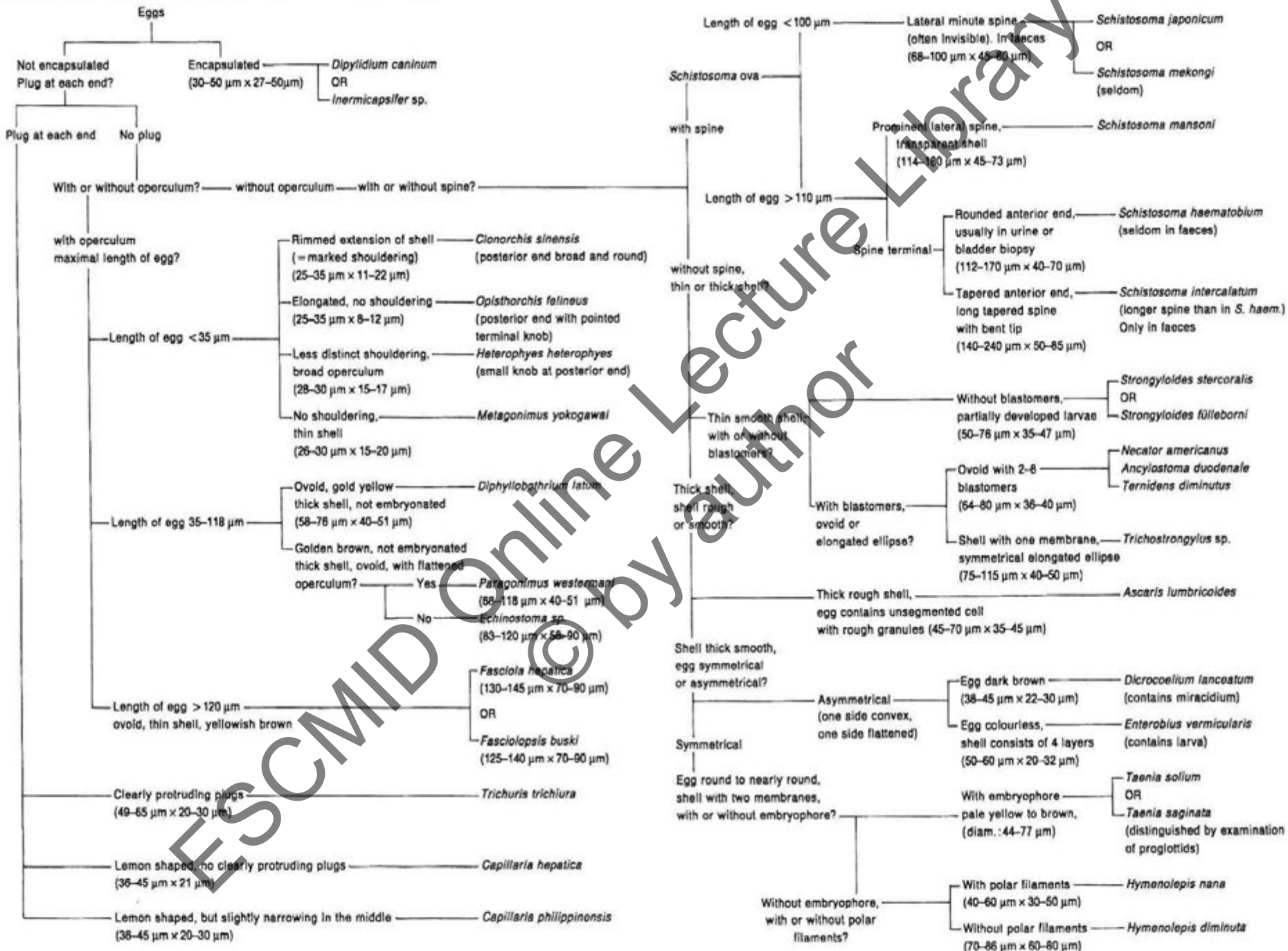
Helminth eggs

- Concentration according Ridley
- Low excreters (eg Schistosoma, Fasciola) use glycerin sedimentation!

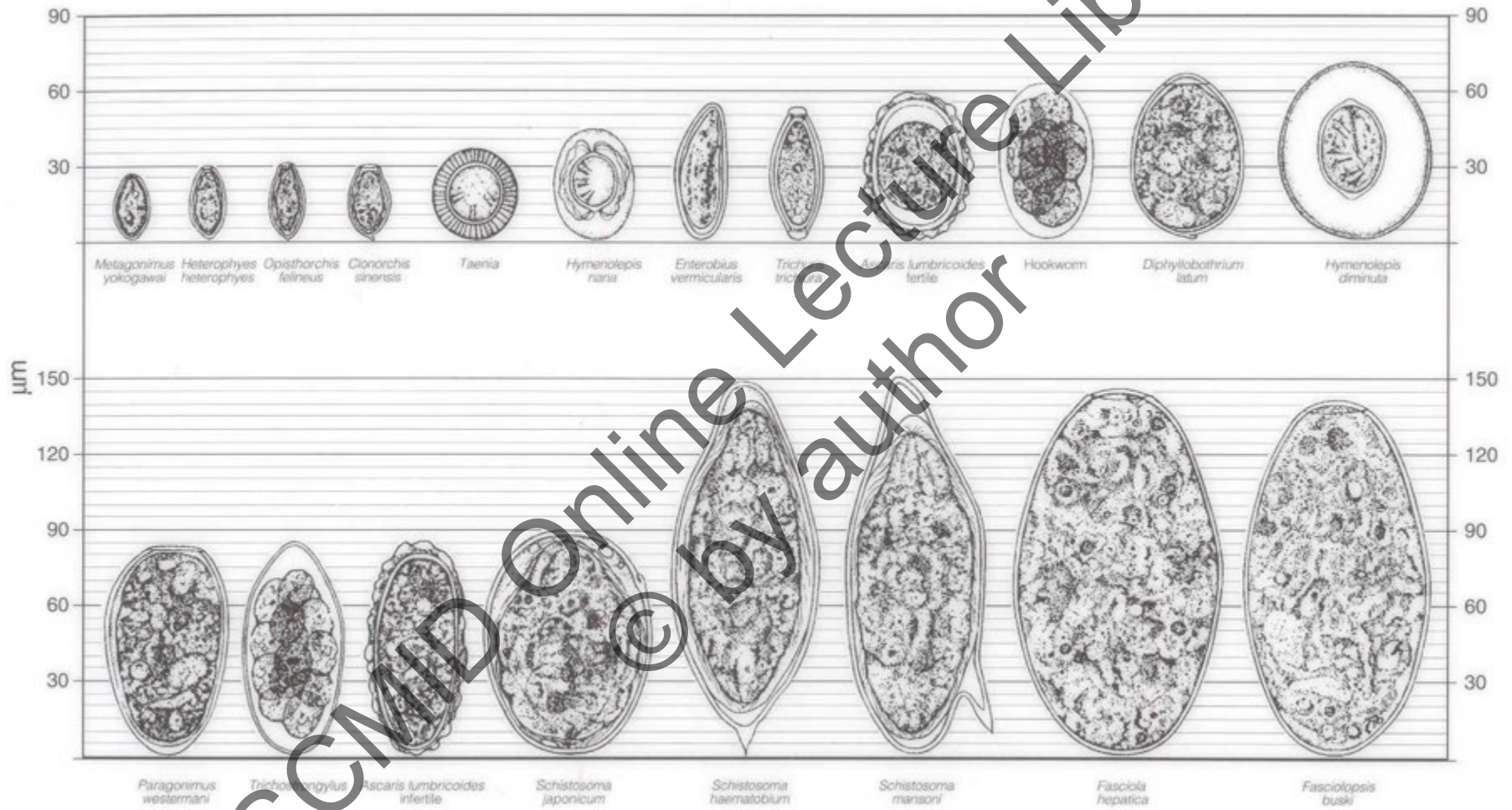
Helminth eggs

- Use identification keys
 - Plug at each end of egg / no plug
 - With or without operculum
 - With or without spine
 - Symmetrical or asymmetrical
 - Shell single/multiple membranes
 - SIZE

Fig. 3 Key to the identification of helminth eggs



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- Enjoy 😊

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