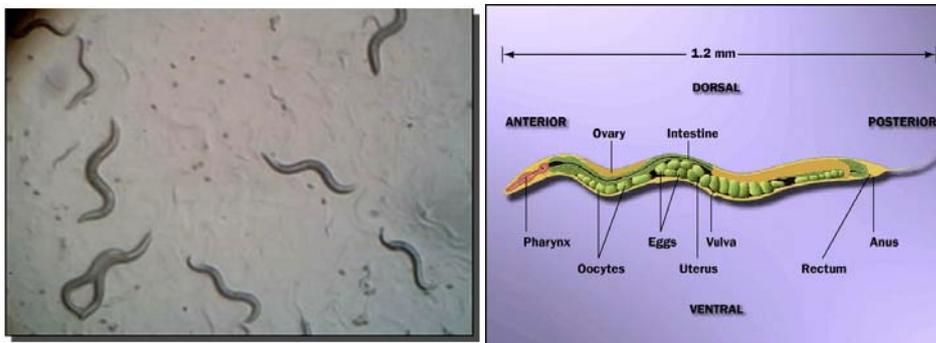


WORKSHOP

Fighting parasitic nematode infections



This is the nematode *Caenorhabditis elegans*: It is an invertebrate worm widely used in biology for experimental investigations. It is **not** a parasite but it is very similar to parasitic worms that infect crops, livestock, pets and humans, shown below. The parasitic worms cause major losses in food production and are a major cause of disease in some parts of the world. Research at the University of Southampton is using *C. elegans* to find new chemicals and drugs that can be used to treat parasitic worm infections.



Left picture: The parasite, Guinea worm, emerging from the leg of an infected person. Right picture: A section of intestine infected with the parasite *Ascaris suum*.

Your name: _____

EXPERIMENT: Testing the effect of a drug on nematode behaviour

Objective: To carry out an experiment demonstrating the effect of a drug on nematode behaviour. The drug you will use is alcohol (ethanol).

Protocol:

You will be provided with: two agar plates with *C. elegans*; a bottle of M9 buffer; 2 pipettes (one for ethanol and one for M9 buffer); two Petri dishes; a bottle of ethanol; marker pen.

First observe the plate of worms down the microscope.

√*What can you see?*

write your answer here

To start the experiment, pipette 4 mls of M9 buffer into each Petri dish. Label one dish 'control' and one dish 'ethanol'. Now use the pipette to add a small amount, about 1 ml, of M9 buffer onto the surface of one of the two agar plates with the *C. elegans* worms. Gently swirl the liquid around the plate to catch the worms. Then tilt the plate slightly on its side so that the liquid collects at the edge and suck the liquid back up into the pipette. Carefully dispense the liquid into one of the Petri dishes. Now repeat this for the second agar plate of worms. Now you should have 2 Petri dishes containing worms in liquid. Look at the worms down the microscope.

√*Are the worms moving? How does this compare to what you observed on the agar plates?*

write your answer here

√*Count the number of movements a worm makes in 1 min. Do this for at least 3 worms.*

write the number of movements for each worm here.

√*Now add approximately 0.2 ml ethanol to the Petri dish labelled 'ethanol'. After 2 mins, count the number of movements the worm makes in 1 min. If you do not see an effect of the ethanol count again after 10 min.*

write the number of worm movements for each worm here.

What effect has ethanol had on the behaviour of *C. elegans*? What other experiments could you do to test the effects of drugs on nematode behaviour?

write your answer here