Jonathan Quang 11/15/14

1WW

Prelab #8

2. In the text, "Annelid: The Official Worms" by NC State University, an earthworm has a tube-within-tube structure because of the way the earthworm is arranged. The outer tube is composed of muscle, the epidermis, and cuticle. The outer tube contains the inner tube, which makes up the digestive system of the worm.

3. According to "Form and Locomotion of an Earthworm" by Heather Kroening, setae help an earthworm move by anchoring a certain portion of the worm so the worm has something to "push" off of. As the segment of a worm expands and contracts in a radial and horizontal manner, the setae retract and extend into the local soil. Setae can prevent, or at least try to prevent, an earthworm from being yanked out of its burrow by a bird. By extending the satae, the earthworm anchors itself to the surrounding soil.

4. An earthworm’s favorite meal is soil, preferably high in organic matter. According to "Earthworm Digestive System" by Batul Nafisa Baxamusa, as an earthworm burrows through soil with food particles, it sucks up some of the soil and crushes part of it with the lips of its mouth. It goes through the pharynx where enzymes begin to break down some of the food and mucous lubricates the food for passage down the esophagus. Calcium carbonate is secreted from glands in the esophagus to help neutralize the acids of decaying organic matter and to get rid of extra calcium. Food is stored and mixed together in the crop. The food then moves into the gizzard where muscle contractions and rocks combined with enzymes secreted from the walls of the gizzard break down the food. The food becomes a thick paste that passes into the worm's intestine. Bacteria and enzymes break down the food even more before. Whatever cannot be digested is expelled from the anus. This is a one-way digestive system because the food travels in a single direction, down the length of the worm.

5.An earthworm exchanges respiratory gases through diffusion on the surface of the skin when it is moist. Oxygen diffuses through the skin and into skin capillaries that carry it away, maintaining the concentration gradient. Carbon dioxide diffuses from the cells into the blood and then into capillaries, where it diffuses out. The human respiratory system does this differently. To take in oxygen, the lungs relax to draw in air. The lungs then take in oxygen and put out carbon dioxide. The carbon dioxide is then exhaled out by contracting the lungs. Oxygen is absorbed by the blood that is pumped from the right side of the heart. The oxygenated blood is pumped into the left side of the heart where it is pumped to the rest of the body to deliver oxygen and take in carbon dioxide.

6.The circulatory system of earthworms and hearts are different. Earthworms have five simple hearts where as humans only have one. The hearts of earthworms are simple as they are larger vessels that contract rhythmically where as the hearts of humans have four chambers that also contract rhythmically. The blood of earthworms and humans are different in that earthworm blood is oxygenated and carbon dioxide expelled as it travels through the body where as human blood is oxygenated and carbon dioxide expelled in one place and remains deoxygenated as it passes through different portions of the body. Both systems are considered to be closed circulatory systems because blood is always contained with vessels and none of the blood ends up in body cavities.

7.An earthworm reproduces in a unique way. An earthworm produces both sperm and eggs. When two worms meet, they exchange sperm with each other, but in the event there are no worms during the breeding period, the earthworm will attempt to fertilize itself. A slime tube develops around a particular portion of an earthworm. As it slides down, it will pass over the egg sac where eggs are distributed into the slime tube. When it passes over the seminal receptacle, sperm is distributed into the slime tube. The eggs are fertilized and the slime tube falls off. The slime tube becomes a cocoon and worms will soon emerge. Hermaphroditic reproduction describes a form of reproduction where an individual produces both sperm and eggs.

8. An earthworm gets rid of nitrogenous wastes through tubular structures called nephridia. In the earthworm, the coelom, a body cavity that encloses the internal organs is filled with interstitial fluid. Wastes and nutrients diffuse from the fluid into the blood. Each nephridium begins with a funnel shaped opening called the nephrostoe. The nephrostoe is ringed with cilia that move the interstitial fluid into a narrow, twisted tubule surrounded by capillaries. During this journey, salt and other nutrients are reabsorbed back into the capillary blood, leaving wastes and excess water behind. What is left behind is considered urine and it is excreted through an opening in the body wall called the nephridiopore. The human system is slightly similar.

Works Cited

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