Bocas ARTS

Video transcript

How to make a stylet prep

Svetlana Maslakova

- Most nemerteans are predators. They use an eversible proboscis to attack their prey, such as other worms or mollusks.
- One group of nemerteans, called the hoplonemerteans, specialize in crustaceans. To penetrate their hard exoskeleton, they have evolved special proboscis armature, which consists of calcareous stylets.
- Characters of proboscis armature can be important for species identification, but to examine those stylets you will need to dissect the proboscis out.
- In this video, I will demonstrate how to do this.
- To dissect the proboscis out, you'll want your worm in a petri dish, you will need a razor blade, two pairs of forceps, a glass pipette for the proboscis, glass slides and cover slips.
- You will also need some magnesium chloride to relax the worm.
- To relax the worm, you will want to gradually add magnesium chloride to the petri dish containing your worm in seawater.
- Many nemerteans react with violent muscular contractions to chemicals including magnesium chloride so you will want to add magnesium chloride very slowly, a little bit at a time, and mix it in with a pipette.
- You'll want to wait a few minutes before adding more.
- It might take half an hour or an hour to completely relax the worm.
- Once the worm is sufficiently relaxed, you put it under the dissecting microscope to make the cut.
- You will want to cut off the anterior portion of the worm.
- You can see that the proboscis fell out of the wound, the worm wasn't completely relaxed, so it's contracting.
- So I'm going to pull out the proboscis, and separate it from the worm.
- The stylets are located in the middle region of the proboscis. Right here.
- So you are going to use the pipette to move the proboscis onto the glass slide with a little bit of seawater.
- Then you are going to gently lower the cover slip on top of the proboscis, without supporting it on anything, so it actually squishes the proboscis a little bit.

- Now you are ready to examine your stylet prep under the compound microscope.
- Here you can see the thicker anterior proboscis region, the much thinner posterior proboscis region, the stylet bulb region and the stylet region itself.
- Now we are going to zoom in on the stylet region, here you can see the central stylet mounted on a proteinaceous basis, which is this dark structure over here.
- You can also see two sacks with reserve stylets also known as the accessory stylets.
- Accessory stylets replace the central stylet if it's lost or damaged.
- The shape of the basis and the length ratio of the basis to the central stylet are some of the characters important for species identification.
- Another character is the number of the resource stylet sacks. This species has 4 and this species has many more.