The ciliated epithelium of mussels (Item No.: P1444101)

Curricular Relevance

Area of Expertise: Biologie

Education Level: Klasse 7-10

Topic: Biologie der Zelle, Mikroskopie

Subtopic: Wirbeltiere und andere Tiere

Experiment: Flimmerepithel in Muscheln

Difficulty	Preparation Time	Execution Time	Recommended Group Size
Easy	10 Minutes	30 Minutes	1 Student

Additional Requirements:

- Live mussel
- Bowl with water

Experiment Variations:

Keywords:

Task and equipment

Information for teachers

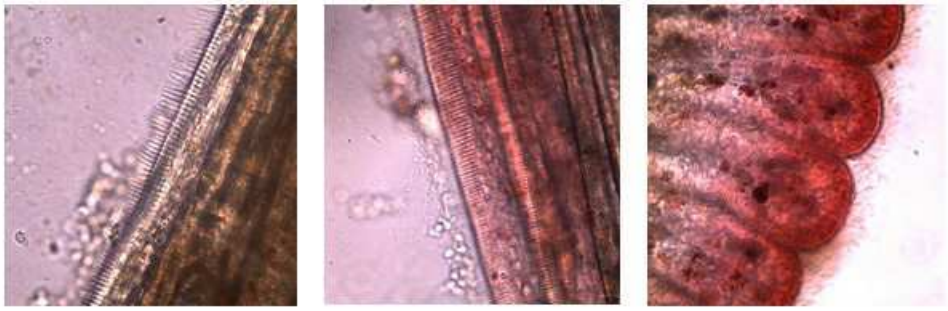
Information
In numerous animals, the surface of mucous membranes is ciliated similar to the bronchial mucosa in humans. Mussels not only breathe with their gills but they are also able to feed themselves by using them. The cilia growing on the surface of their gills produce a water current. Ingestible particles from the water are taken up by the mucus and led to the mouth. Mussels consequently attain great significance as water filtrators.

Information on obtaining materials
Live mussels must be provided for this preparation. They are obtainable at a pet shop, fish store, or at a location where these animals prevail with a great abundance (coastal areas). Protected species must not be taken from natural environments. It suffices to provide only one mussel for each class.

Information on how to proceed

The gills of mussels must float freely in water, then the removal of a small tissue specimen will be no problem.

Recognition of the cilia is improved by a slight stain with Neutral Red:



Ciliated epithelium of the swan mussel (Anodonta cygnea), (400x)

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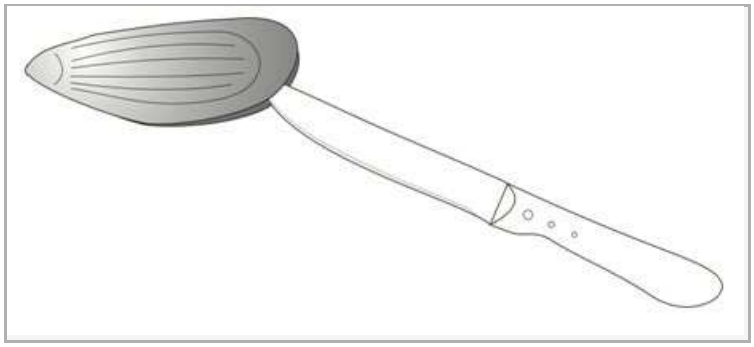
Task and equipment

Task

Observe the movements of the cilia!



Equipment

Position No.	Material	Order No.	Quantity
1	Euromex BioBlue BB.4250 microscope	EUR-BB-4250	1
2	Microscopic slides, 50 pcs	64691-00	1
3	Cover glasses 18x18 mm, 50 pcs.	64685-00	1
4	Scissors,straight,pointed,l 110mm	64623-00	1
5	Tweezers,straight,pointed,120mm	64607-00	1
6	Knife, stainless	33476-00	1
7	Chemicals set for TESS advanced Microscopy	13290-10	1

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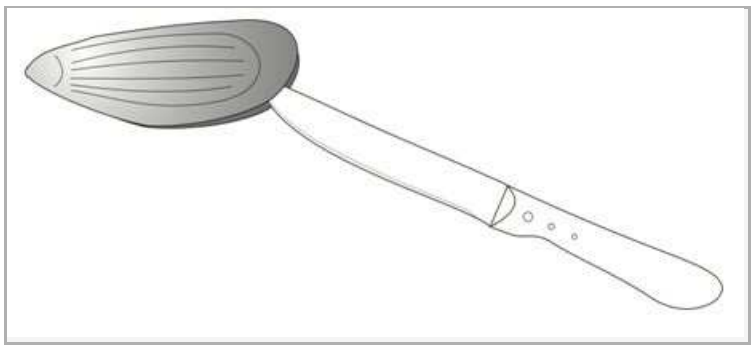
Set-up and procedure

Information
In numerous animals, the surface of mucous membranes is ciliated similar to the bronchial mucosa in humans. Mussels not only breathe with their gills but they are also able to feed themselves by using them. The cilia growing on the surface of their gills produce a water current. Ingestible particles from the water are taken up by the mucus and led to the mouth. Mussels consequently attain great significance as water filtrators.

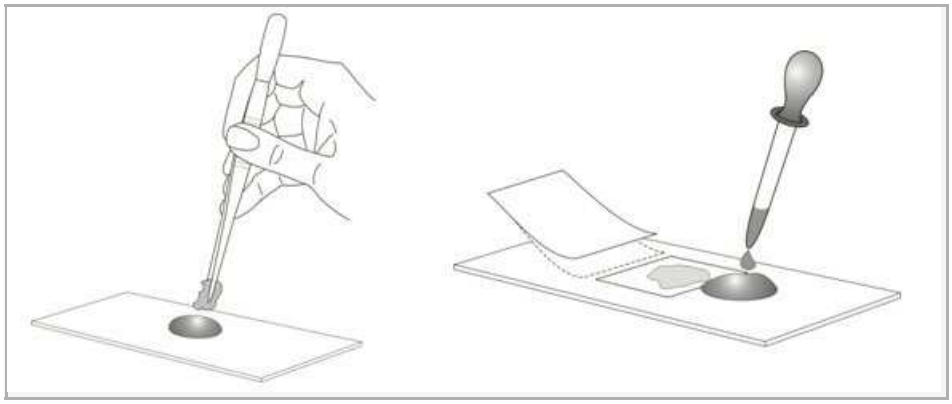
Methods and observations

1. Cut a mussel open using the knife. An occlusor muscle will be dissected once you do so.



The mussel is then immediately placed into a bowl with water. The water must cover the mussel completely. Now you are able to see the gills which float in the water like thin flap of skin.

2. Hold the edge of the gill flap with your forceps and cut off a small piece from the edge of the gills with the dissecting scissors. Examine it under the microscope with various powers. Enhance contrasts by pulling a little bit of Neutral Red under the cover slip after making initial observations.



Report: The ciliated epithelium of mussels

Result - Observations 1

Describe the observations you make in your own words.

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Result - Observations 2

Make a drawing of what you see.