Embedding in Canada balsam (Item No.: P1440801)

Curricular Relevance

Area of Expertise:	Education Level:	Topic:	Subtopic:	Experiment:
Biology	Age 14-16	Cell biology, microscopy	Basics of microscopy, work techniques	Embedding in Canada balsam

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

Additional Requirements:

- Insect wings or legs or similar
- Onion skin or similar
- Muscle sample or similar

Experiment Variations:

Keywords:

Task and equipment

Information for teachers

Information
To make permanent microscopic slides, the specimens must be fully dehydrated and fixated (Experiment P1440701), be very thin, and naturally sealed free of air. Natural resins such as Canada balm and malinol can be used to accomplish the exclusion of air. These materials solidify after drying up and become as transparent as glass. Air bubbles that might become entrapped will migrate to the edges.

Information on obtaining materials

Materials prepared for embedding must first be thoroughly dehydrated and fixated (Experiment P1440701). Various embedding resins are commercially available as agents designed for making permanent microscopic slides. They are all quite transparent when hardened and possess diffraction properties which are similar to those of glass. Example: Canada balm, Malinol, DePeX, Entellan, etc. Diffraction index, flow properties and acid content of these mounting media may differ slightly among each other.

Information on practical performances

- Clean permanent microscopic preparations can only be made on clean slides.
- Forceps may cause damage when handling very thin specimens. Fine brushes may be used instead.
- Should too much Rotihistol adhere to the specimen, the Canada balm will become overly diluted.
- If the specimen is insufficiently mounted, extra balm must be applied to the edge of the cover slip, if possible. It will be drawn under the cover slip, if it has the right consistency.
- The glass rod is cleaned with an organic solvent.
- Labels are written using a non-fading ink pen. Pencil also survives many decades, many inks do not.

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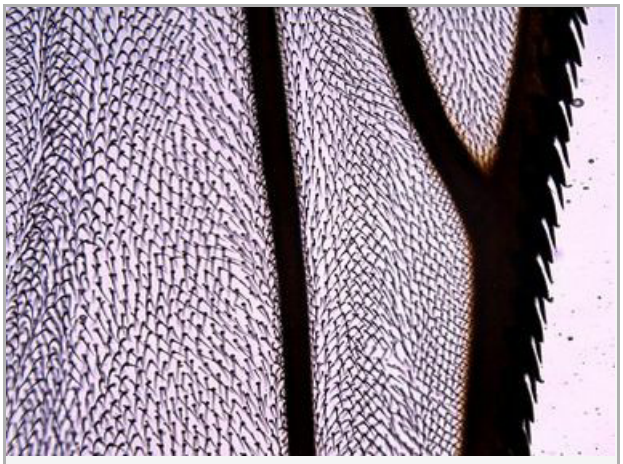
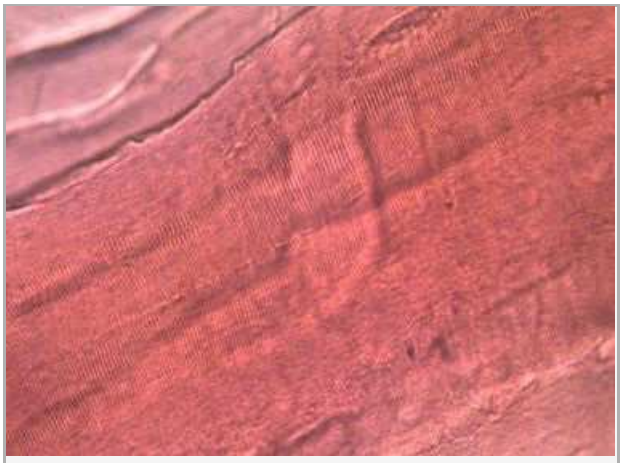
Blowfly (Callophora spec.). Wing in Canada balm, 40x



Blowfly (Callophora spec.). Wing in Canada balm, 100x

Blowfly (Callophora spec.). Leg in Canada balm, 100x



Muscle in Canada balm, 400x

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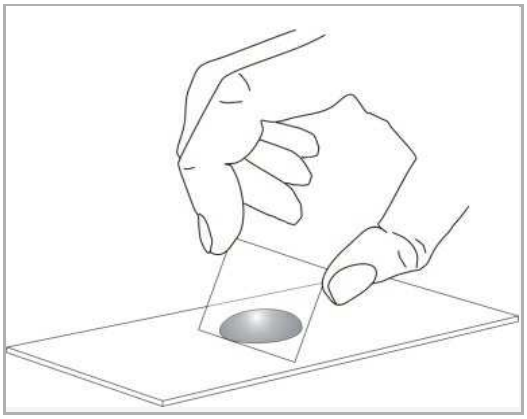
Task and equipment

Task

Produce permanent microscopic slides of previously dehydrated specimens!



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	Tweezers,straight,pointed,120mm	64607-00	1
5	Dissecting needle, pointed	64620-00	1
6	Dissecting needle, lancet-shaped	64621-00	1
7	Scalpel holder	64615-00	1
8	Scalpel blades,rounded tip,10 off	64615-02	1
9	Glass rod,boro 3.3,l=200mm, d=5mm	40485-03	1
10	Labels for microscopic slides, 120/pkg	64703-00	1
11	Chemicals set for TESS advanced Microscopy	13290-10	1

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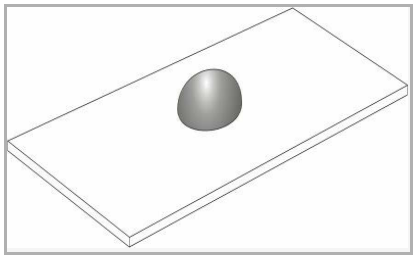
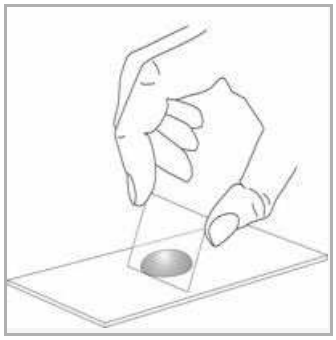
Set-up and procedure

- Clean a slide thoroughly.
- Put one to two drops of Canada balm onto the slide using either a glass rod or a drip bottle.



- The specimen is taken from Rotihistol (Experiment P1440701) and placed into the resin with as little liquid adhering to it as possible.

- Cover the specimen with a cover slip without entrapping air bubbles.



Subsequent processing steps:

- The slide should now be left to dry for about one week, lying flat on its back surface (20-40 °C).
- Remove excess resin using the scalpel.

- Labeling the slide

The purpose of labels is to inform you about the specimen you see, also at a later event when it has become part of a larger collection of permanent microscopic slides. In addition, the date of preparation should be noted. The staining method, the embedding agent, and your name may also be indicated. At the end, take a picture of your labeled slide and upload the file to the report.

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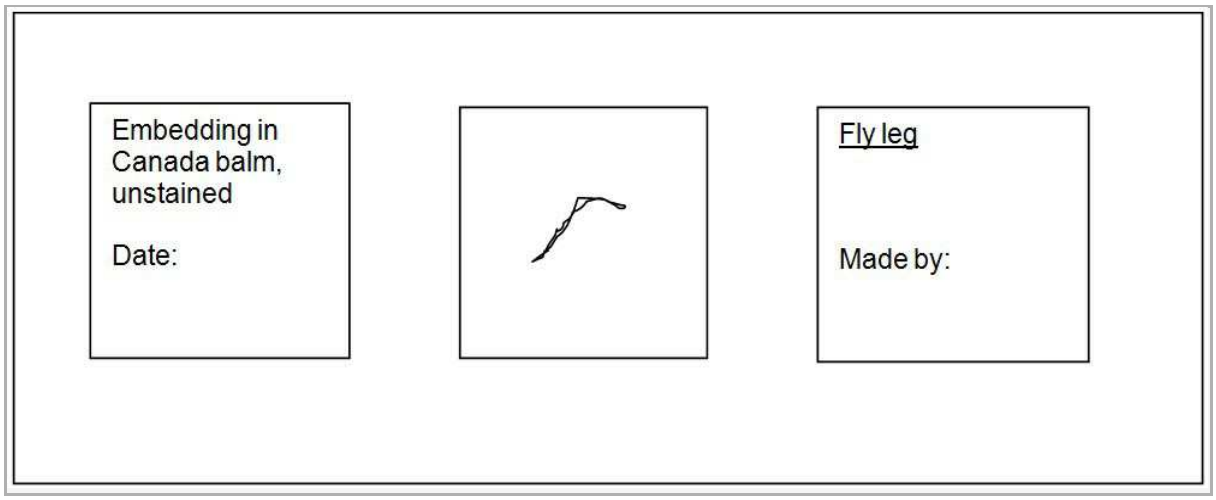
Example:



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