

BIOLOGICAL CLASSIFICATION OF MARINE ORGANISMS

BIOLOGICAL CLASSIFICATION OF MARINE ORGANISMS

Preservation of Biological Collection



MINISTRY OF HIGHER EDUCATION



Part 1: Dry Collection

Azwarina Bt Mohd Azmi Ramasamy

Senior Curator

**South China Sea Repository And Reference Center,
Institute Oceanography and Environment,
Universiti Malaysia Terengganu**



BIOLOGICAL CLASSIFICATION OF MARINE ORGANISMS

What are dry biological collections?



MINISTRY OF HIGHER EDUCATION



- Dry collections consist of those specimens that are **preserved in a dry state**. 2 factors influence dry state:
- **Rigidity**. Some specimens can be preserved naturally (starfish) or artificially (vascular plants) with sufficient rigidity to accommodate normal handling. Such specimens often are suitable for dry preservation.
- **Specific characteristics**. Drying may provide the best available means to preserve natural colors (for example, butterflies) or distinguishing features (such as skeletal parts or surface details)

How are dry specimens stabilized?

- Dry stabilization is used for many biological collections. However, the activities can vary significantly between disciplines.
- some invertebrates are treated with chemicals to either control bacterial decomposition of soft body parts by removing fats or oils, to degrade soft body parts to facilitate removal or to relax the specimen.
- the flesh is normally removed from skeletal parts of vertebrate specimens to facilitate drying.



MINISTRY OF HIGHER EDUCATION



Dry preservation

- Dry collections consist of those specimens that are preserved in a dry state.
- Dry preservation is useful for visual examination of characteristics, particularly where a degree of color and some delicate parts are important.
- Fluid preservation may sacrifice color but is useful for preserving internal organs that might be exposed by dissection.



MINISTRY OF HIGHER EDUCATION



Type of dry preservation



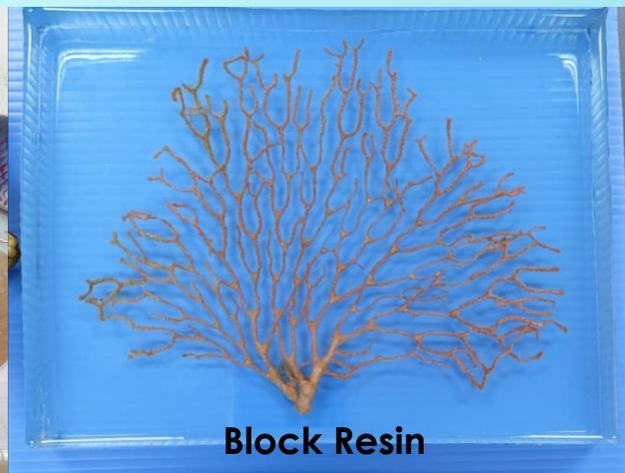
MINISTRY OF HIGHER EDUCATION



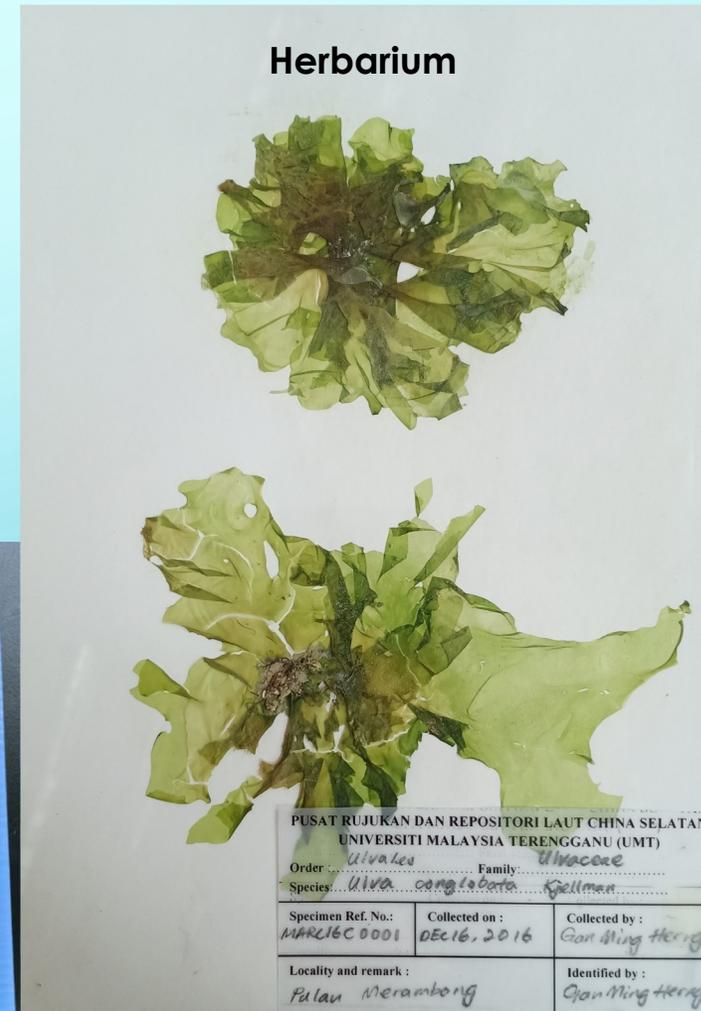
1. **Scientific Skin Technique** – fish, lizard, amphibian
2. **Taxidermy** – mammals, bird, turtle
3. **Transparency** – bony fish
4. **Anthropoids skin** – lobster, crab, horseshoe crab
5. **Skeleton** – Coral, whale, turtle, shells
6. **Resin coated** – finishing for non fur or feather animals



Taxidermy



Block Resin



Taksidermi (Mammal, Reptilia)



MINISTRY OF HIGHER EDUCATION



Skin preservatives:

1. Formalin 10% - 3.8L
2. Phenol - 56 grams
3. Glycerol - 50 ml
4. Salt - 300 grams

Dissolve all these ingredients in a glass bucket or plastic bucket

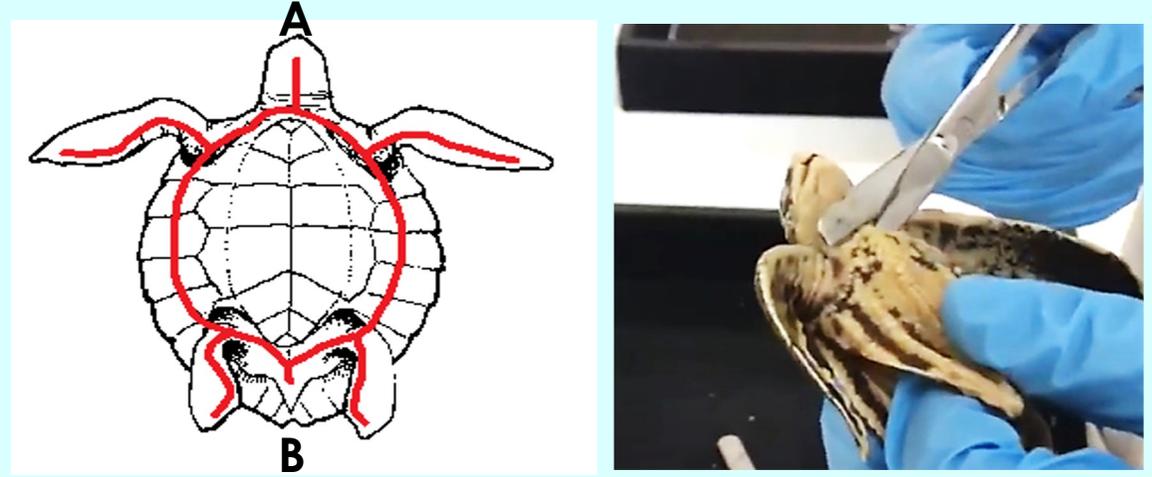
Tools/materials needed:

1. A scalpel
2. Small scissors
3. Chopsticks
4. Plier
5. Wire
6. Dissecting needle & thread
7. Cotton or PU foam
8. Large size polystyrene (for animal position set)



1. Skinning animals

Place the dead turtle on the workbench; make an incision from A to B (from the bottom of the base of the head to the anus).



For animals such as turtles, loosen both sides of the skin of the foot with the base of a scalpel then start the peeling work from the back foot. Push the back leg up until the thigh joint of the foot is visible, cut the joint connection with a scalpel or scissors.

Once both legs are skinned, skin the tail portion. The tailbone can be pulled gently so that the tail skin is separate. Be careful that the tailbone is not severed.

Do the same on both front legs. Skinning is continued on the neck, ears and eyes. Use a sharp knife to peel the head and leaved the skeleton of head attached with the skin. Clean inside the skull carefully, make sure no more soft tissue and cut the neck bones on that part.

- Punch a small hole inside the base of the skull to remove the brain. Clean the remaining flesh on the skull.
- Remove the two eyeballs, the tongue and the brain. Use a brain spoon or chopsticks for this job.
- Once everything is done, invert the scalp as original and fix it using a tool such as chopsticks or a straight iron.
- When the skin of an animal has been skinned and separated from the original body; the skin is thoroughly re-cleansed.
- Remove all meat attached to all parts of the skin.
- The carapace with the meat is well cleaned. The inside of the scalp was found to have a lot of sticky fat, scraping off all the fat with a knife.



2. Wash the skin

The cleansed skin is put into a pre -prepared skin solution. Leave this skin on overnight.

3. Shaping the skin scientifically

Remove the skin from the preservative solution, wash and rinse with clean water until the formalin odor disappears. Place the animal skin on the work table.

4. Dry skin

Use a tissue and dryer to dry the skin. Ethanol can also be applied to speed up drying and keep the skin clean.

5. Preserve with borax

Place the turtle skin on the table. Apply borax on the inner skin and make sure all parts of the inner skin are preserved with borax. Let it dry for a while.

6. Make an artificial body

From the original body of an animal, make an artificial body with cotton. Cotton or PU foam is used for the artificial body of an animal. During forming the artificial body, a fine thread is used to tie the cotton. Do not make this artificial body too big, big enough like the original body or slightly smaller than the original body.

Cut fine anti rust wire 10 "to 12" long. Tighten the ends and wrap the wire with cotton so that it is shaped like a tailbone. Insert the formed wire and cotton into the tail skin. Then shaped the bones of the legs and wrapped with cotton so that they are shaped like thighs.

Once all four legs have been formed as intended, insert the artificial body into the skin of the animal. Shape the skin of this animal as if it were the original animal. This formation is done by adding cotton in the necessary places.

Once formed, the animal skins are carefully and neatly sewn. Arrange and shape the animals on the board provided. Straighten the front and back legs and use a safety pin so that the animal is in such a state that the skin is dry.

Dry the animal skin in a hot oven temperature between 35°C to 40°C in one week. If the sample is big, it is sufficient to dry with natural dry only. Sometimes it's takes more than month to dry it well.

Touch up the eyes of the turtle with handmade resin eyes and color it similar to the true eyes of turtle.



7. Final finishing coating

Specimens will be more beautiful and durable if coated with acrylic coating.

Once dry, apply/spray acrylic coating on all parts of the specimen body and let it dry. Repeat this step up to 3x to get an even layer of waterproofing coating.

8. Storage

Where to keep it should be thought of so that the skins of animals can be well cared for. For this purpose the chest of drawers is very suitable for storing the skins of animals that have been preserved in a dry state. Use the chemical Paradichlorobenzene to prevent from delicate insects. This material is placed in a drawer where the animal's skin is stored. The care and retention of the specimen is up to the individual so that the specimen can be stored for hundreds of years.



MINISTRY OF HIGHER EDUCATION



Thank You

BIOLOGICAL CLASSIFICATION OF MARINE ORGANISMS