

**Department of biology**

**((Invertebrates))**

**2 stage**

**Lab5**

**Fixation and Preservation of Invertebrates**

**By**

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**Fixation**

\*The fixation of biological specimens involves the coagulation of cell contents into insoluble substance with the purpose to prevent autolysis and the degradation of tissue. Fixation coagulates and stabilizes protein in specimens so that they do not distort or deteriorate during preservation, study and storage.

\*A good fixation is generally achieved in a brief amount of time (hours to days) and as soon as the animal is collected.

\*Formalin is generally the preferred fluid for fixation and is widely used. Invertebrates typically require only formalin4%.

\*In fish, amphibians, reptiles, birds, and mammals, the ratio of formalin to carcass must be at least 12 to 1 to

**Preservation**

\*Preservation is any process that serves to keep the dead body of an organism from decay, in part or in whole, presumably to be studied later.

\*Both vertebrates and invertebrates can be preserved in fluid or as dry specimens.

\*The archival preservation fluid that has been used the longest and is generally preferred is alcohol.

\*The standard is 70-75% ethyl alcohol or ethanol

\*40-50% isopropyl alcohol is used on some animal taxa. It tends to make them brittle over time. For this reason, one needs to buffer it with a few drops of glycerin and a pinch of calcium carbonate.

\*Sorting solution" (1.5 parts propylene phenoxetol, 5.0 parts propylene glycol, 10.0 parts full strength Formaldehyde, & 83.5 parts distilled water) has been used successfully for the long-tem storage of some taxa

**Invertebrate Killing methods**

**Killing Jars**

Liquid killing agents are ethyl acetate ether chloroform, and ammonia water Ethyl acetate is most widely used. All of these chemicals are extremely volatile and flammable and should never be used near fire.

**Solid killing**

 agents are the cyanides potassium cyanide sodium cyanide, or calcium cyanide They are dangerous rapid acting poisons with no known antidote and hence are to be handled with extreme care Absorbent material Plaster of Paris/Cotton.

**Invertebrate Killing methods**

Freezing

\*Due to environmental and safety concerns, and the well-being of the specimen also, these methods have been done away with and are today being replaced by freezing

\*After the specimens have been collected, they can be transported home or to the lab in a plastic zip-lock bag or paper envelopes.

\*The specimens are then carefully placed into a portion of the freezer where they will not be damaged Leaving invertebrates in the freezer for prolonged periods of time however may damage the specimen.

\*They are to be freezed only long enough to render

them immobile.