IVSS REPORT - 2021

IDENTIFYING PARTS OF A MOSQUITO LARVA.

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ABSTRACT

Global Learning and Observation to Benefit the Environment (GLOBE) Program, is meant to equip students with necessary knowledge and skills about their immediate environment, their distant environment and the world at large to environmental degradation, climate change and how to make the earth a better place to be.

Our main objective of this research is to be able to identify different parts of a mosquito larva using the GLOBE Mosquito Habitat Mapper app and a micro-lens provided to us by the GLOBE Program. Our investigation involved identifying a mosquito breeding site and collecting different samples of mosquito larvae which we used as specimens. All the data we collected was recorded using the GLOBE Mosquito Habitat Mapper app and a micro-lens and uploaded it using the GLOBE Observer App in to the GLOBE website and later used it during our analysis. We studied the head, thorax and the abdomen and identified the fine details of the larva like tufts, pecten, comb scales, siphon etc.

Even though the schools had been closed for a very long period of we were able to ADAPT TO THE CHANGING GLOBE since learning continued outside the class by using the GLOBE observer app and other GLOBE tools for learning. Thanks to GLOBE for supporting and helping us in advancing our skills and knowledge in STEM.

The GLOBE protocols linked with this research were BIOSPHERE, MOSQUITO PROTOCAL and HYDROSHERE.

THE RESEARCH QUESTION

1. Are we able to identify different parts of a mosquito larva?
2. Which parts of a mosquito larva do we use to identify different mosquito species?
3. Why should we use mosquito larva in our research instead of other developmental stages?

HYPOTHESIS

Mosquito larva has different parts such as head, thorax, abdomen and siphon. There are other finer details such as pecten, tufts, comb scales, gills, dark plate etc. These parts can be easily seen and identified using a micro lens and a GLOBE Mosquito Habitat Mapper app. The major parts are common all the mosquito larvae species but the minor parts vary from one species to another. These fine details are found only in the larval stage and are the ones used in identifying different mosquito species. It is easy to trap mosquito larva, they are harmless and they don't transmit diseases. This must be the reason why they are often used in the mosquito research compared to adult mosquito which bite and transmit diseases.

LITERATURE REVIEW

The mosquito larva has a well-developed head with mouth brushes used for feeding, a large thorax with no legs, and a segmented abdomen. It has different parts such as head, thorax, abdomen and siphon. There are other finer details such as pecten, tufts, comb scales, gills, dark plate etc.

Larvae breathe through spiracles located on their eighth abdominal segments, or through a siphon, so must come to the surface frequently. The larvae spend most of their time feeding on algae, bacteria, and other microbes in the surface microlayer.

RESEARCH METHODS

Storytelling, data collection and data analysis

TOOLS AND MATERIALS

Mosquito breeding sites, an ovitrap, a micro-lens, a phone and a GLOBE observer app.

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PROCEDURE

1. Identify potential mosquito habitats and take some samples of mosquito larvae.
2. Using a micro-lens identify parts of the larva by selecting a representative larva for some close-up photos. Use the images on the Mosquito Habitat Mapper to compare and identify the parts.
3. Eliminate the breeding habitat.
4. Document and use the Mosquito Habitat Mapper to send the information to the GLOBE for knowledge sharing.
5. Use the data you have recorded for future analysis.

RESULTS.

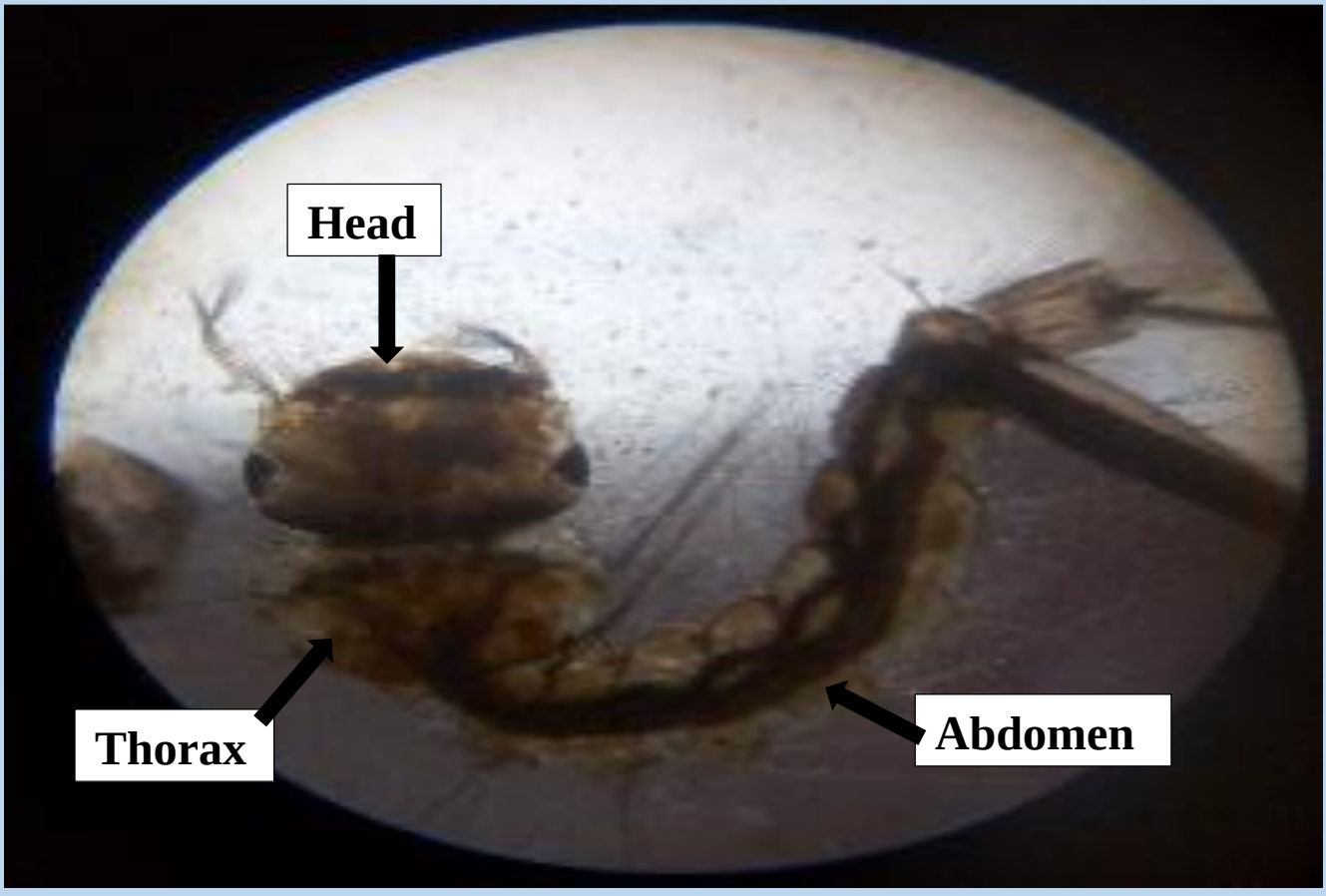
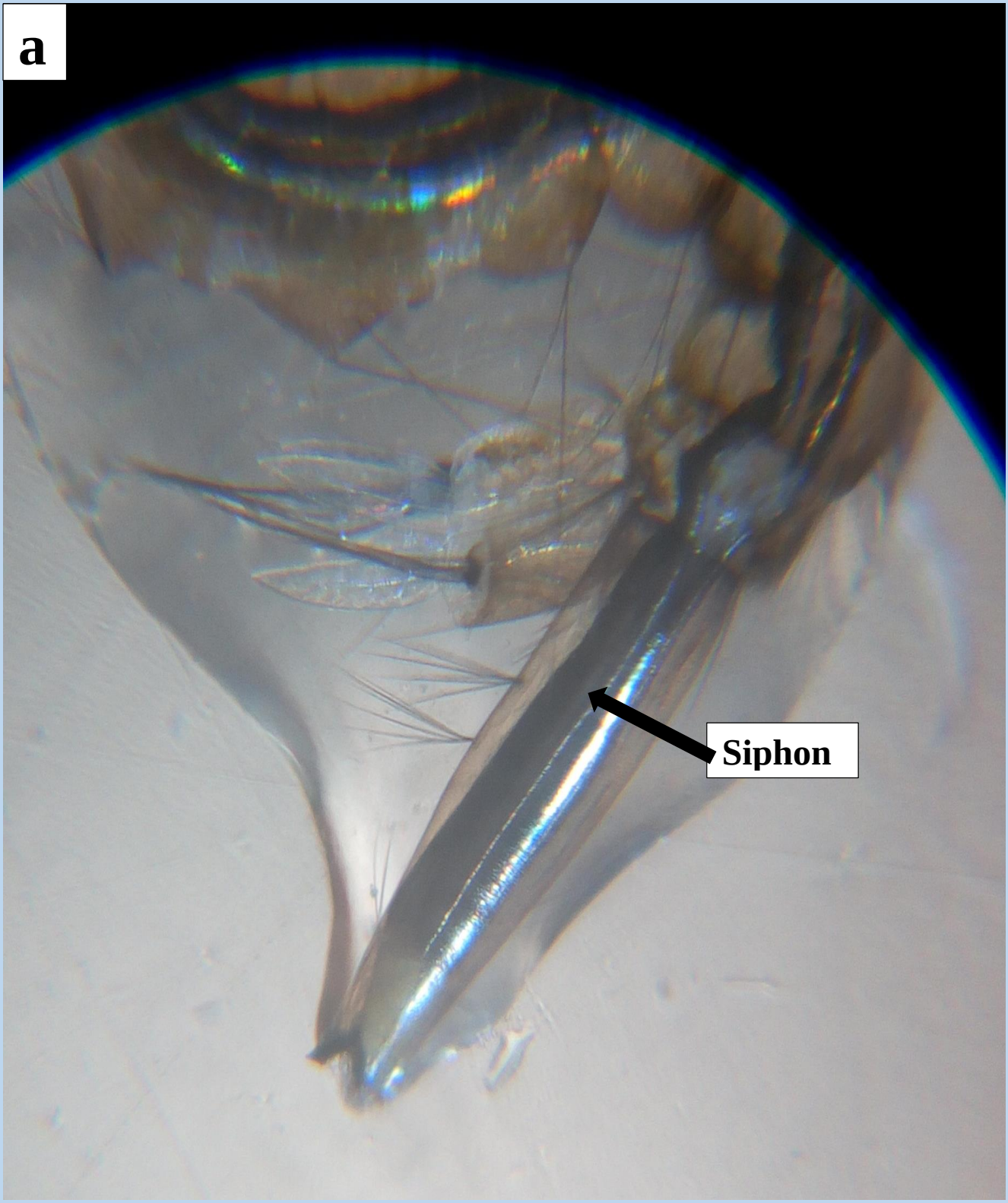
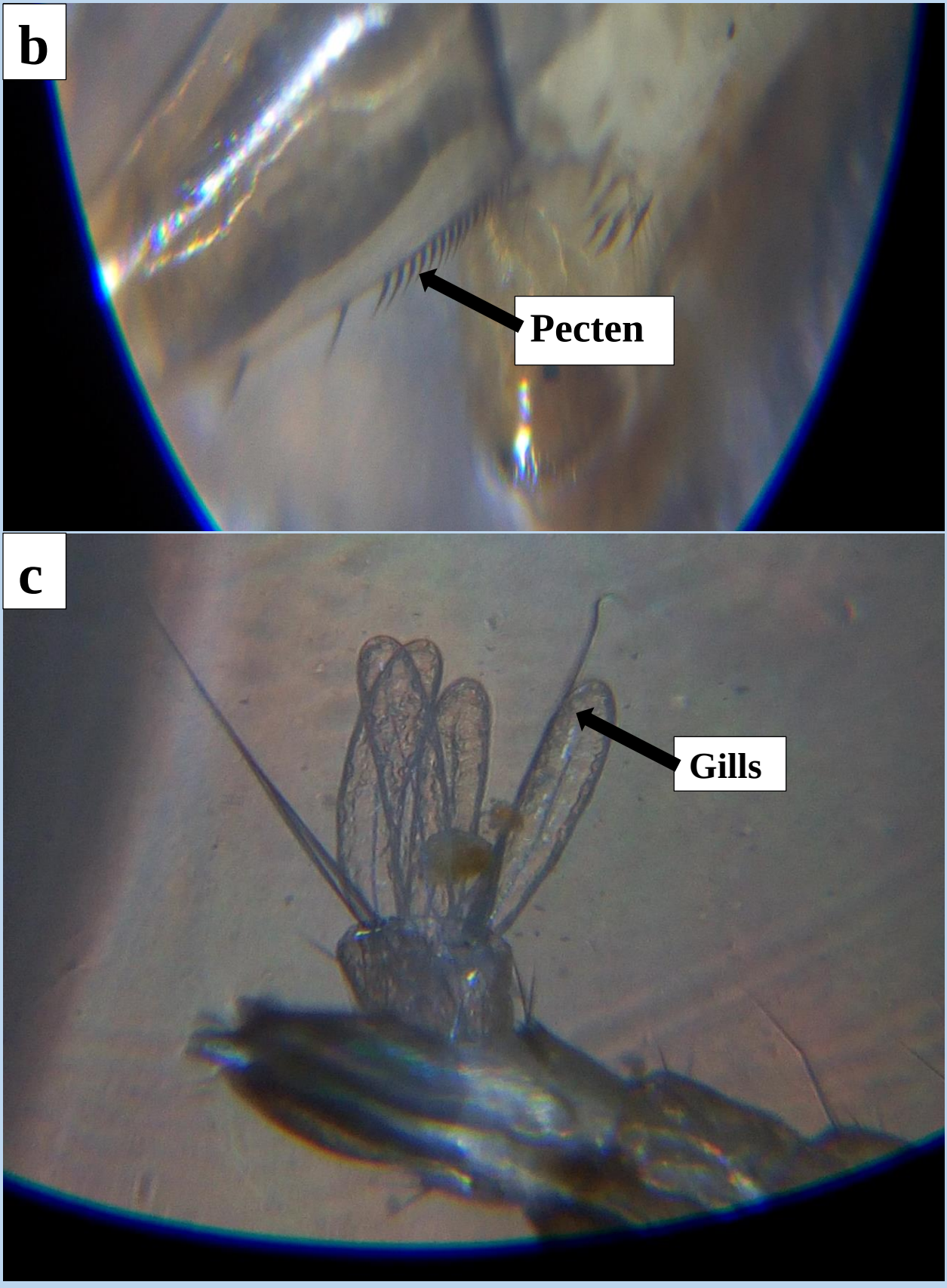
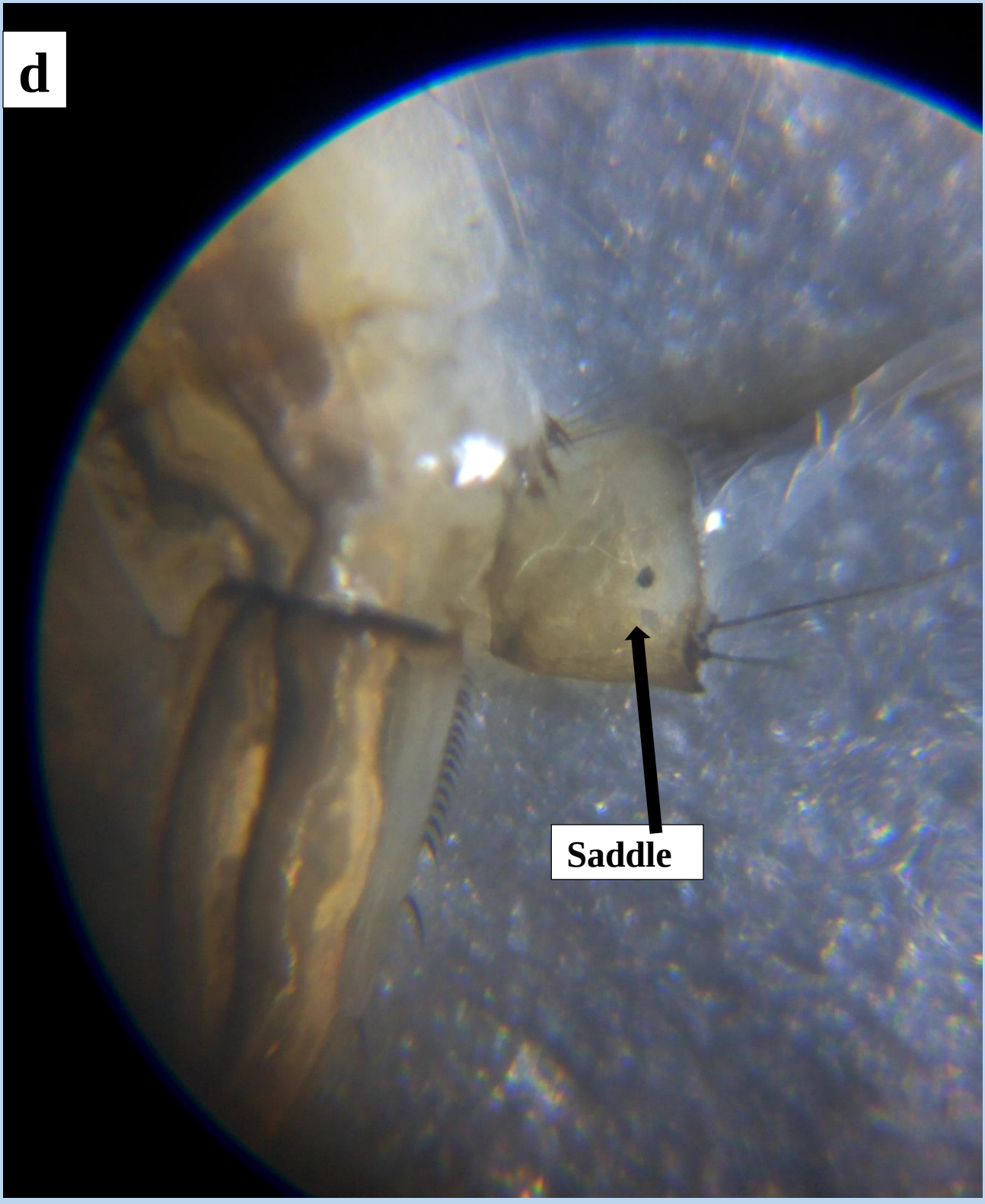
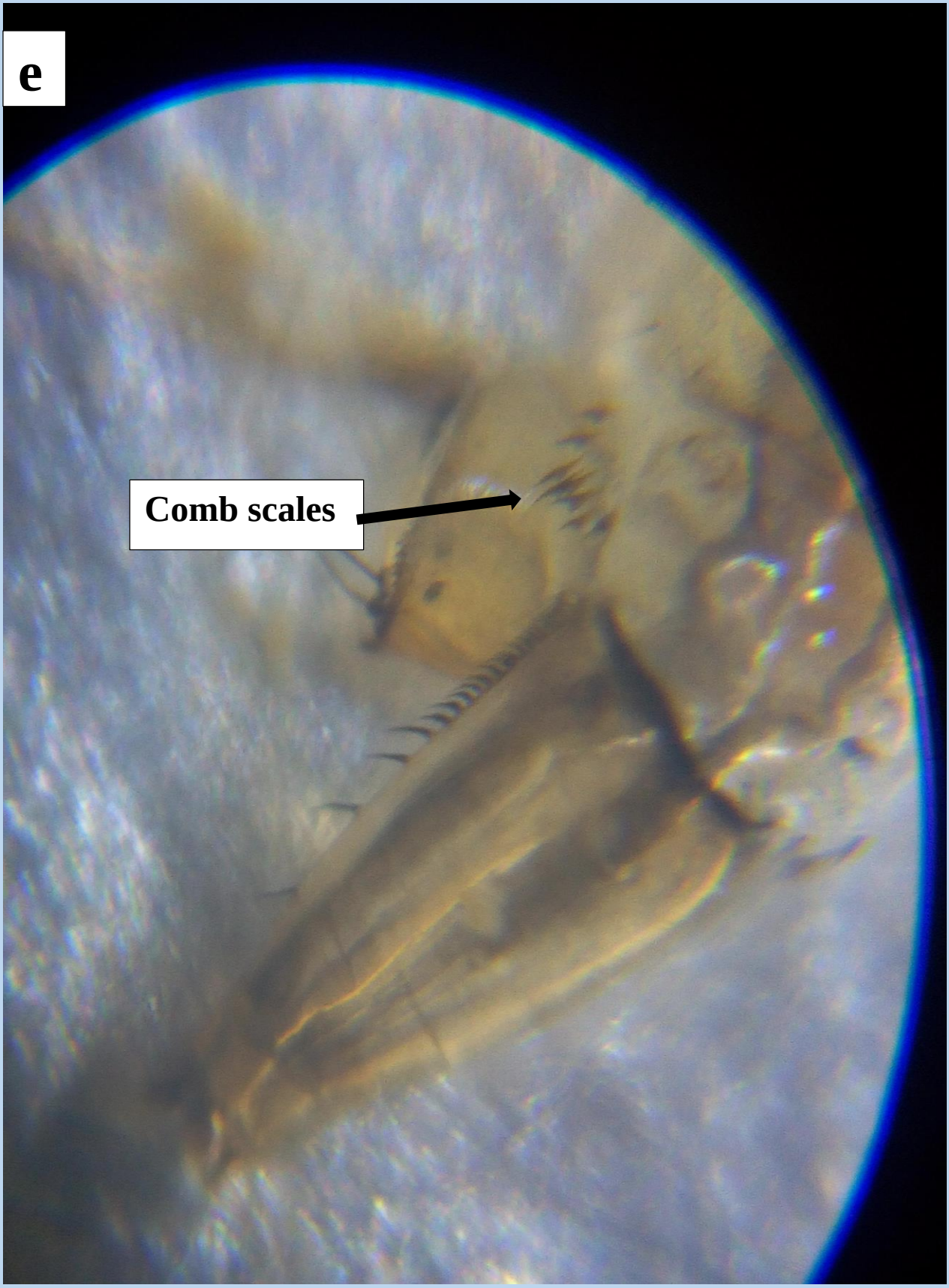


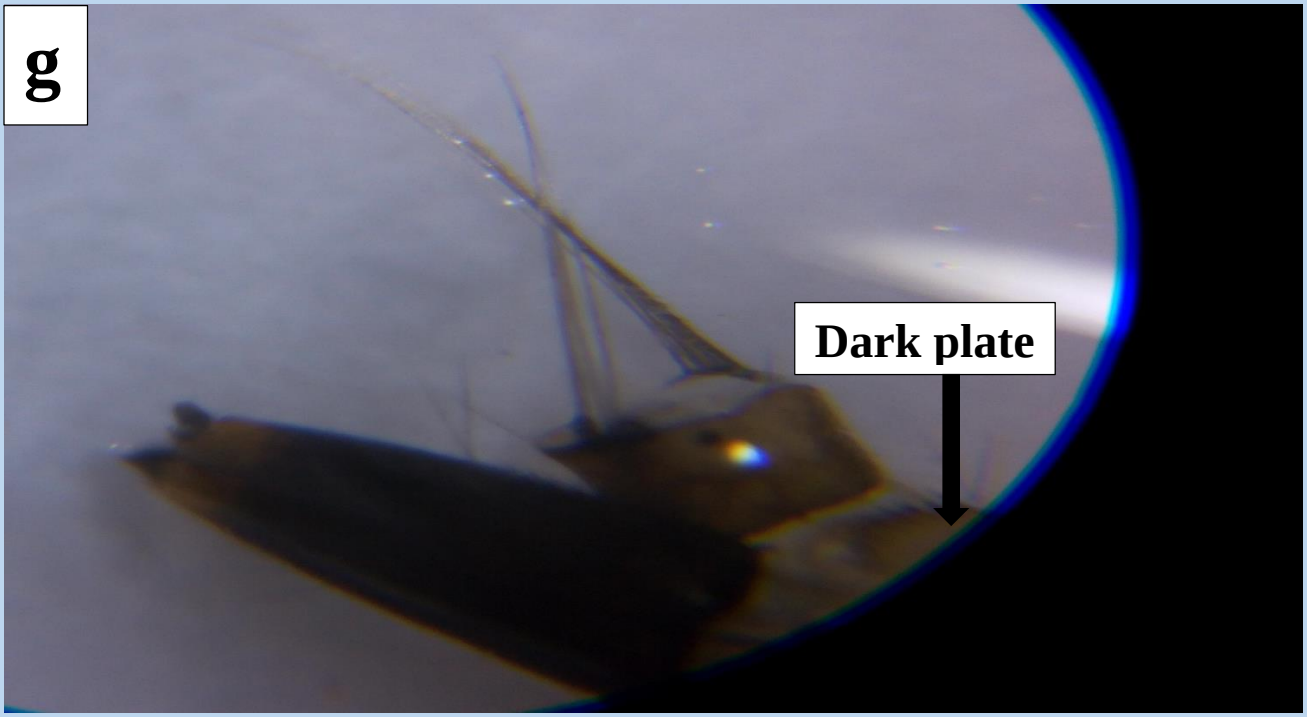
Fig 1: A mosquito larva


a
Siphon


b
Pecten
c
Gills


d
Saddle


e
Comb scales



Figures 2(a, b, c, d, e, f, g) showing fine details of a mosquito larva.

DISCUSSION.

From the photographs in fig 1 we observed that a mosquito larva has three main parts. These parts are head, thorax and abdomen. In addition to that, in figures 2(a, b, c, d, e, f, g) it has other finer details which we were able to identify. These details included hair tufts, pectin, comb scales, siphon, gills, dark plate and saddle. By identifying these parts, we were able to differentiate between different mosquito species. During the identification process, the mosquito larvae were easy to handle, they were harmless to us and they had everything we were looking for. This answered all our question and therefore, our hypothesis was true.

CONCLUSION.

From the above observations we conclude that:

1. A mosquito larva has many parts and details that are used to in identifying different mosquito species.
2. A mosquito larva is the best stage for use in identifying different mosquito species because they are friendly and harmless.

RECOMMENDATIONS

We recommend that:

1. It is safe to control the mosquitoes during their larval stage since they are harmless in this stage.
2. All the recorded mosquito data to be properly stored for future analysis and education.
3. Research to be done on what can be done to the mosquito larvae and prevent them from turning into the dangerous adult mosquitoes.

REFERENCES

- https://en.wikipedia.org/wiki/Mosquito
- https://www.vdci.net/mosquito-biology-101-life-cycle/
- *GLOBE observer app and a Mosquito Habitat Mapper app.*