

# 2012 年臺灣國際科學展覽會

## 優勝作品專輯

國家：South Korea

編號：050030

### 作品名稱

A Physical Analysis of the Difference in Ungues of  
Insects on Types of Habitat

### 得獎獎項

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# **Abstract**

## **1. Purpose of the research**

While studying about insects for school club activity, we found that there are differences in several anatomical characters of the insects according their habitats. Especially, the unguis was different as whether the insect lives in water or on land. So we observed the structure of unguis of some insects by microscope, and physically analyze to relate with the habitat of each insect.

## **2. Procedures**

First, we read papers and books about insect morphology to study about insect's unguis. Then, we collected samples of *Chironomus plumosus*(larva), *Neuronia regina*(larva), and *Carbula humerigera*. After pretreatment of samples, we put them in the SEM (Scanning Electron Microscope), observed the unguis of each insect and took pictures.

## **3. Data**

First, the larva of *Chironomus plumosus* has prolegs with numberless hooks that has a certain arrangement and the same angle of 90°. They also has several tiny swellings around the hook. Next, the larva of *Neuronia regina* has pincer-like unguis which were sharp and bend, reminding the shape of a quadratic curve. Lastly, *Carbula humerigera* has two large, thick pincer unguis, its form same as the of *Neuronia regina*. The unguis are very sharp and faced towards the land.

## **4. Conclusions**

Both the aquatic insects and the terrestrial insects have structures in unguis

developed to increase precision on land. Especially, the angle of unguis were all close to  $90^\circ$ . In addition, aquatic insects like the larvas of *Chironomus plumosus* or *Neuronia regina* have particular characters increasing friction force according to resist the flow of water.

## 評語

We welcome and thank your attending 2012 Taiwan International Science Fair. We wish you may continue your interesting project in future and visit Taiwan again.