



## **Zoology (4)**

### **(Entomology & Invertebrates II)**

**206 scbio**

**(Practical Part)**

**Second semester**

**Prepared by**

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**Dr. Ali Mansour Fadlallah**

**Lecturer: Mariam M. Gad**

**القائم بالتدريس: د. مريم محمد جاد**

**Faculty of Science- Zoology Department**

**2022-2023**

# **Book data**

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**Faculty: Education**

**Group: Second**

**Division: Biology & Geology**

**Publication date: Second semester**

**2021-2022**

Kingdom: Animalia

Subkingdom: Metazoa

Phylum: Arthropoda

Subphylum: Branchiata

Class: Crustacea

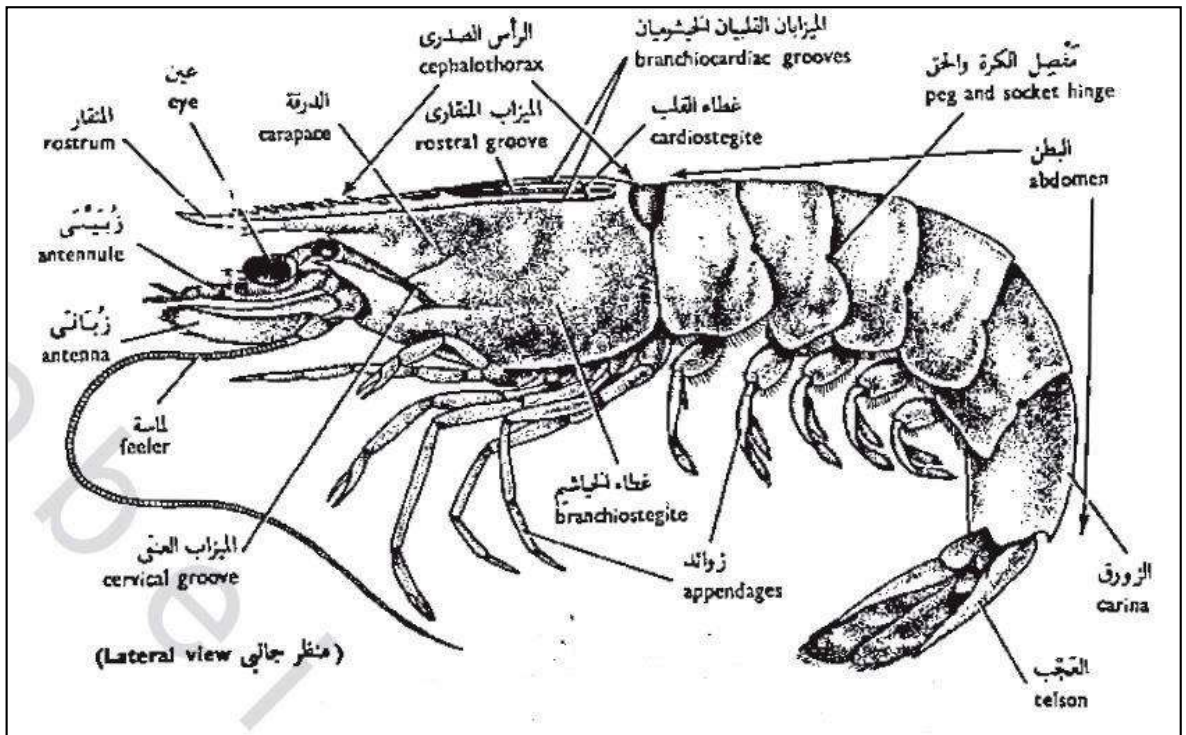
Subclass: Malacostraca

Order: Eucarida

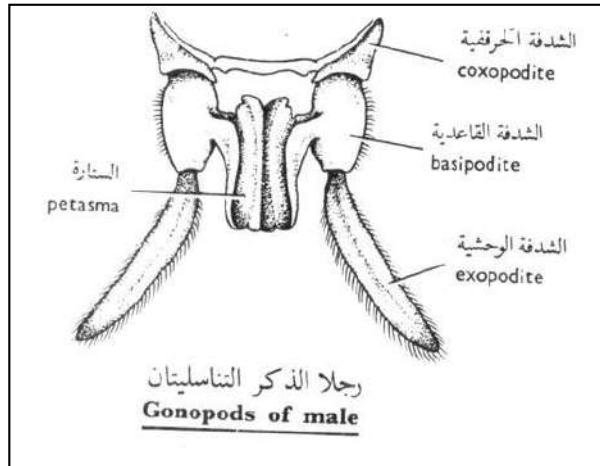
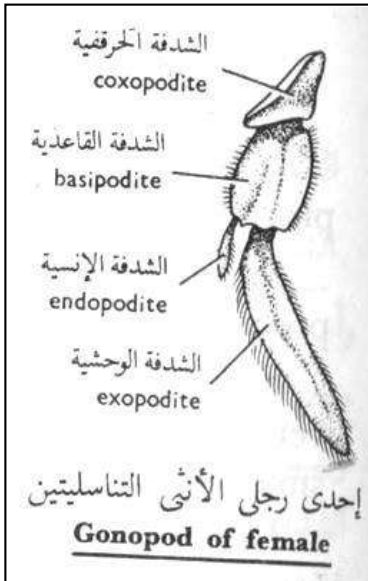
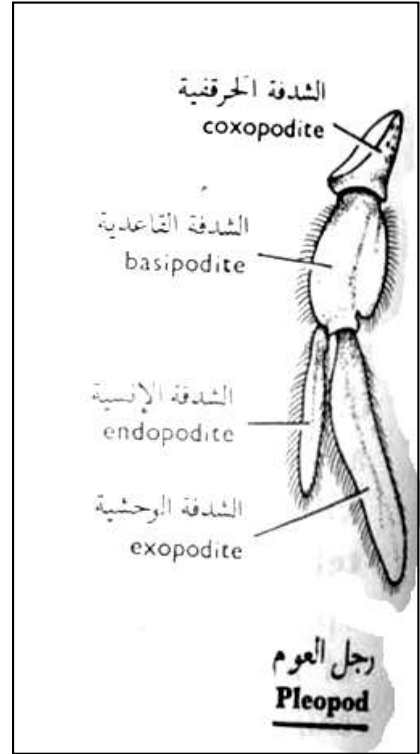
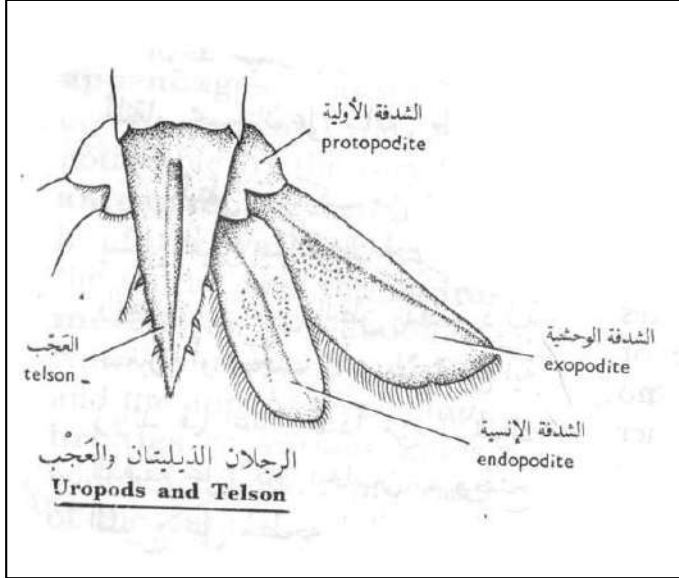
Suborder: Decapoda

Family: Macrura

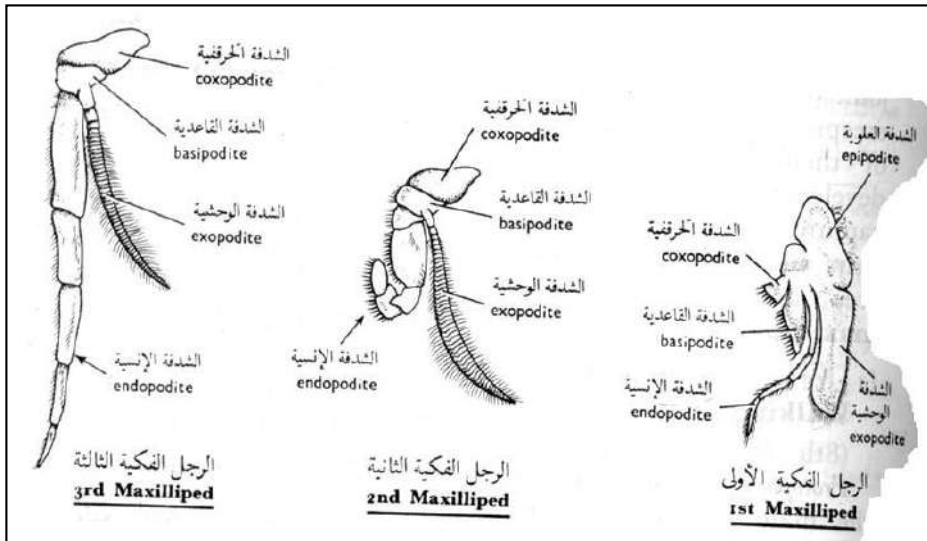
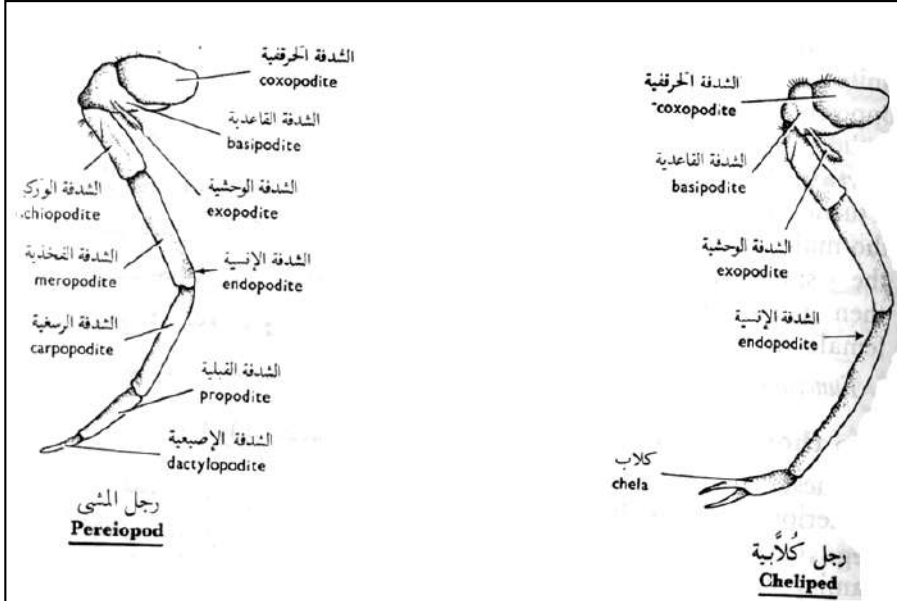
e.g.: *Penaeus japonicus*.



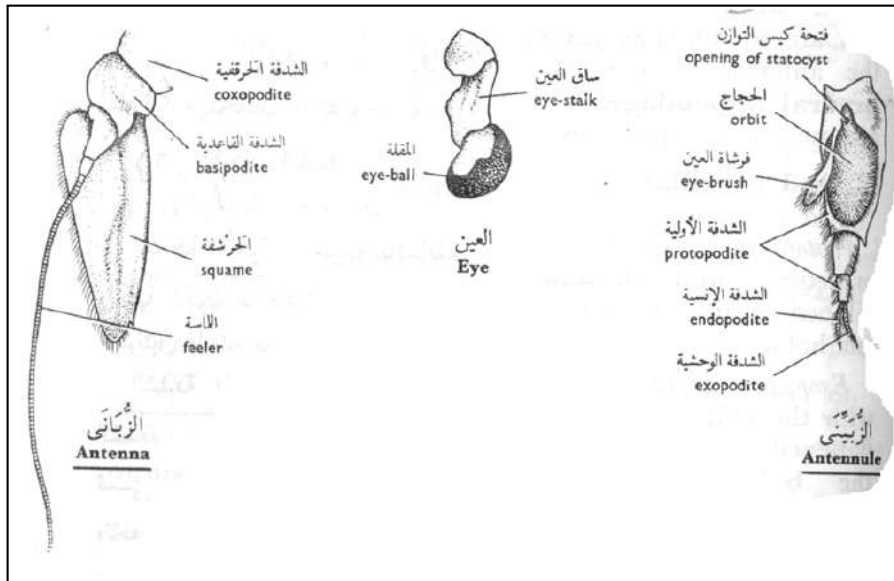
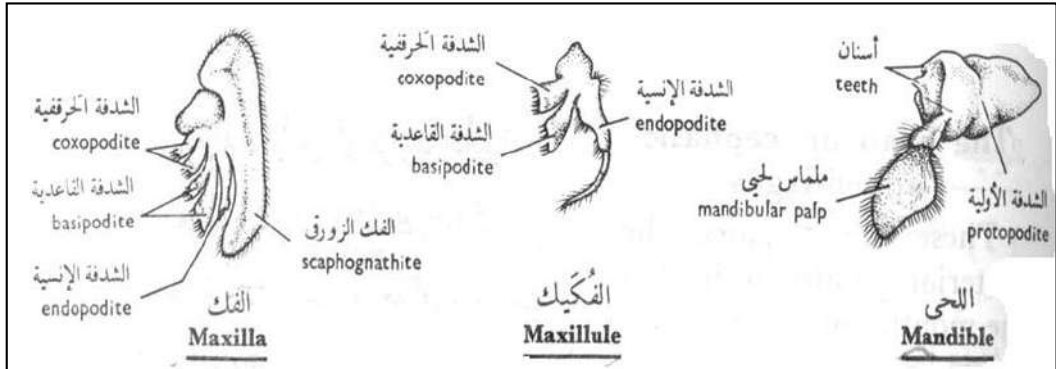
## Abdominal appendages



## Thoracic appendages



## Cephalic appendages



Kingdom: Animalia

Subkingdom: Metazoa

Phylum: Arthropoda

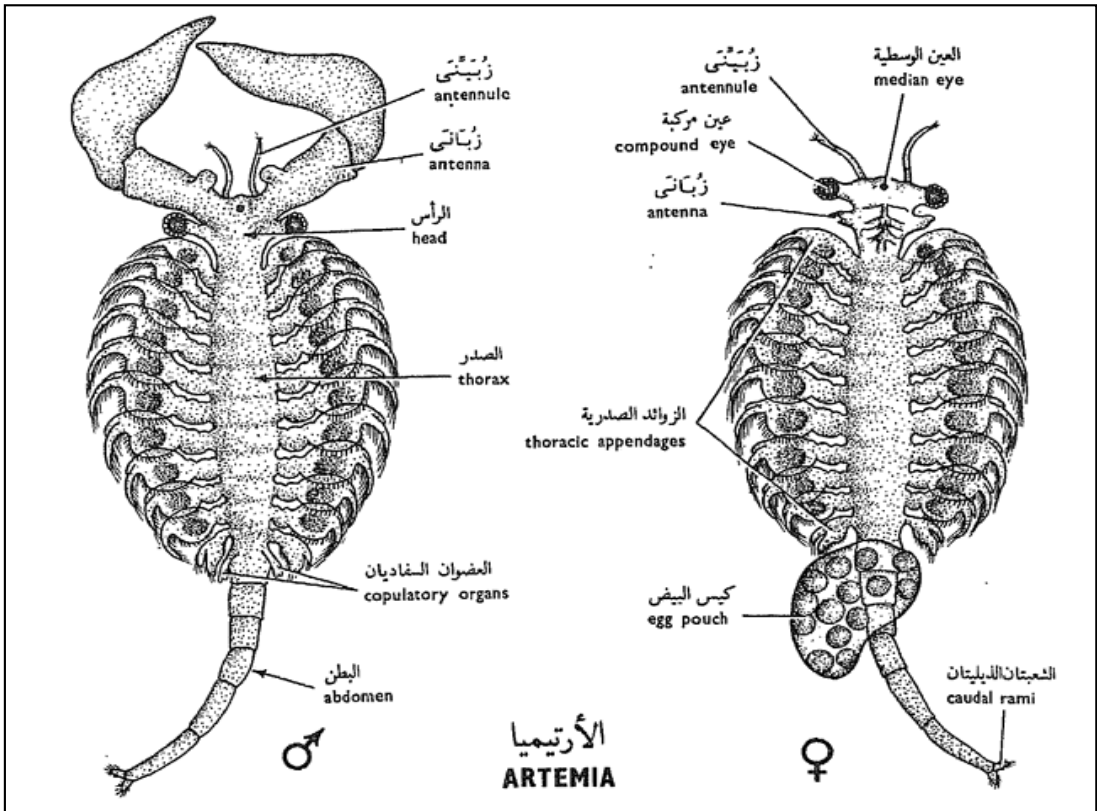
Subphylum: Branchiata

Class: Crustacea

Subclass: Branchiopoda

Order: Anostraca

e.g.: *Artemia* sp.



Kingdom: Animalia

Subkingdom: Metazoa

Phylum: Arthropoda

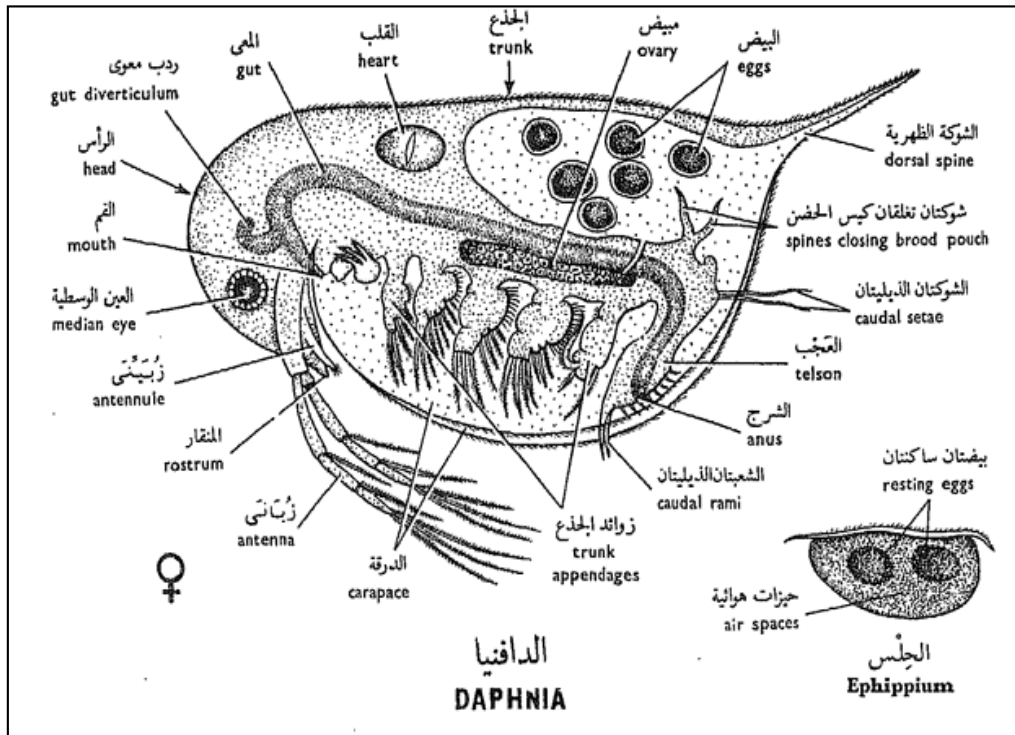
Subphylum: Branchiata

Class: Crustacea

Subclass: Branchiopoda

Order: Cladocera

e.g.: *Daphnia* sp.





Kingdom: Animalia

Subkingdom: Metazoa

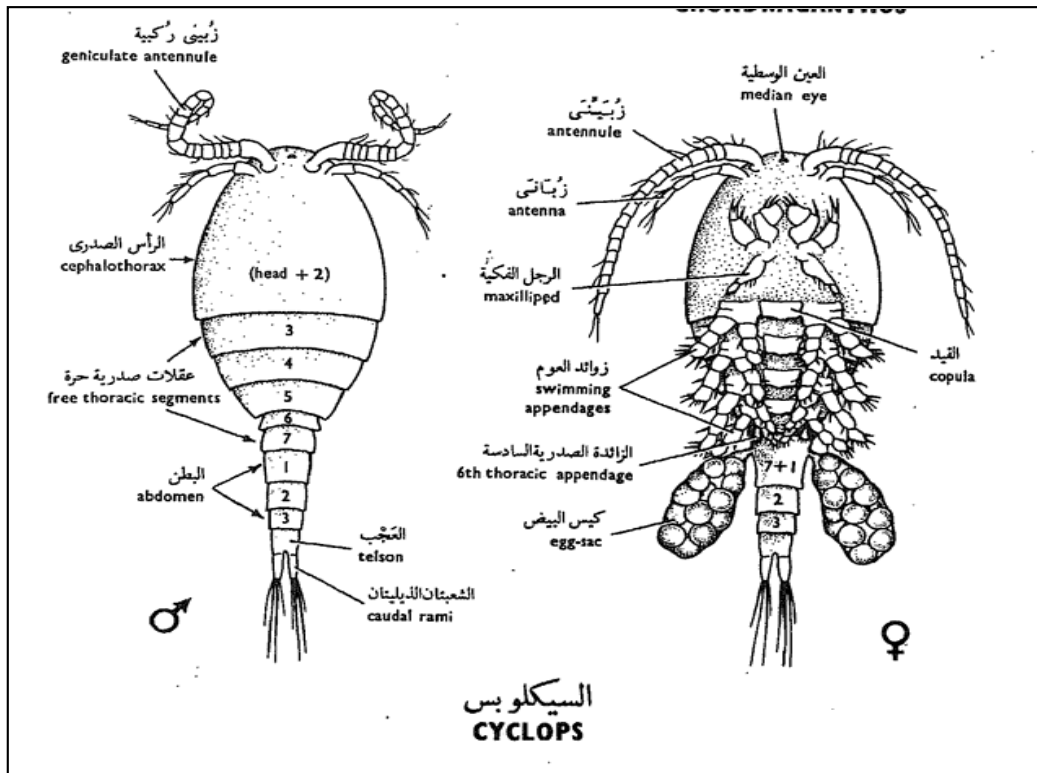
Phylum: Arthropoda

Subphylum: Branchiata

Class: Crustacea

Subclass: Copepoda

e.g.: *Cyclops* sp.



Kingdom: Animalia

Subkingdom: Metazoa

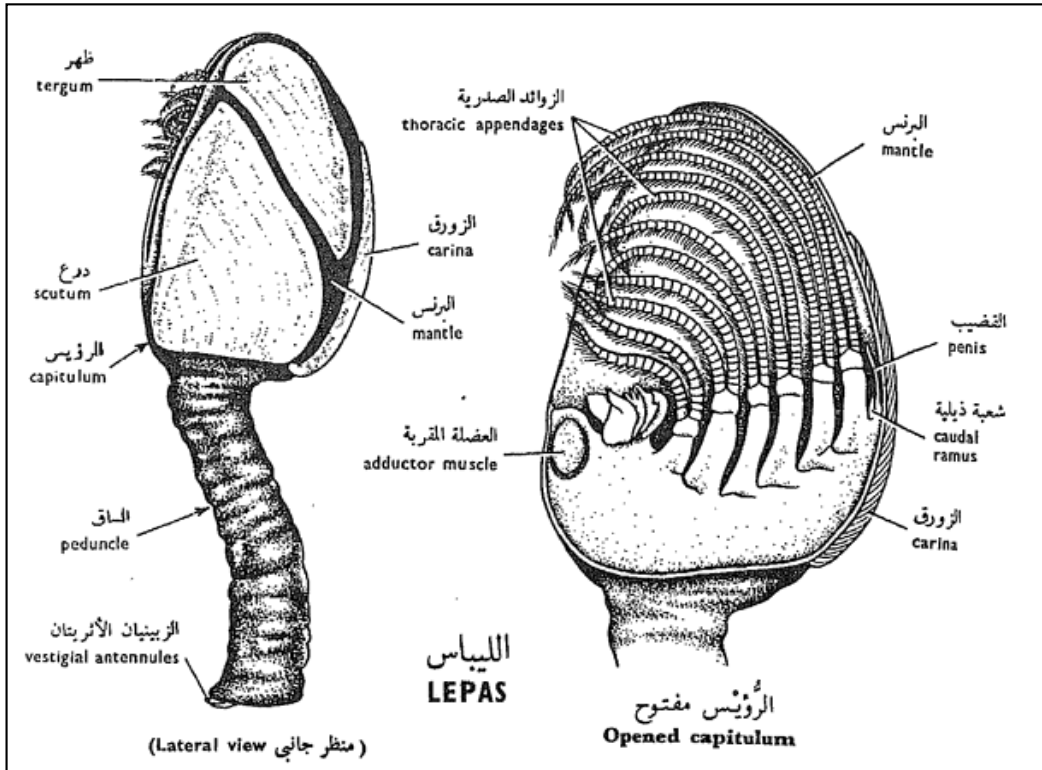
Phylum: Arthropoda

Subphylum: Branchiata

Class: Crustacea

Subclass: Cirripedia

e.g.: *Lepas* sp.



**Kingdom: Animalia**

**Subkingdom: Metazoa**

**Phylum: Arthropoda**

**Subphylum: Branchiata**

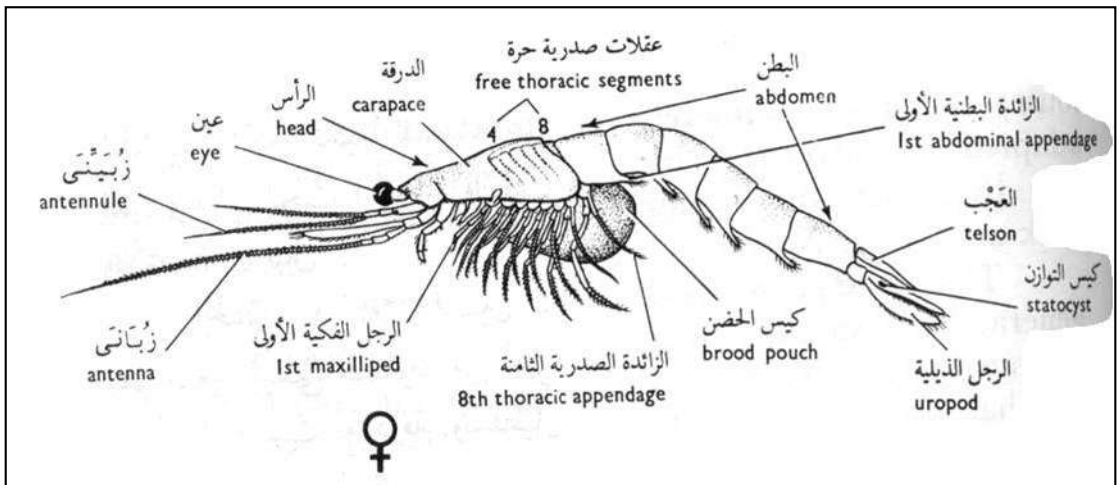
**Class: Crustacea**

**Subclass: Malacostraca**

**Order: Peracarida**

**Suborder: Mysidacea**

**e.g.: *Mysis* sp.**



**Kingdom: Animalia**

**Subkingdom: Metazoa**

**Phylum: Arthropoda**

**Subphylum: Branchiata**

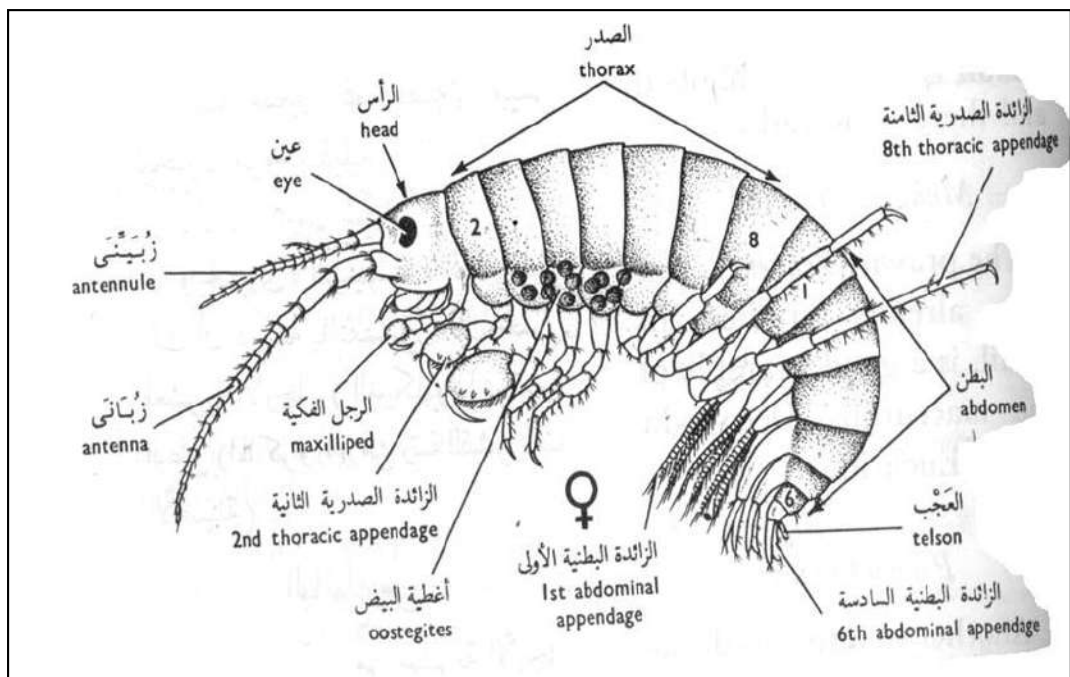
**Class: Crustacea**

**Subclass: Malacostraca**

**Order: Peracarida**

**Suborder: Amphipoda**

**e.g.: Gammarus sp.**



**Kingdom: Animalia**

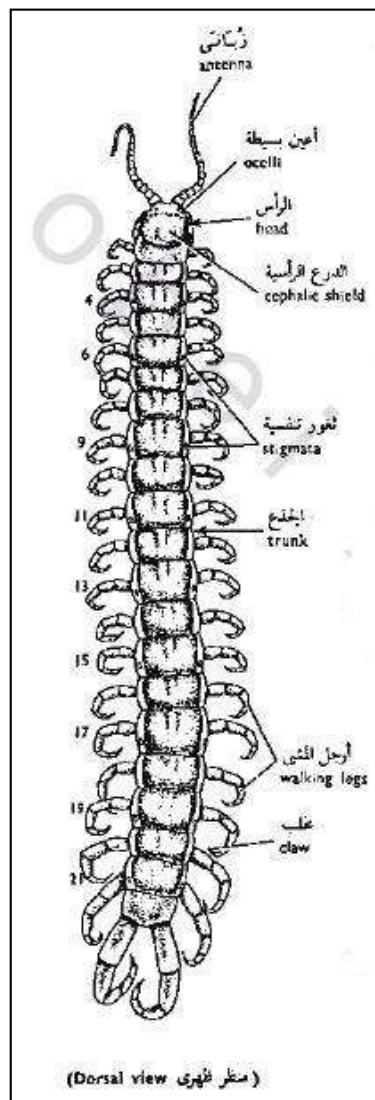
**Subkingdom: Metazoa**

**Phylum: Arthropoda**

**Class: Myriapoda**

**Subclass: Chilopoda**

**e.g.: *Scolopendra morsitans*.**



Kingdom: Animalia

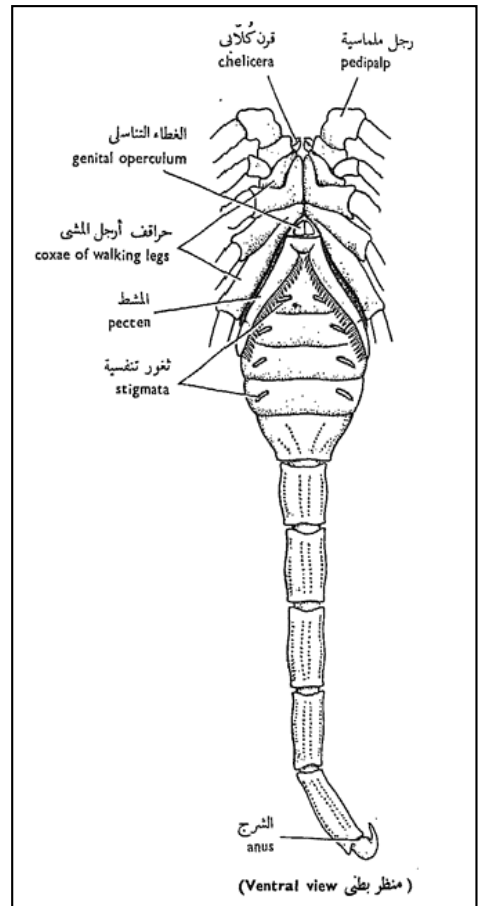
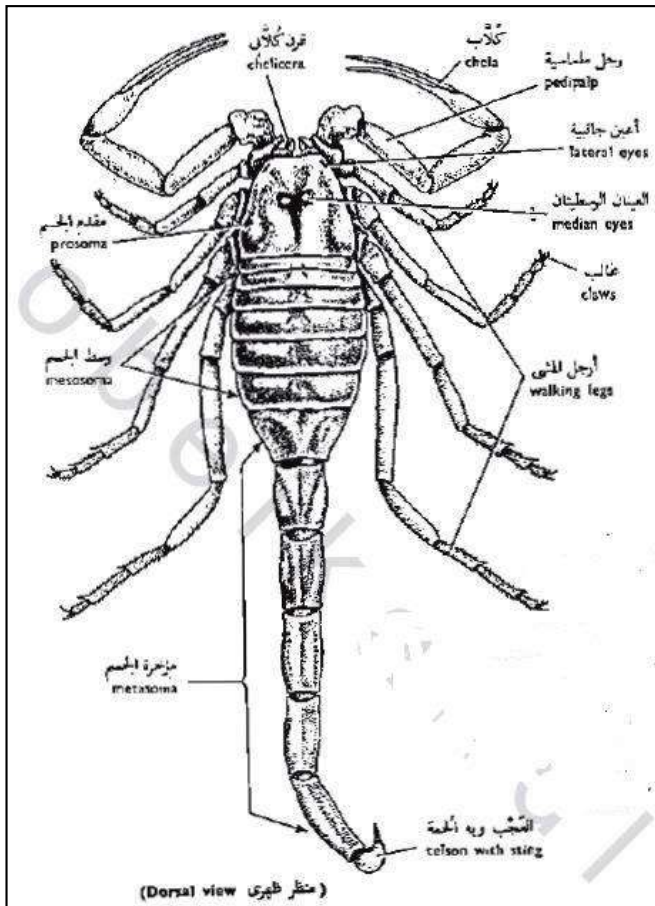
Subkingdom: Metazoa

Phylum: Arthropoda

Class: Arachnida

Order: Scorpionidea

e.g.: *Buthus quinquestriatus*.



Kingdom: Animalia

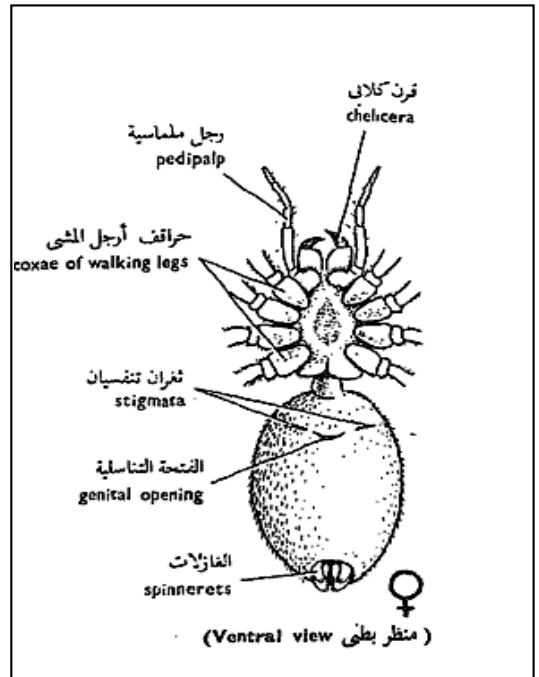
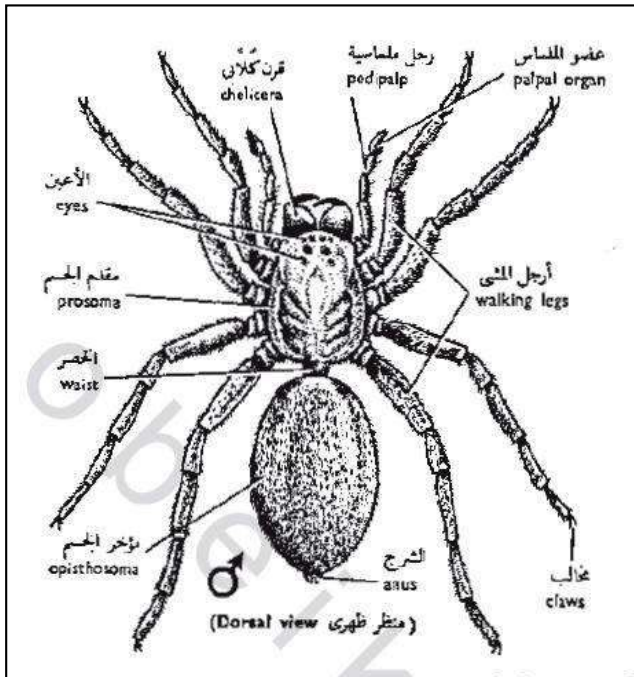
Subkingdom: Metazoa

Phylum: Arthropoda

Class: Arachnida

Order: Aranida

e.g.: *Lycosa ferox*.



Kingdom: Animalia

Subkingdom: Metazoa

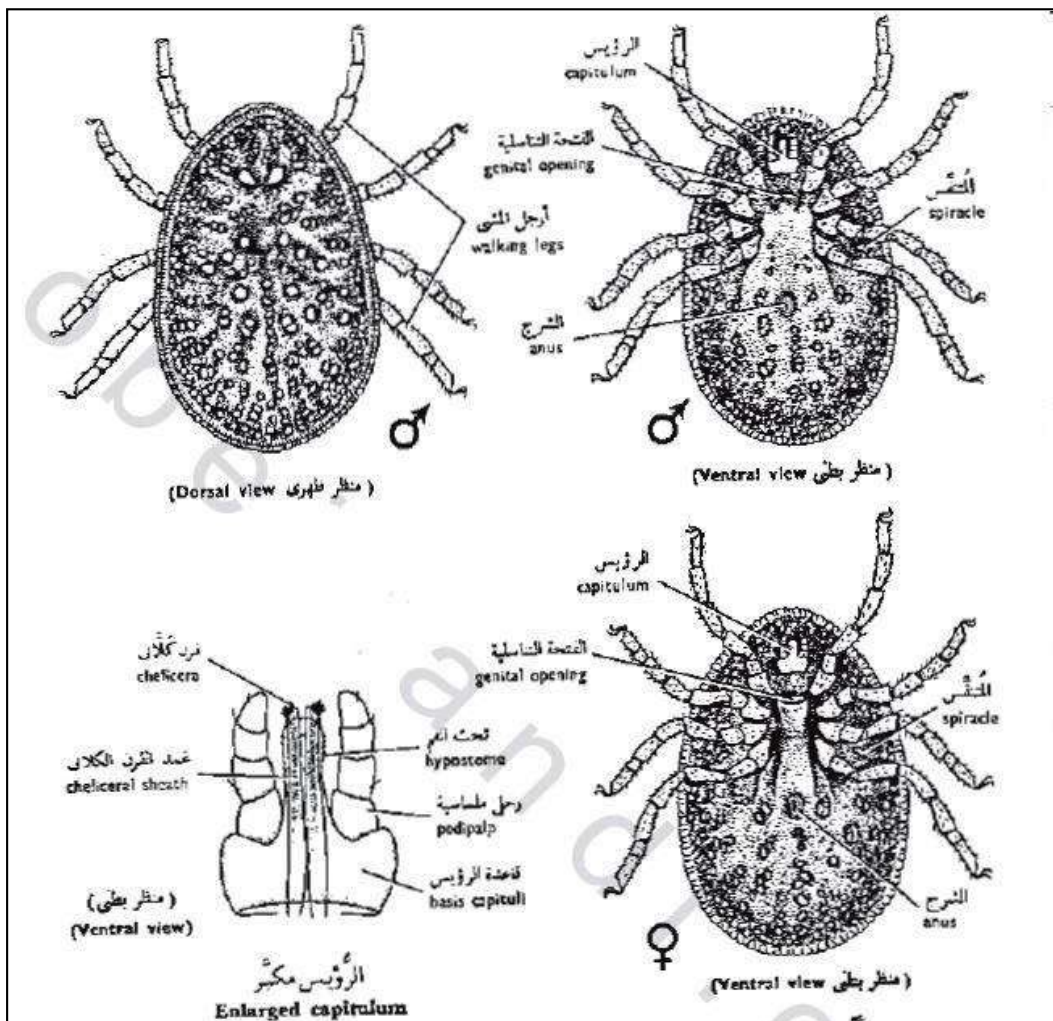
Phylum: Arthropoda

Class: Arachnida

Order: Acarina

Family: Argasidae

e.g.: *Argas persicus*.





Kingdom: Animalia

Subkingdom: Metazoa

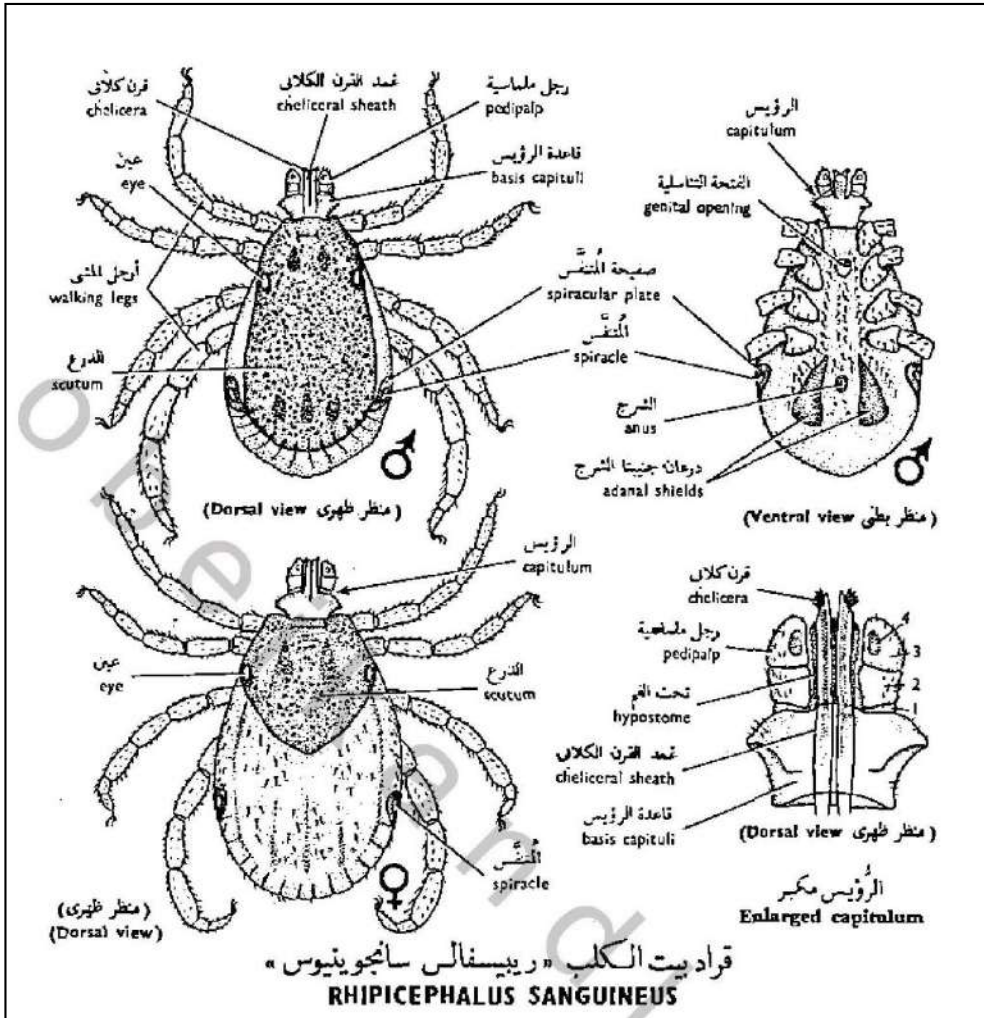
Phylum: Arthropoda

Class: Arachnida

Order: Acarina

Family: Ixodidae

e.g.: *Rhipicephalus sanguineus*.



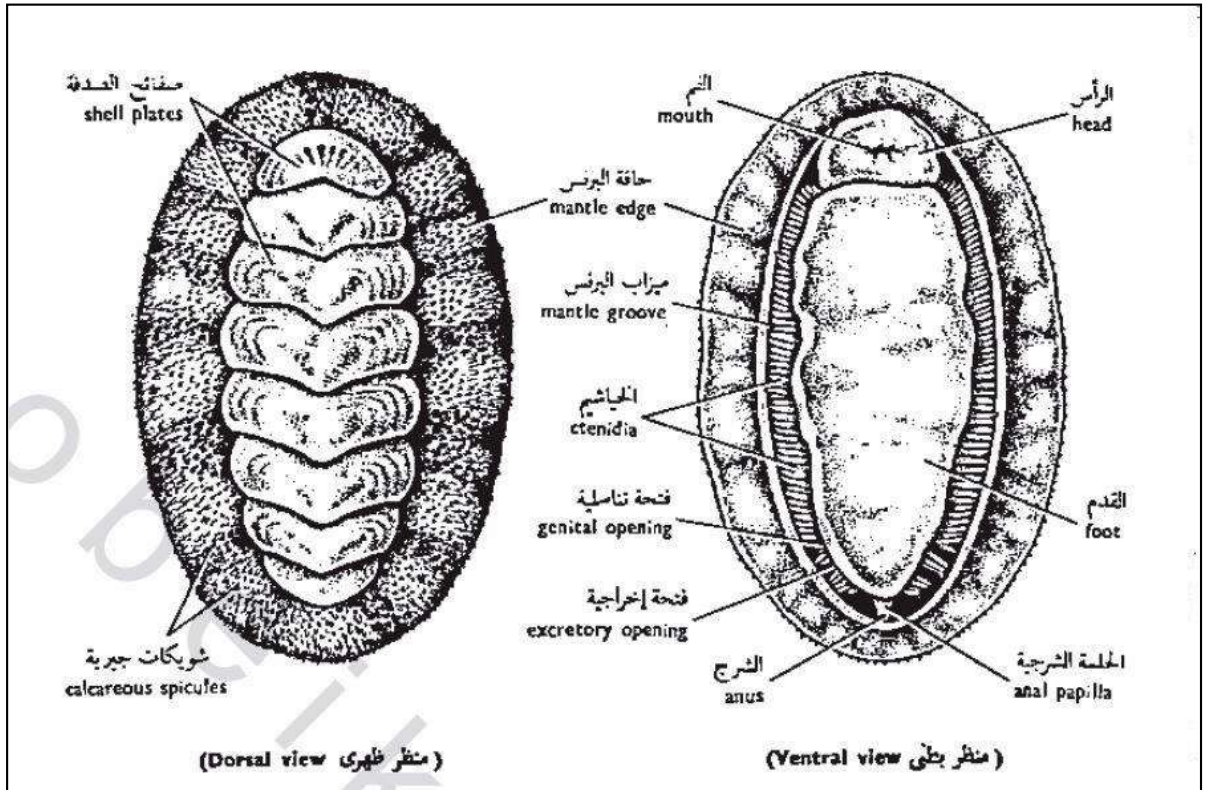
Kingdom: Animalia

Subkingdom: Metazoa

Phylum: Mollusca

Class: Plachophora

e.g.: *Acanthochiton spinigera*.



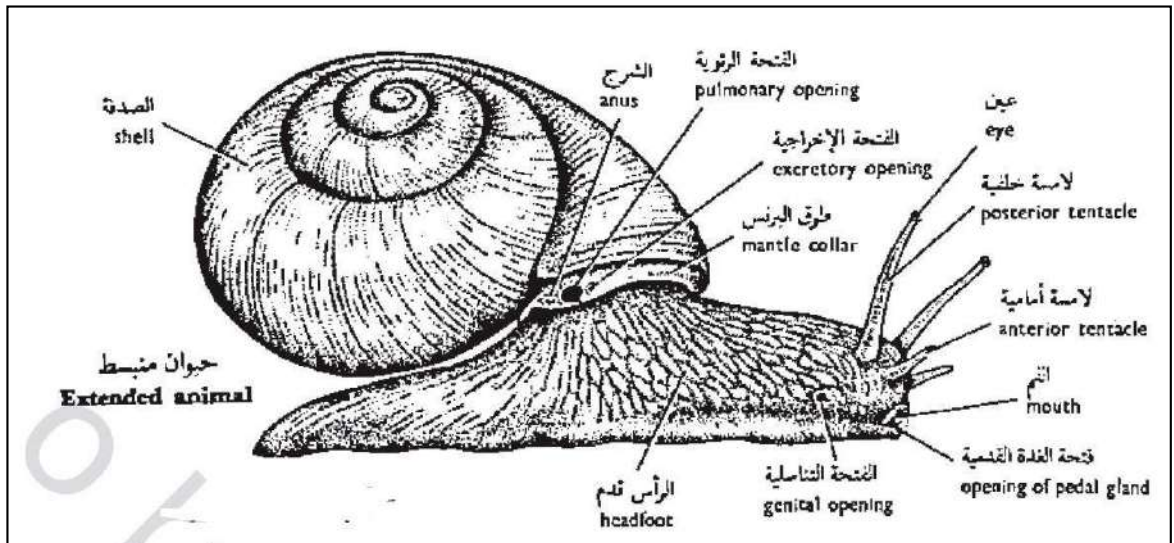
Kingdom: Animalia

Subkingdom: Metazoa

Phylum: Mollusca

Class: Gastropoda

e.g.: *Eremina desertorum*.



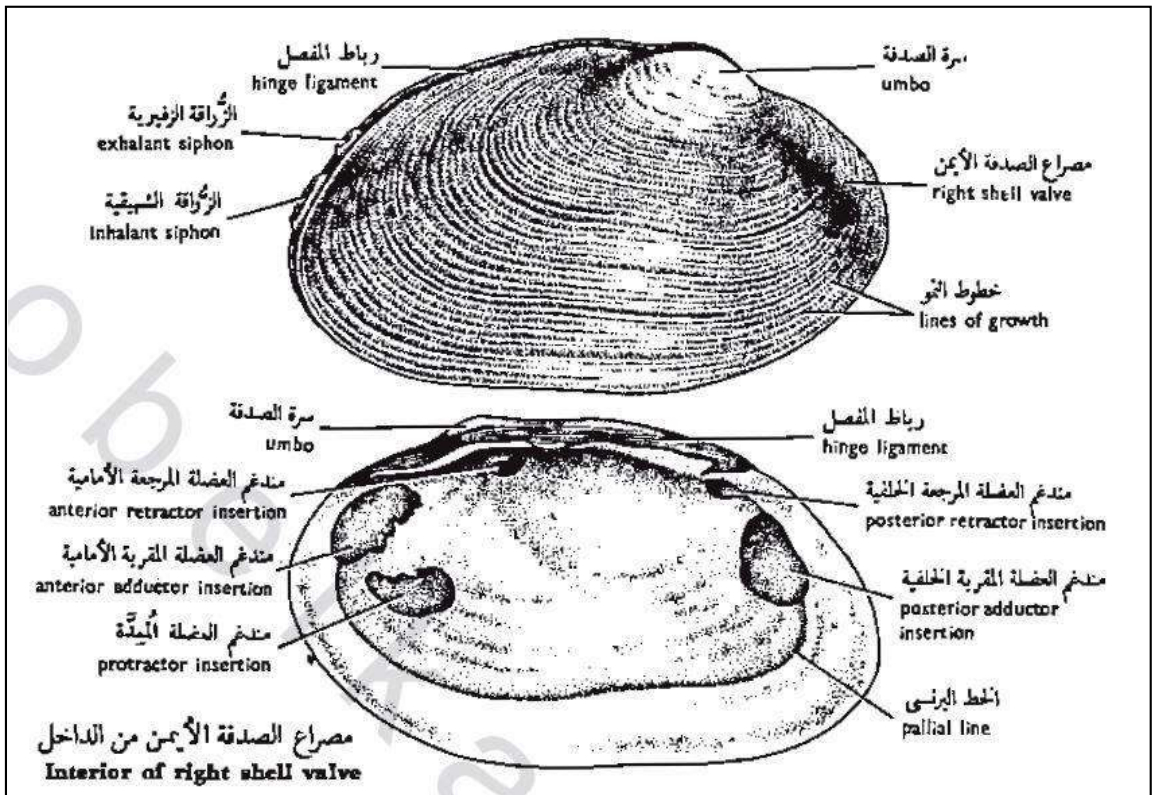
Kingdom: Animalia

Subkingdom: Metazoa

Phylum: Mollusca

Class: Pelecypoda

e.g.: *Anodonta rubens*.



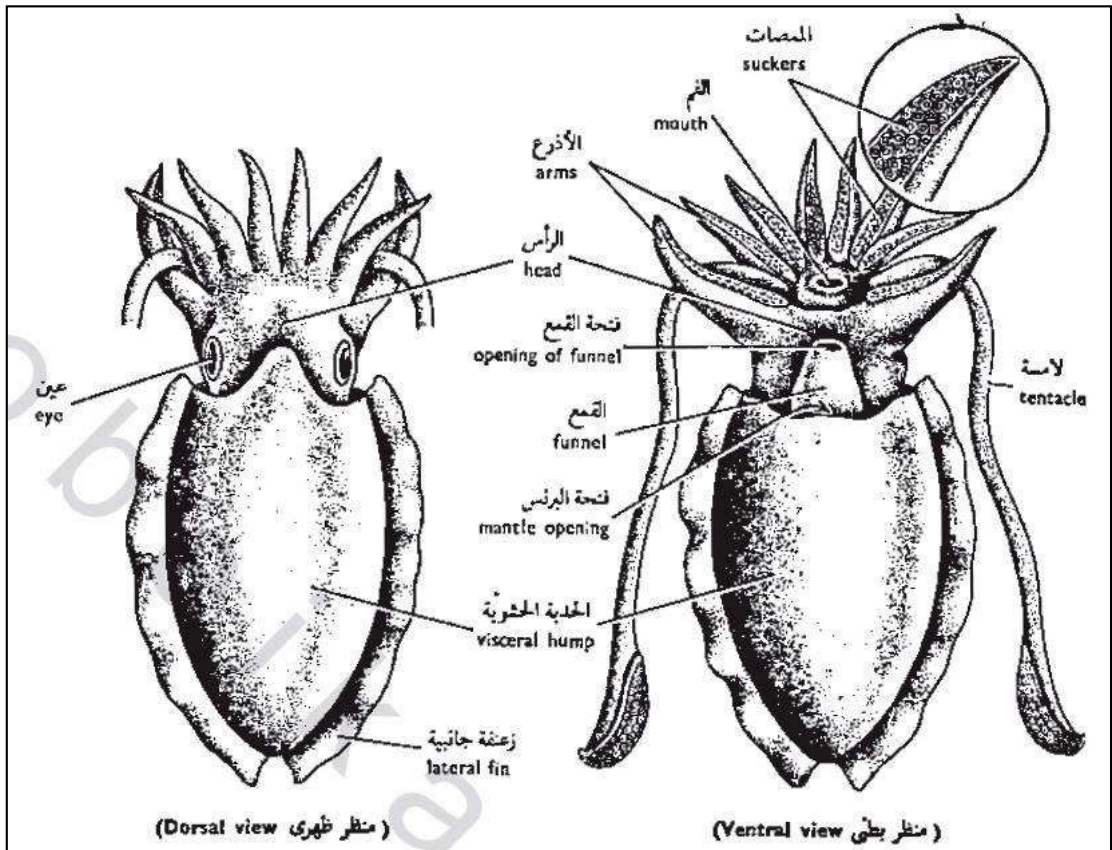
Kingdom: Animalia

Subkingdom: Metazoa

Phylum: Mollusca

Class: Cephalopoda

e.g.: *Sepia savignyi*.



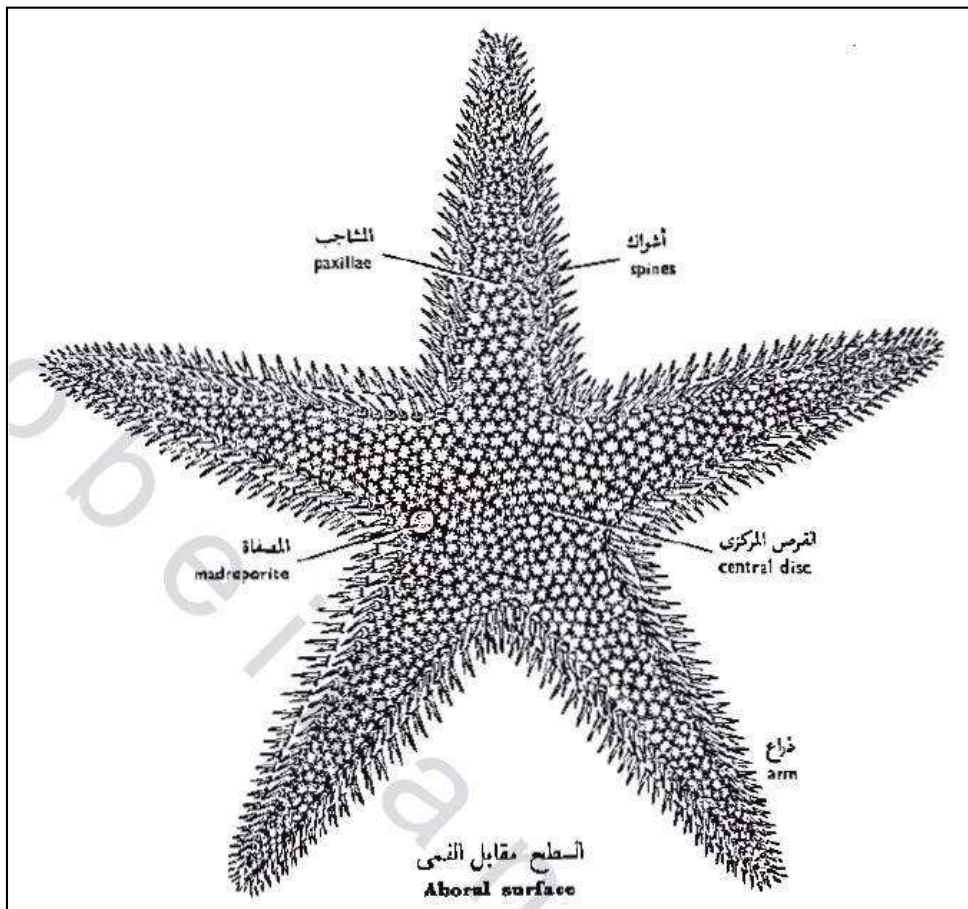
**Kingdom: Animalia**

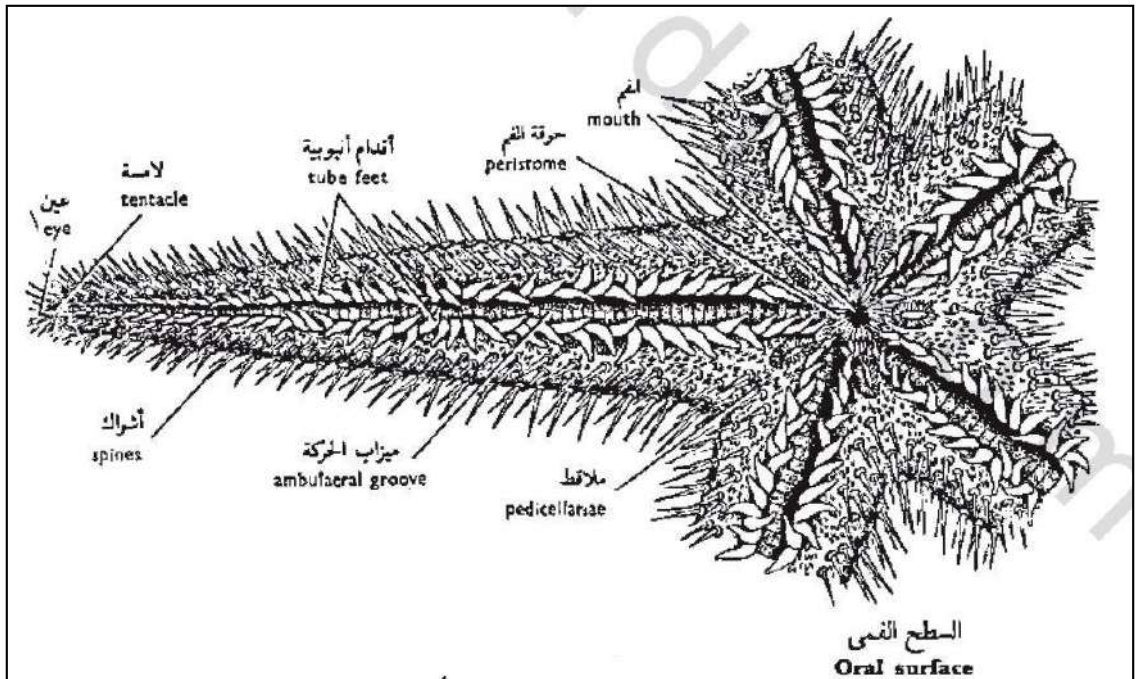
**Subkingdom: Metazoa**

**Phylum: Echinodermata**

**Class: Asteroidea**

**e.g.: *Astropecten relitaris*.**





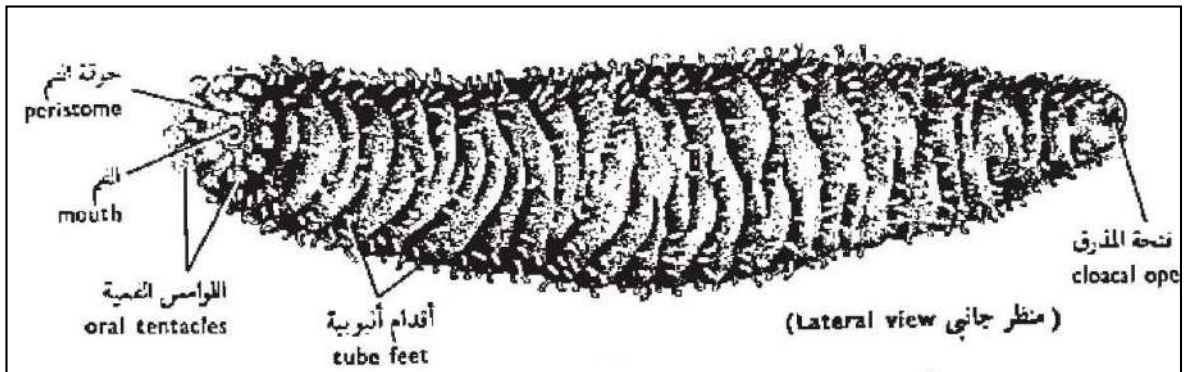
**Kingdom: Animali**

**Subkingdom: Metazoa**

**Phylum: Echinodermata**

**Class: Holothuroidea**

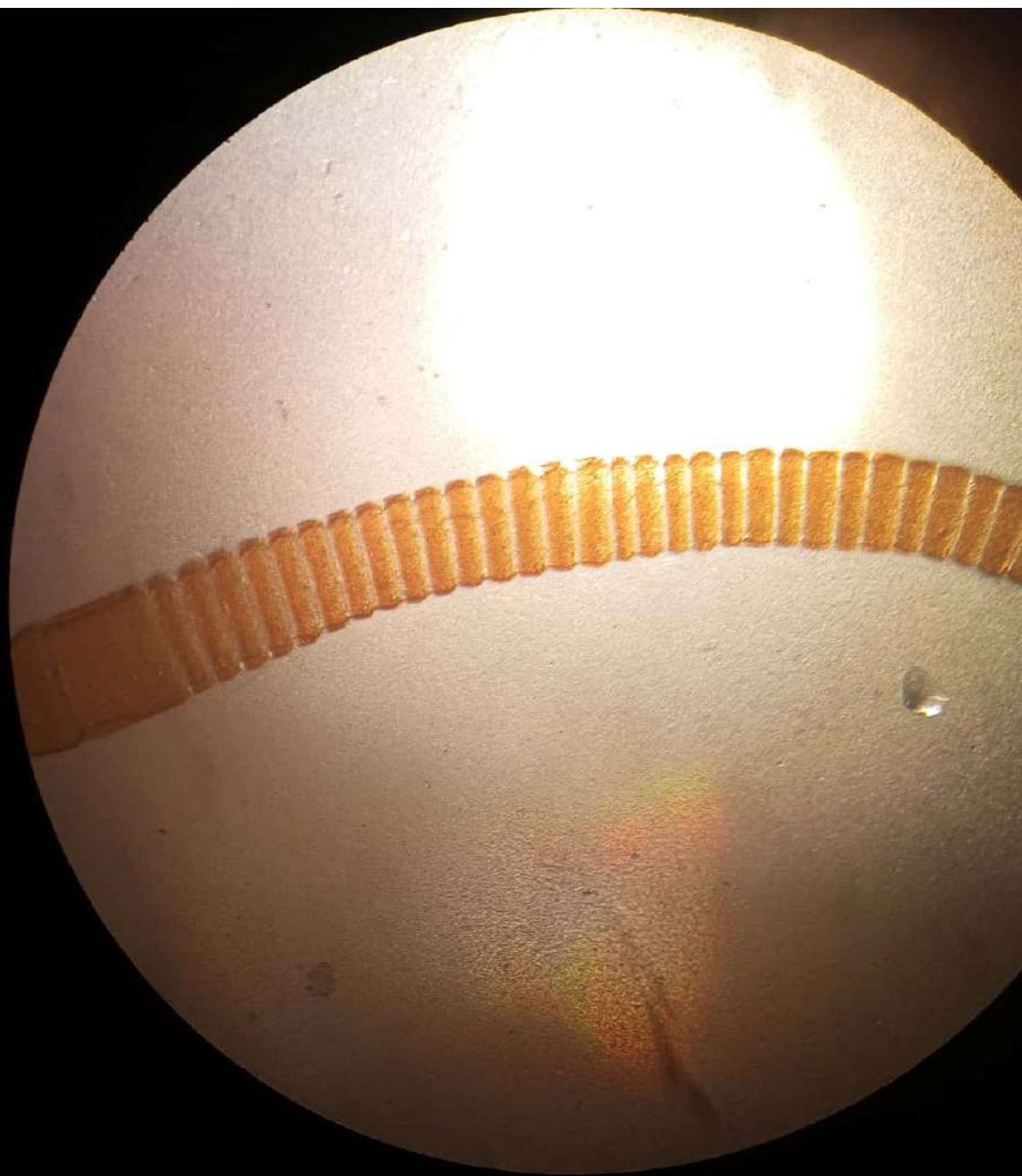
**e.g.: *Holothuria curiosa*.**



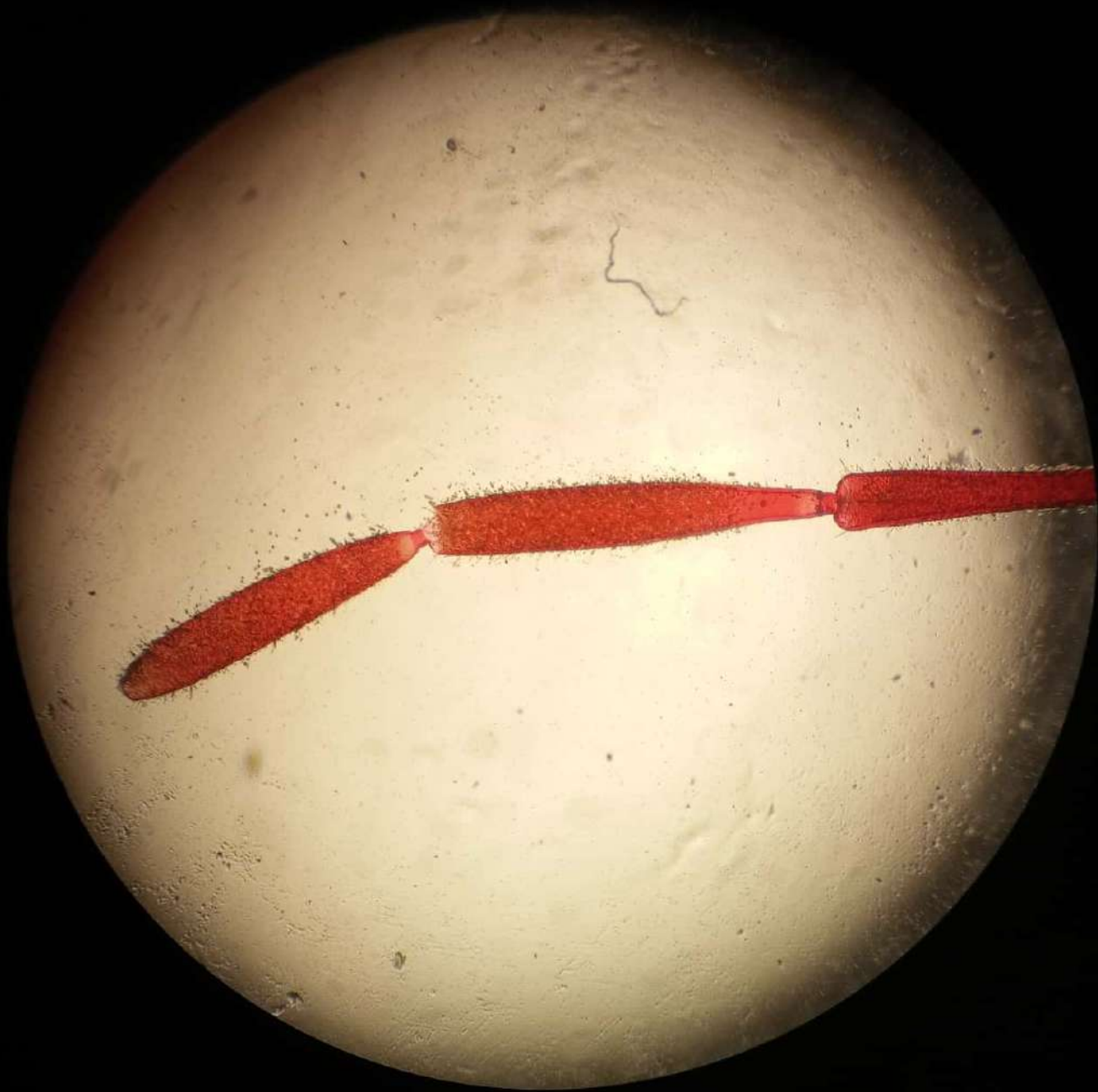


## References

بيولوجية الحيوان العملية باللغتين العربية والإنجليزية (الجزء الثالث) :  
للدكتور أحمد حماد الحسيني والدكتور إميل شنودة دميان ، القاهرة (مصر):  
دار المعارف 1969.



Staceous antenna



Filiform antenna



# Moniliform antenna



# Clavate antenna



Serrate antenna



# Aristate antenna



Stylate antenna

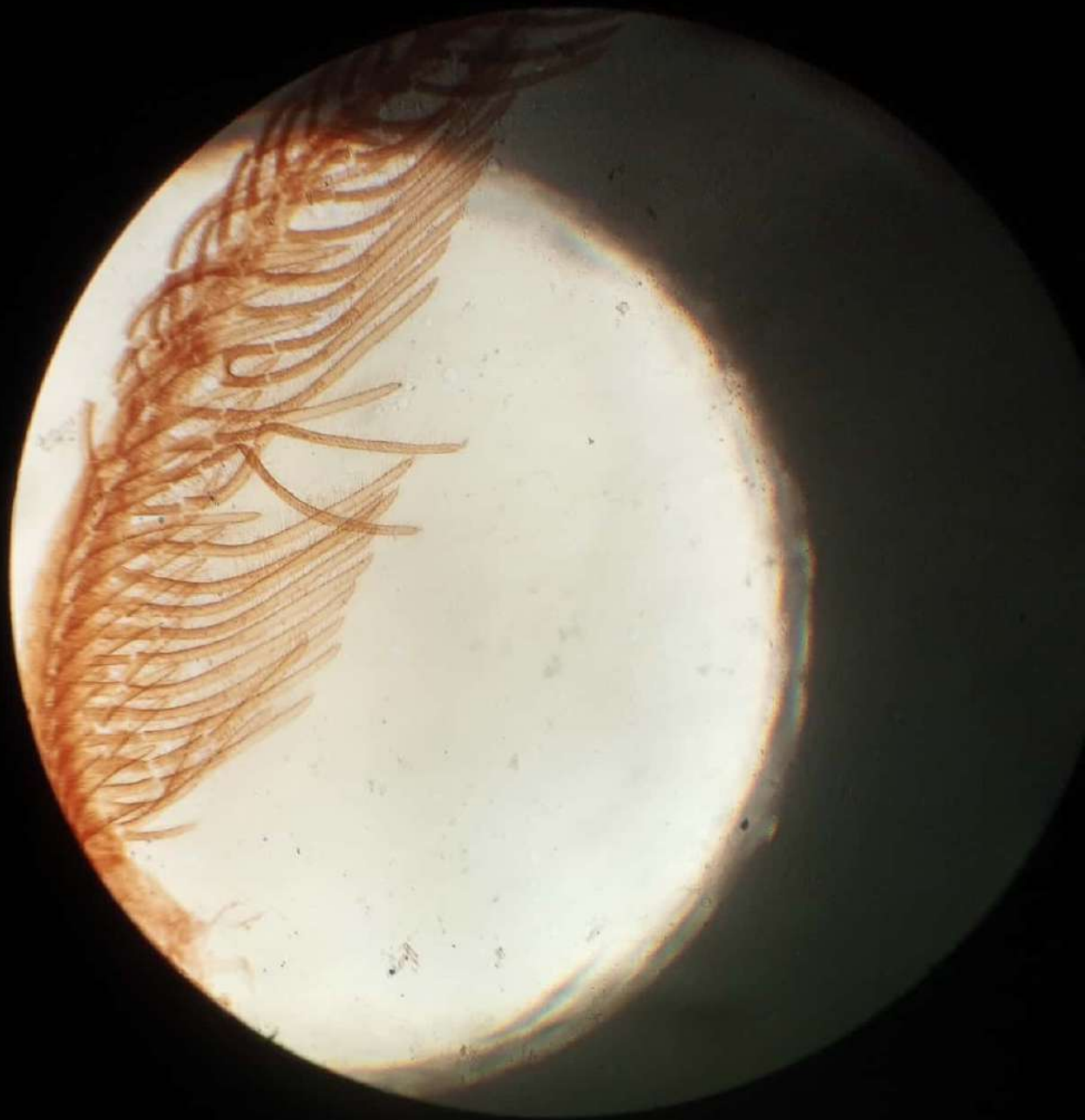




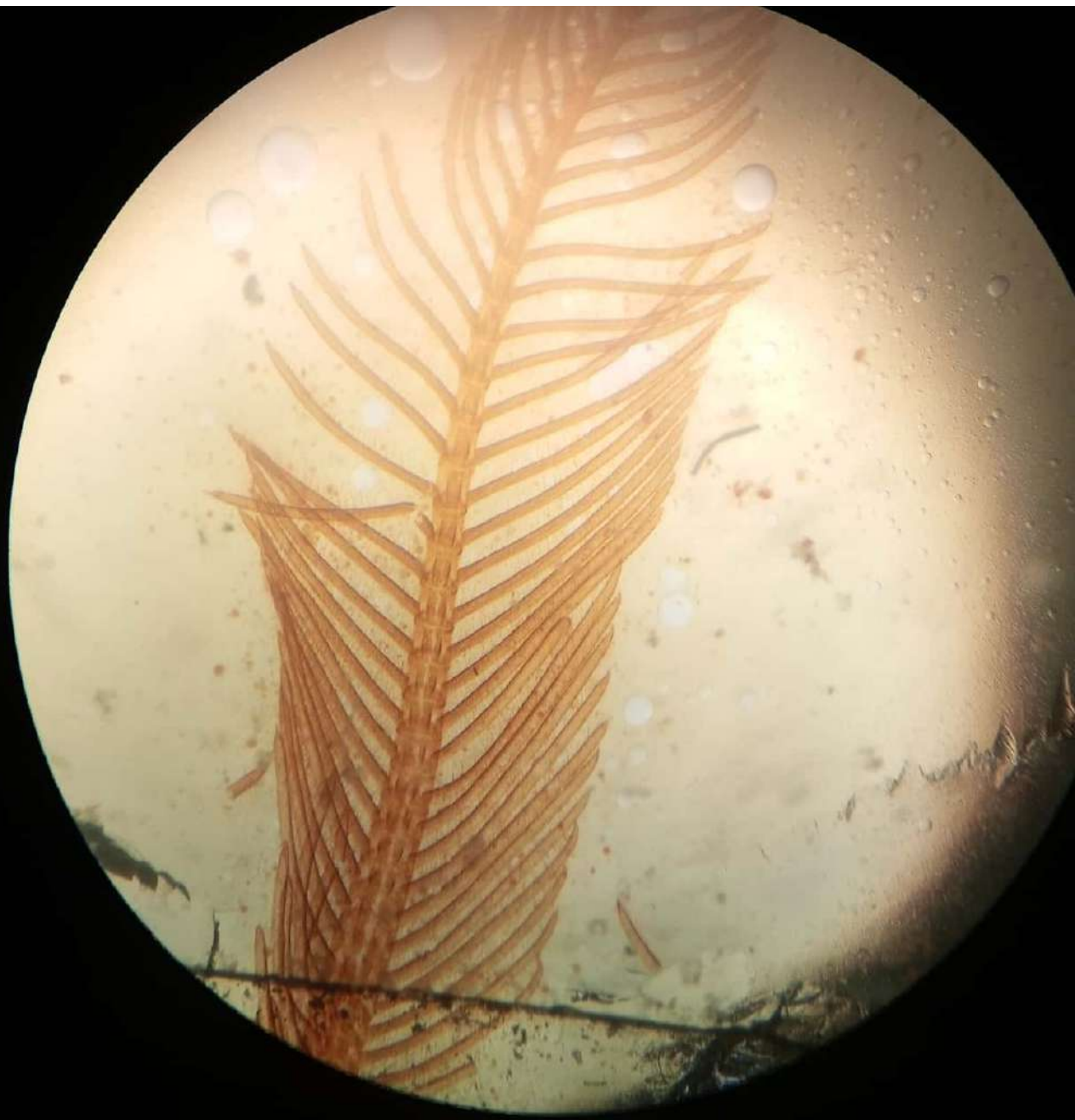
# Geniculate antenna



# Pilose antenna



Pectenate antenna



# Bipectinate antenna



# Capitate antenna



Lamellata antenna



Stylate antenna



Biting or chewing mouth part

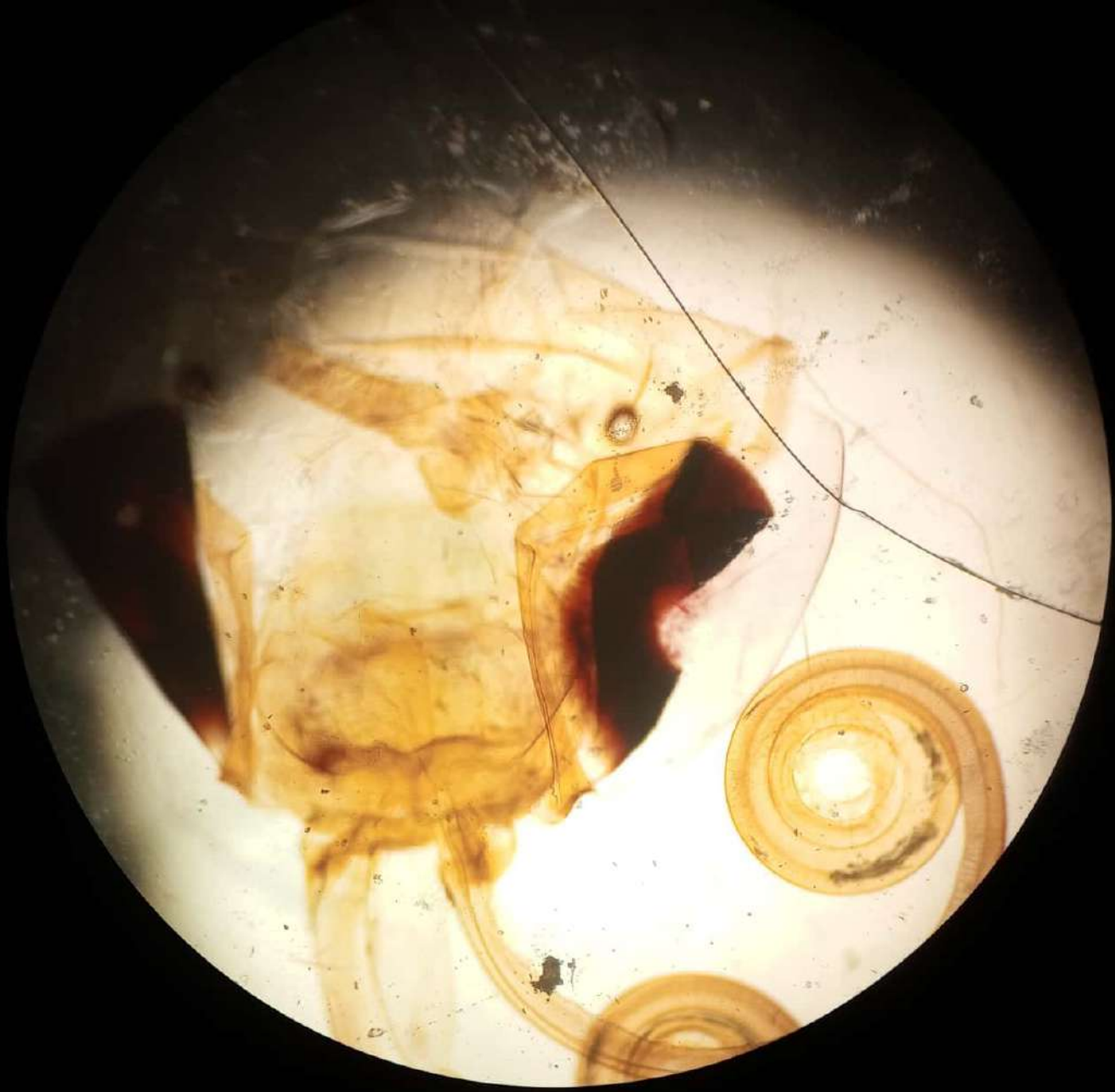




Bitting and labbing mout part



sponging mouth part



Sucking mouth part



Percing and sucking mouth part

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موضوع الدرس ..... التاريخ / /  
ر. ج. ط. س. ر.



Walking leg



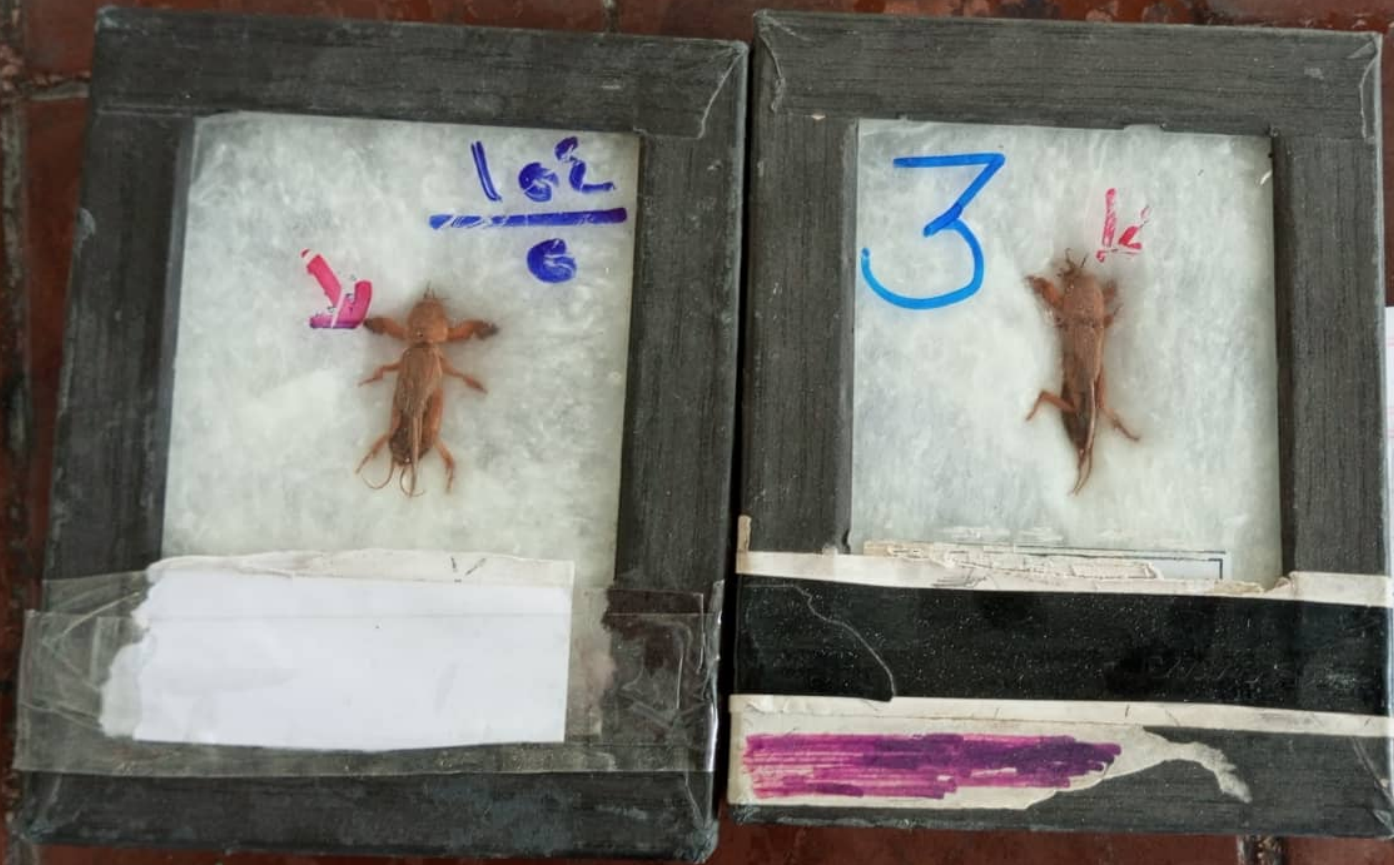
د. پ. /  
پ. ک. و  
پ. ک. و /

Swimming leg

Ceol, sp. 1

siezing prey leg





موسسة الدراسات والبحوث  
ر.م.ل  
ر.ك.ف  
م.ا.ك.ف.ا.ل.ا.ف.ر.ي.ق

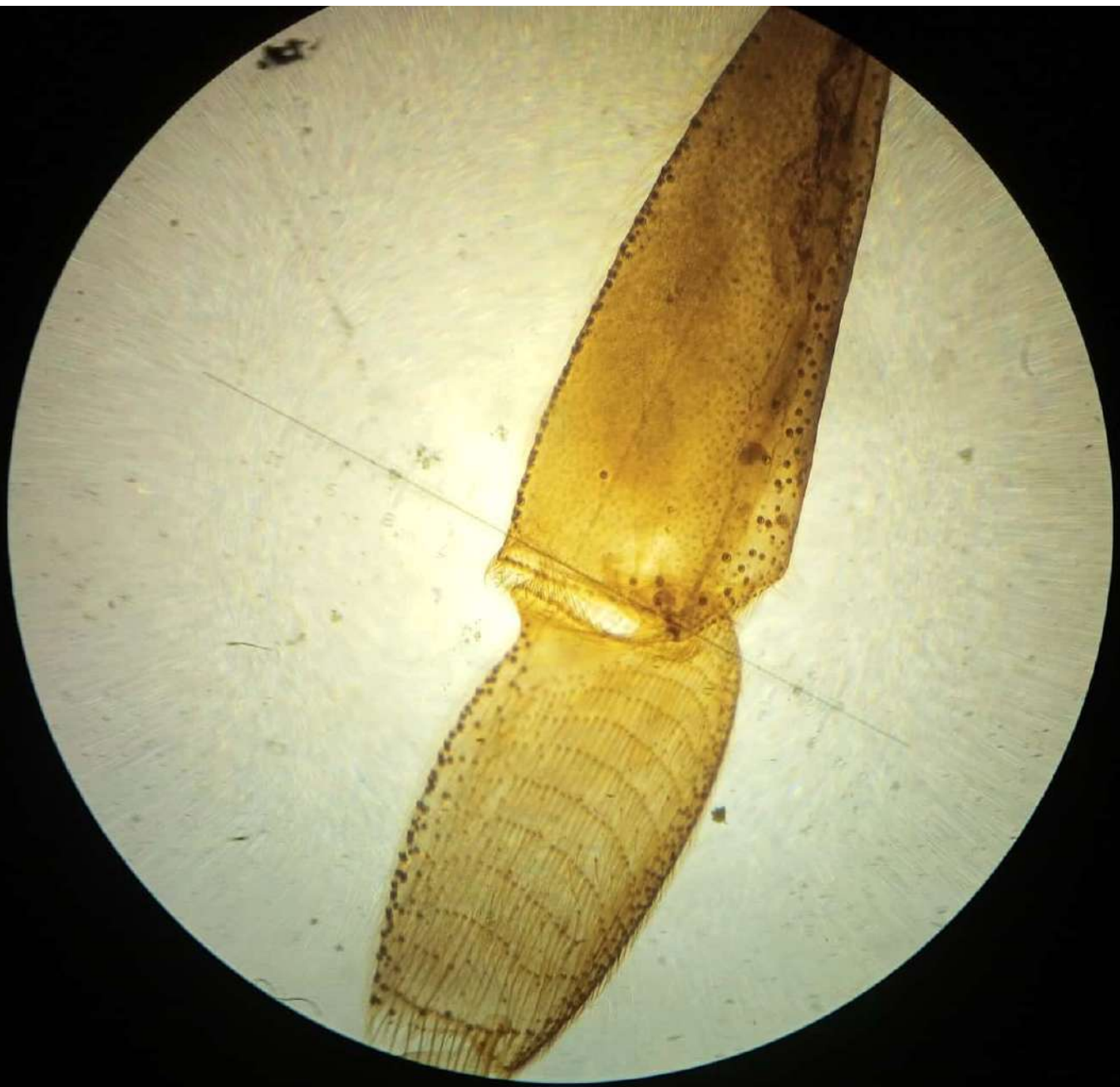
Digging or burrowing leg



Jumping leg

الجمل  
القفر





Collecting food leg



Clining leg



Walking on step surface leg



Scaly wing

القارون  
صباح مرستف  
عرا القرامات

# Helter wing

ديوس المتوازيه  
١٤ الشبايه طنزلية



نبهة لشم (ر)  
age sp.  
das : Di



ذات ليلس  
دبايه العم



پتاج غمدی

۱۴ شہداء، کالو سومہ

Elytra wing

۲۶۲

۱۰



# Hemi-elytra wing



هناج نصف غدی  
م، ا، لبقہ، کھڑا  
م، ا، بق، لقا، لقا

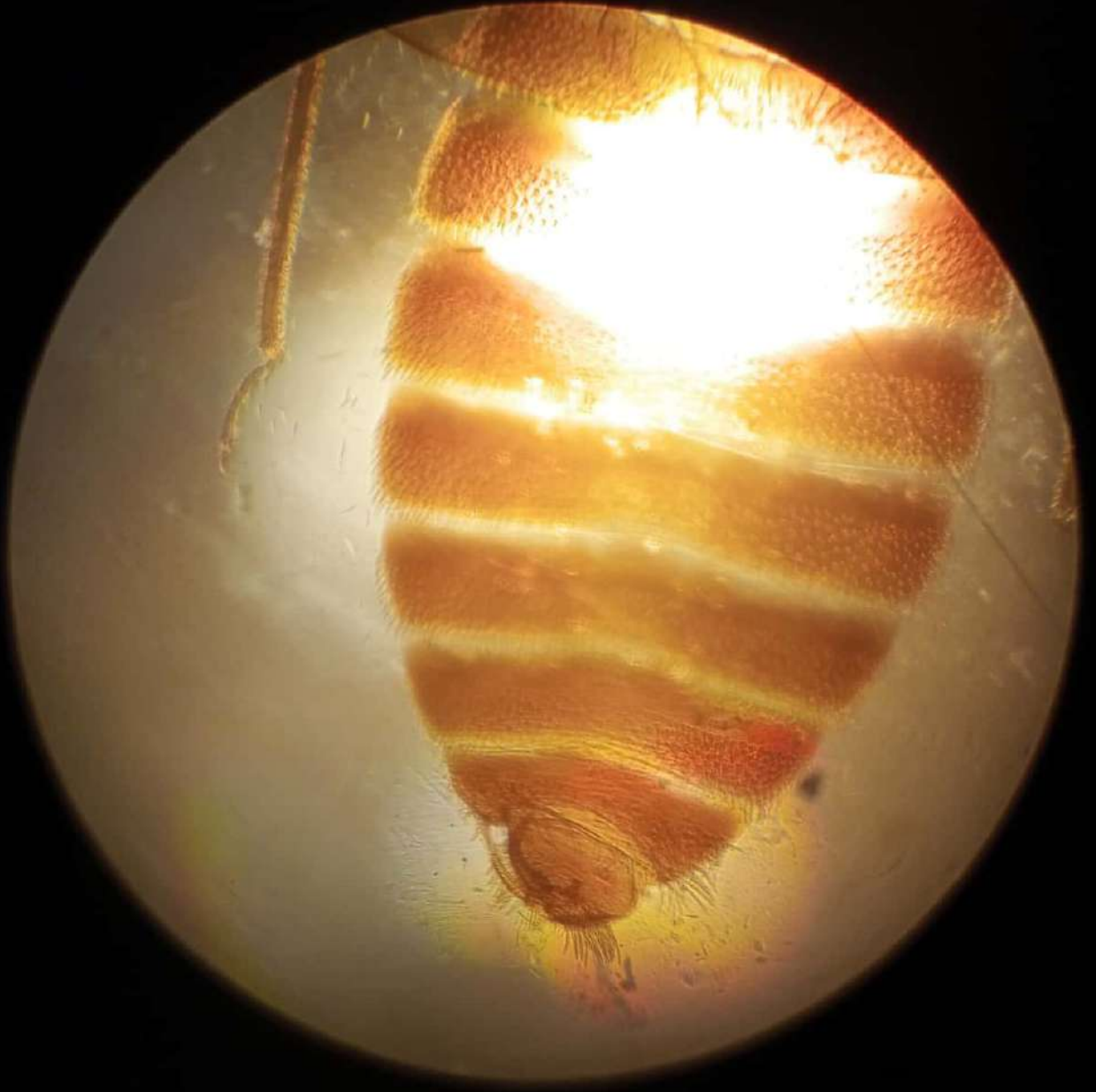




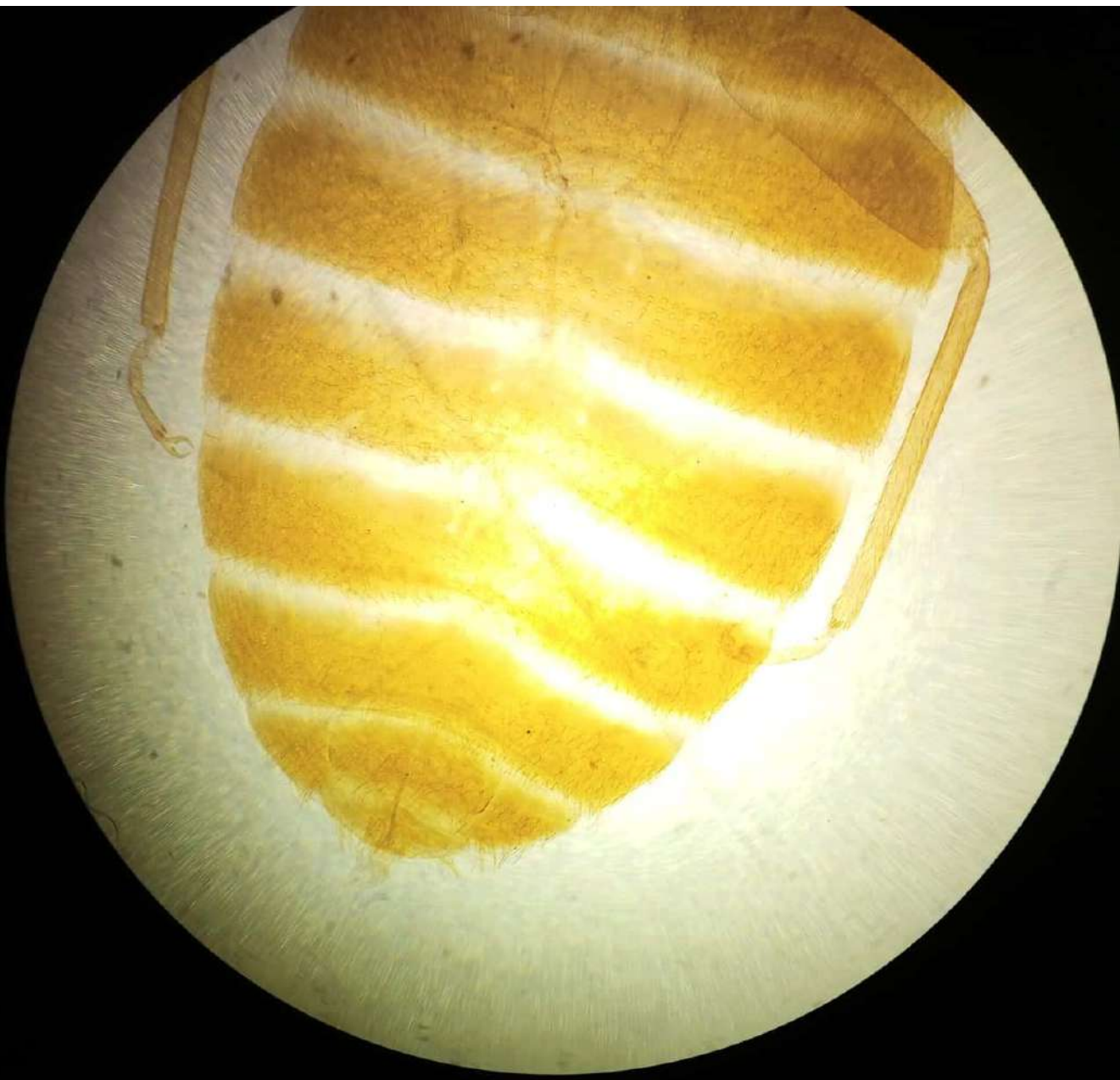
# Membranous wing



كولومبولا



# ذكر بق الفراش



انثي بق الفراش



# ذکر برغوث الإنسان



انثي برغوث الإنسان





أله اللسع



بیرقہ اُ → طوائفہ

۳۱ الفرائد





کے لیے سوکھانے

۱۲۰، لہذا →



یرقه دودیہ