

## Practical Lecture No. 1

### Agricultural insect pests of economical importance in order Homoptera.

#### Order Homoptera:

(Cicadas, leaf-hoppers, Aphids, white-flies, scale insects, mealy bugs)

Most of small size, mouth parts piercing and sucking, antennae very small, in some insects long and filiform (Thread-like), wings usually sloping over sides of body at rest, some forms wingless, forewings uniform, in texture sometimes hardened than hind wings. Base of sucking beak extending between anterior coxae, pronotum small, tarsi 1-3 segmented. Metamorphosis usually gradual, sometimes complete in males, more rarely so in females. Most of the important vectors of plant diseases. This order includes large and diverse groups of insects different in size and shape.

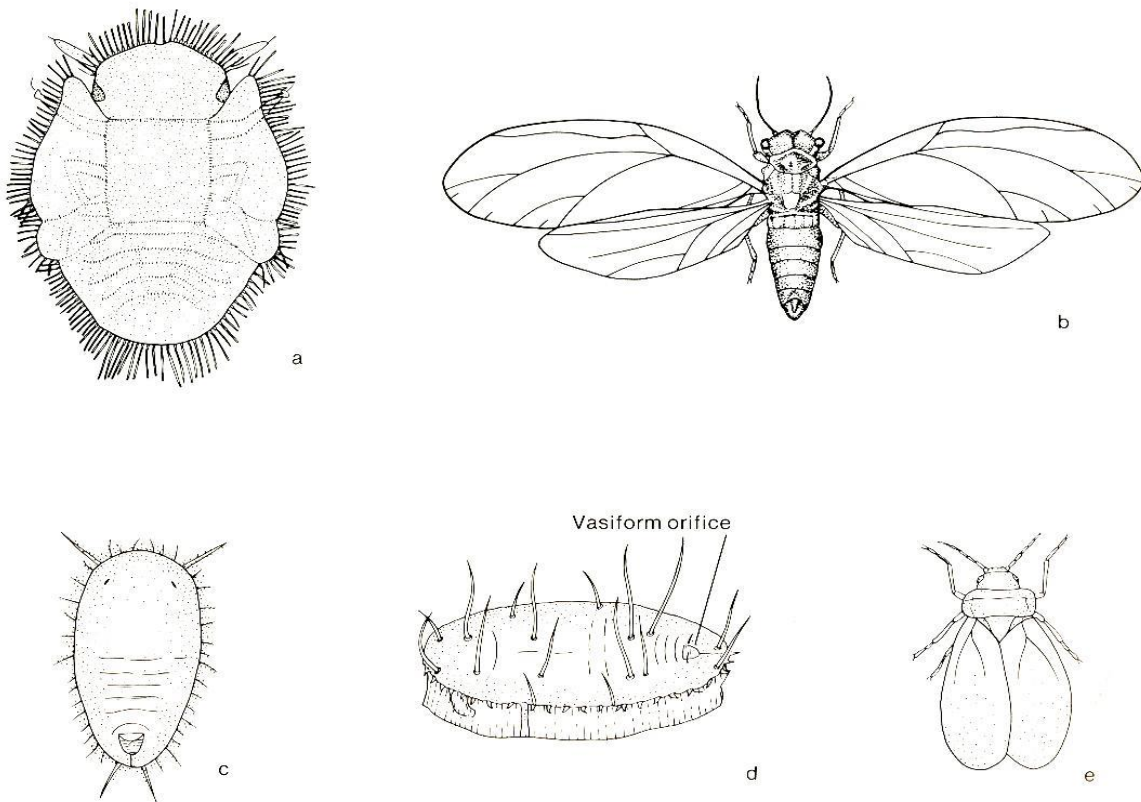


FIGURE 1 Psyllidae and Aleyrodidae: a, b, Psyllidae, nymph and adult, respectively (*Paratriozoa cockerelli*). c to e, Aleyrodidae, nymph, pupa, and adult, respectively (*Trialeurodes vaporariorum*). (a, b from Knowlton and Janes, 1931; c, d, e from Lloyd, 1922.)

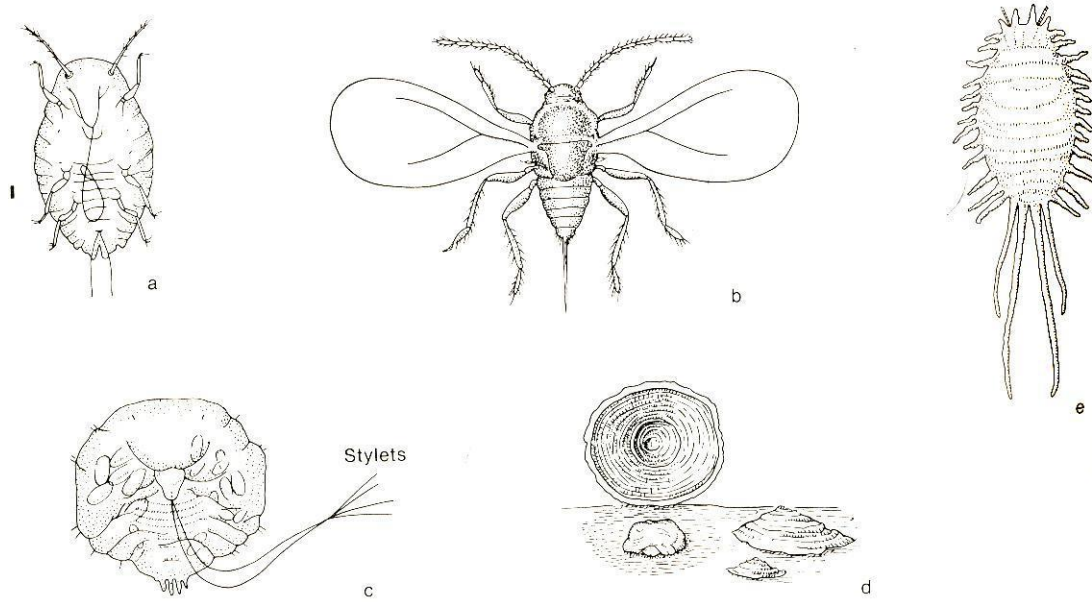


Figure 2  
 Coccoide a, first-instar nymph or crawler; b, adult male; c, adult female, ventral, extracted from scale revealing eggs inside body; d, scales; e, *Pseudococcus longispinus* (Pseudococcidae).

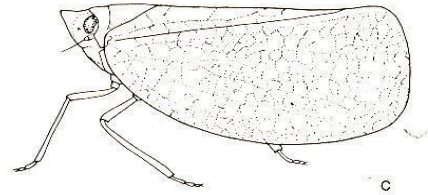
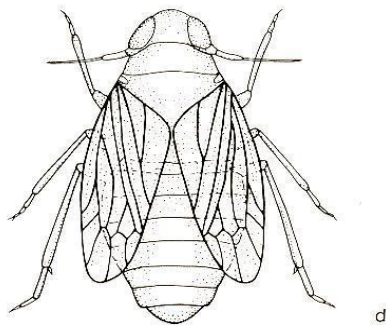
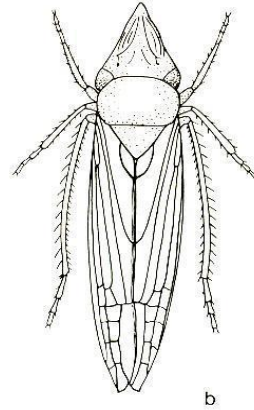
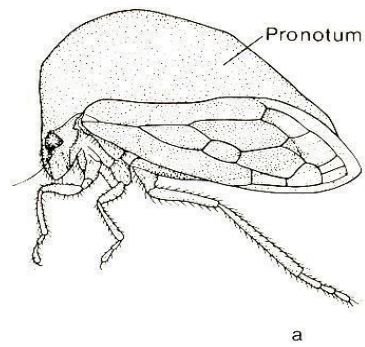



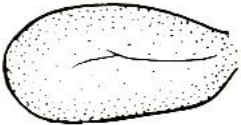
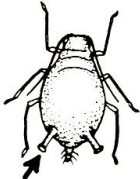
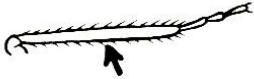


Figure 3 Representative of Homoptera  
 a, Membracidae b, Cicadellidae c, d, Fulgoroidea; c (Acanaloniidae);  
 d, (Delphacidae).

 <p>Figure 4</p>	 <p>Figure 5</p>	 <p>Figure 6</p>
 <p>Figure 7</p>	 <p>Figure 8</p>	 <p>Figure 9</p>

Key to the super families :-

- 1-Antennae setaceous (bristle-like), tarsi 3- jointed-----5. (Figure 4)
- Antennae filiform or rudimentary,tarsi1-2 segment or legs absent---2(Figure-6)
- 2--Tarsi usually 1-jointed, with one claw. Female scale - like or covered with wax, apterous, males usually dipterous, mouth parts atrophied-----**Coccoidea**
- Tarsi 2-jointed with two claws, wings when present 4 in number. ----- 3
- 3 --Hind femora enlarged for jumping, Antennae usually 10-segmented, fore-wings harder than hind ones----- Psylloidea (Figure 7)
- Hind femora not enlarged, long, slender, antennae 3-7 segmented, wings of same structure.-----4.
- 4-- Wings opaque, whitish, clouded, or mottled with spots or bands, no processes on the abdomen-----Aleyrodoidea. (Figure 7)
- Wings transparent paired dorsal processes usually present on the abdomen. --  
-----Aphidoidea. (Figure 8)
- 5-- Antennae arising between eyes, pedicel less than scape in diameter, mid-coxae short and very closed.----- 6
- Antennae arising from sides below eyes; pedicel enlarged; mid coxae large and not closed. ----- Fulgoroidea.
- 6--3 ocelli present; fore femur enlarged, more than 15mm.----- --  
-----Cicadoidea
- 2 ocelli present or absent, fore femur cylindrical, body less than 10 mm, hind tibia with one or more rows of small spines.-----  
-----Cicadelloidea. (Figure 9)

1--*Bemesia tabaci* (Aleyrodidae)



ذبابة القطن والطماطم  
البيضاء

2—*Aleurotrachilus citri*  
(Aleyrodidae)



ذبابة الموالح البيضاء

[aggie-horticulture.tamu.edu](http://aggie-horticulture.tamu.edu)

3—*Siphoninus granati*  
(Aleyrodidae)



ذبابة الرمان البيضاء

*Siphoninus sp*

[www.ento.csiro.au](http://www.ento.csiro.au)

Super fam. Coccoidea.

Key to the families:

1- Body, usually hidden by waxy or scale-like covering ; sessile during most of life-----2

-- Body covered with powdery wax, mobile throughout life.-----3

2--- Body covered with hardened shell formed from wax, shed skins and Fibrous material easily removable ----- diaspididae (Armed scales)

---Body covered with soft wax not easily removable.----- Coccida (soft scales).

3-Larger size-----Margarodidae البق الدقيقي المارد

---Smaller size-----Pseudococcidae. البق الدقيقي الكاذب

1 – *Icerya purchasi*  
(Margarodidae)



البق الدقيقي الأسترالي

[cals.arizona.edu](http://cals.arizona.edu)

2—*Icerya aegyptiaca*  
(Margarodidae)



البق الدقيقي المصري

[www.tlsh.tp.edu.tw](http://www.tlsh.tp.edu.tw)

*Pseudococcus*  
*citri*(Pseudococcidae)



بق المواالح الدقيقي

[www.unimol.it](http://www.unimol.it)

*Maconellicoccus hirsutus*  
(Pseudococcidae)



بق الهبسكس الدقيقي

[mrec.ifas.ufl.edu](http://mrec.ifas.ufl.edu)

*Nipaecoccus vastator*  
(Pseudococcidae)



البق الدقيقي الأرجواني

*Nipaecoccus sp*

[www.forestryimages.org](http://www.forestryimages.org)

*Ceroplastes floridensis*  
(Coccidae)



حشرة الموالح الشمعية

*Ceroplastes rusci*  
(Coccidae)



حشرة التين الشمعية

[edis.ifas.ufl.edu](http://edis.ifas.ufl.edu)

[edis.ifas.ufl.edu](http://edis.ifas.ufl.edu)

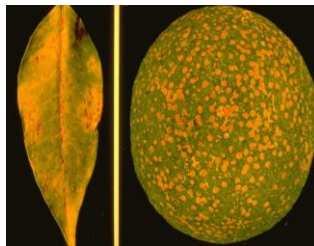
*Chrysomphalus ficus*  
(Diaspididae)



الحشرة القشرية السوداء

[www.viarural.com.ar](http://www.viarural.com.ar)

*Aonidella aurantii*  
(Diaspididae)



الحشرة القشرية الحمراء

[www.inra.fr](http://www.inra.fr)

*Aonidella orientalis*  
(Diaspididae)



[www2.dpi.qld.gov.au](http://www2.dpi.qld.gov.au)

الحشرة القشرية الشرقية الصفراء

*Parlatoria blanchardii*  
(Diaspididae)



[www.forestryimages.org](http://www.forestryimages.org)

حشرة النخيل القشرية

*Parlatoria sp*

*Lepidosaphes ulmi*  
(Diaspididae)



[www.hcs.ohio-state.edu](http://www.hcs.ohio-state.edu)

حشرة الحلويات المحارية

*Lepidosaphes beckii*  
(Diaspididae)



[www.ento.csiro.au](http://www.ento.csiro.au)

حشرة الموالح الأرجوانية

*Cicada sp* (Cicadidae)



[waynesword.palomar.edu](http://waynesword.palomar.edu)

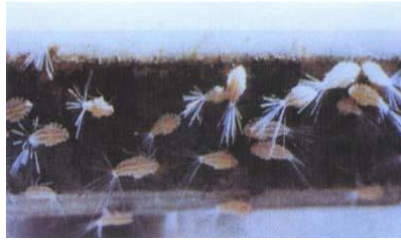
*Empoasca sp* (Cicadellidae)



[nathistoc.bio.uci.edu](http://nathistoc.bio.uci.edu)



*Ommatissus binotatus lybicus*  
(Tropiduchidae)



[www.fao.org](http://www.fao.org)

### References

- Daly, H.V., J.T. Doyen, P.Q. Ehrlich. (1978) Introduction to Insect Biology and Diversity. McGraw-Hill. New York.
- Borror, D.J., D.M. DeLong, and C.A. Triplehorn, (1981) an Introduction to The Study of Insects. 5<sup>th</sup> ed. Saunders. Philadelphia
- Pfadt, R.E., (1985) Fundamentals of Applied Entomology. 4<sup>th</sup> Ed. McMillan Publishing Company. New York.

