
بسم الله الرحمن الرحيم


SCALE
INSECTS

Kingdom : Animalia

Phylum : Arthropoda

Class : Insecta

Order : Hemiptera

Sub order : Sternorrhyncha

(12500 species)

Super family : Coccoidea

(approx. 8000 species)

تضم فوق عائلة Coccoidea من ٢٨-٣٦ عائلة حسب المدارس التقسيمية المختلفة وهناك عائلات تنتمي إلي المجموعة الأولية (البدائية) Archaeoccoidea [تتميز بانها تحمل ثغور تنفسية على جميع الحلقات البطنية (١٠٠ جنس و٧٠٠ نوع تقريبا)] تضم العائلات التالية :

العائلة	عدد الانواع	فى مصر
• Margarodidae	٤٠٠	
• Ortheziidae	١٩٠	
• Phenocaleochidae	٢	
• Putidae	٦٠	
• Carayonendae	٤	

أما مجموعة Neococcoidea وهي الأكثر تطورا حيث لاتحمل الحلقات البطنية ثغورا تنفسية فتضم باقي العائلات وهي :

العائلة	انواعها عالميا	انواعها بمصر
• Diaspididae	٢٤٠٠	٩٤
• Pseudococcidae	٢٢٠٠	٤٩
• Coccidae	١١٥٠	٢٩
• Eriococcidae	٥٦٠	٣
• Asterolecaniidae	٣٥٠	٥
• Lecanodiaspididae		١
• Cerococcidae		

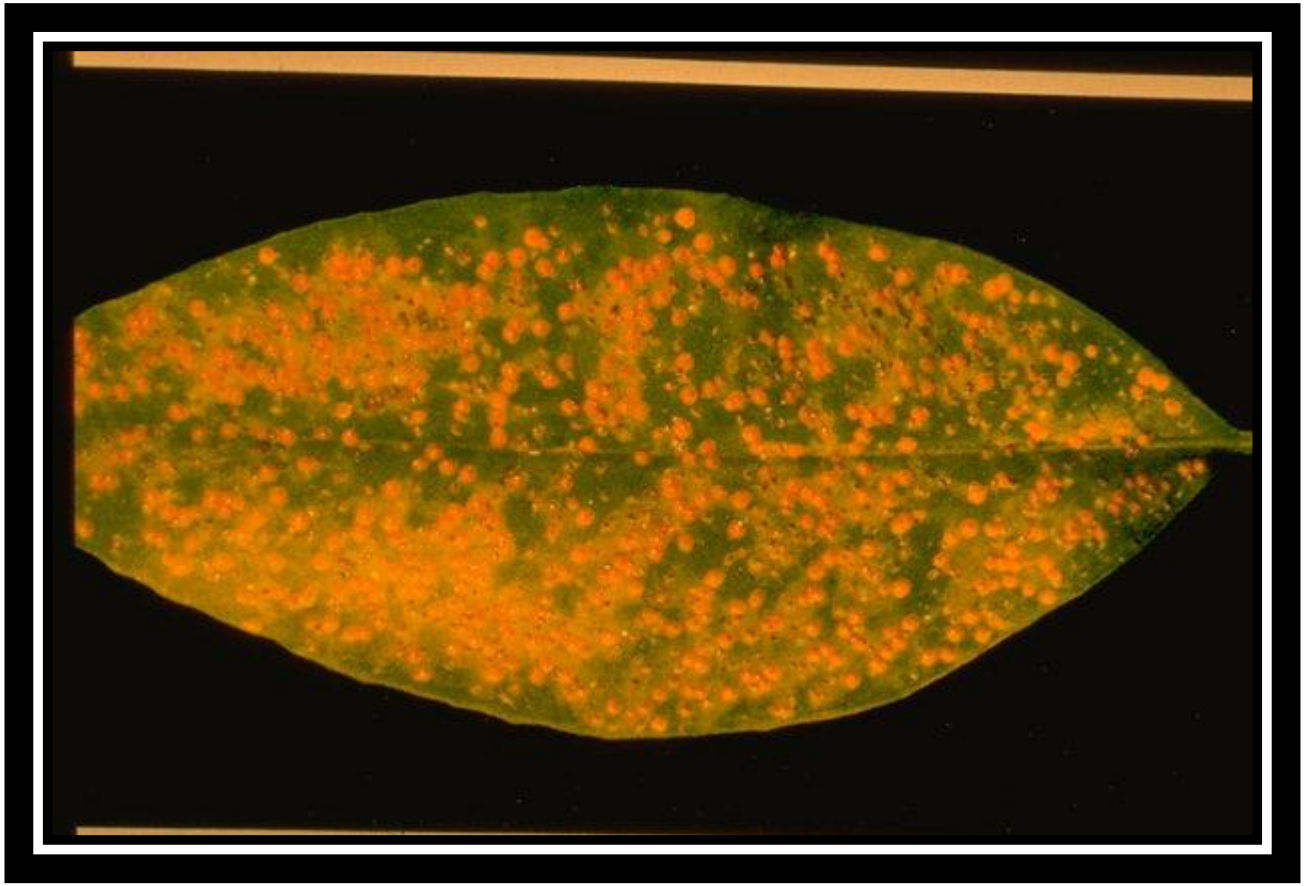
Scale insects groups

Features	Armored Scale	Soft Scale	Mealybugs
Protective coating	Hard and armor-like	No true armor; skin or body hardened by wax-like secretion	covered with a white cottony or mealy wax secretion
Protective cover	Not integral part of the body; it can be separated from the body	Integral part of the body; cannot be removed	Not integral part or the body. The insect appear like small spots of cotton on the plant
Length of piercing mouthpart	Long	Short	Short
Feeding	Females remain permanently fastened to the plant part	Females not fastened permanently until they are ready to lay eggs	Females not fastened permanently
Honey dew excretion	Do not excrete honey dew	Excrete honey dew	Excrete honey dew
Attachment to the plant after death	Scale body remains intact	Scale body can fall off	Scale body can fall off

Chrysomphalus aonidum

Chrysomphalus bifasciculatus

Chrysomphalus dictyospermi



Aonidiella ourantii

Lepidosaphes bekii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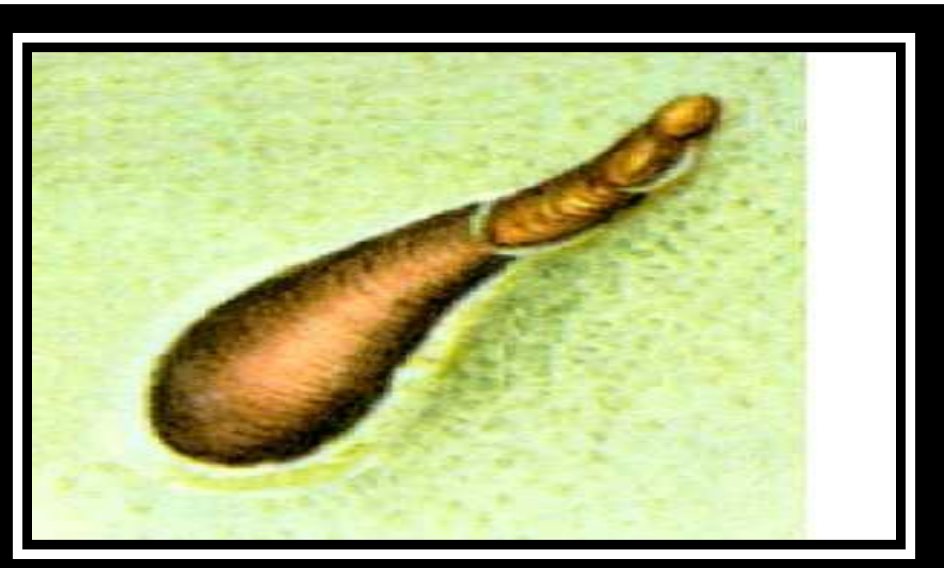
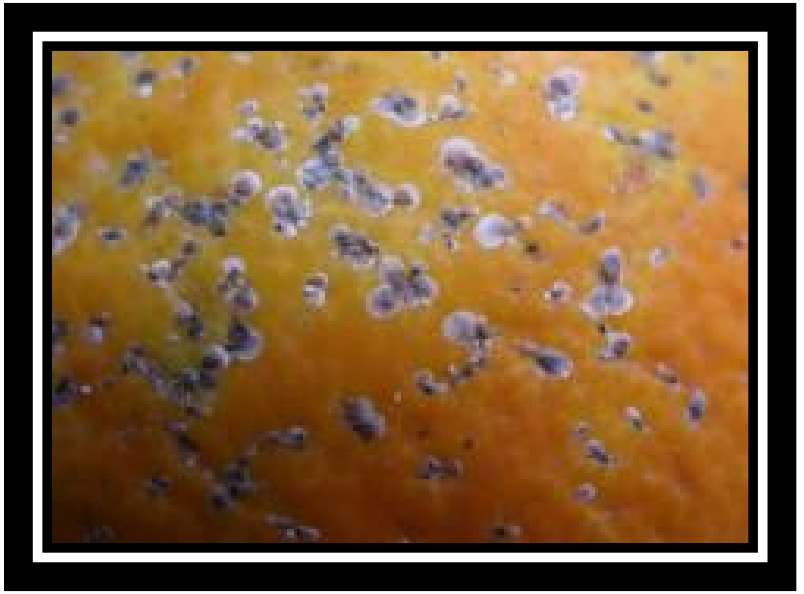
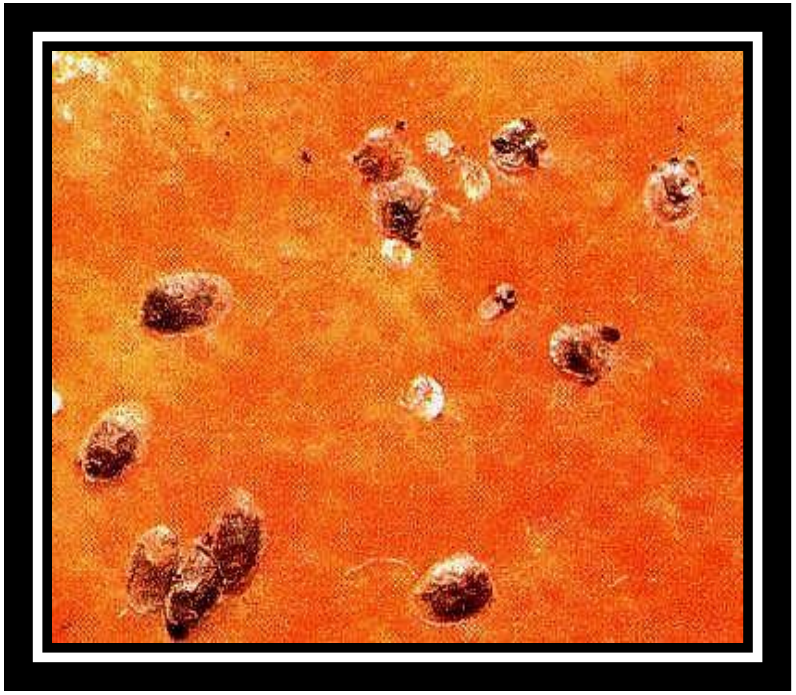
Lepidosaphes gloverii



Lopholeucaspis japonica

Parlatoria pergandii





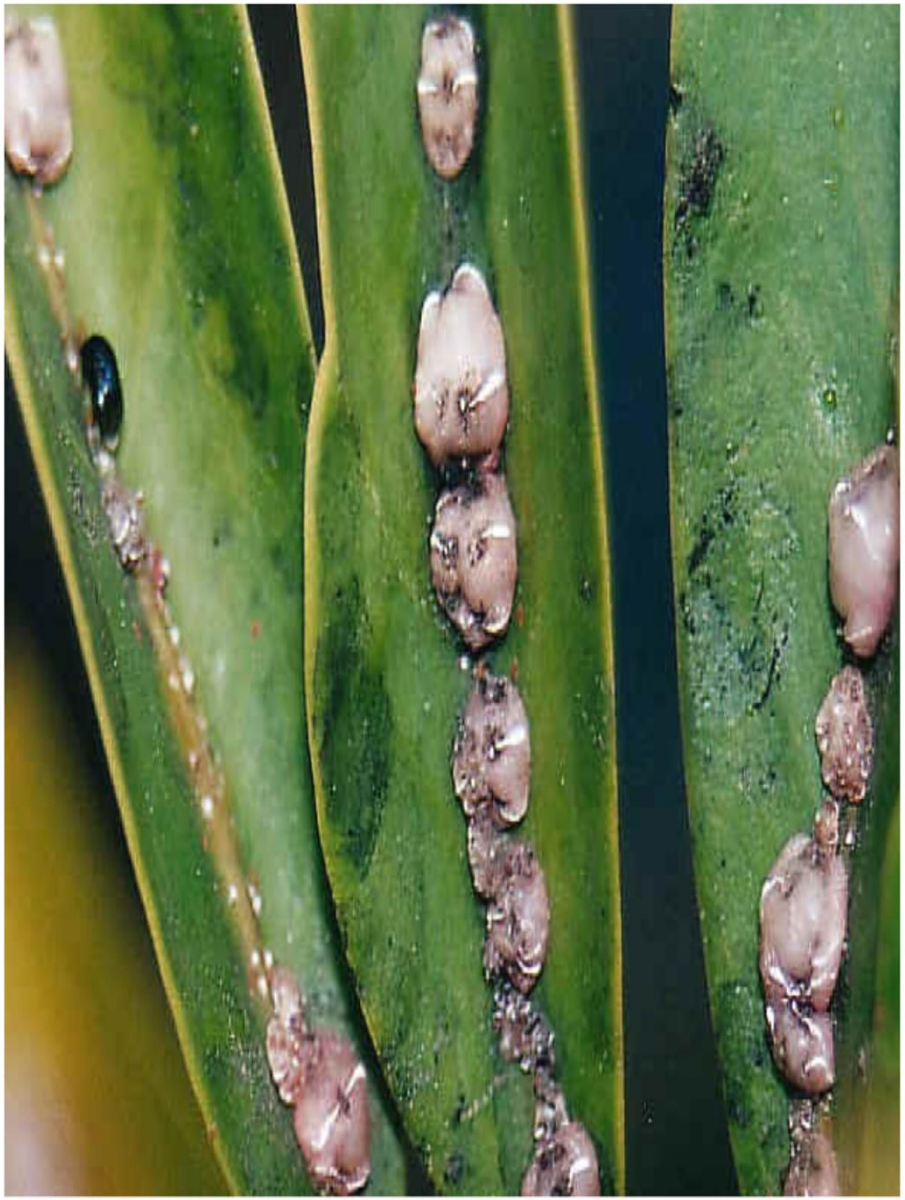
Ceroplastes floridensis

Ceroplastes ceriferus

Ceroplastes destructor

Ceroplastes japonicus

Ceroplastes rubens



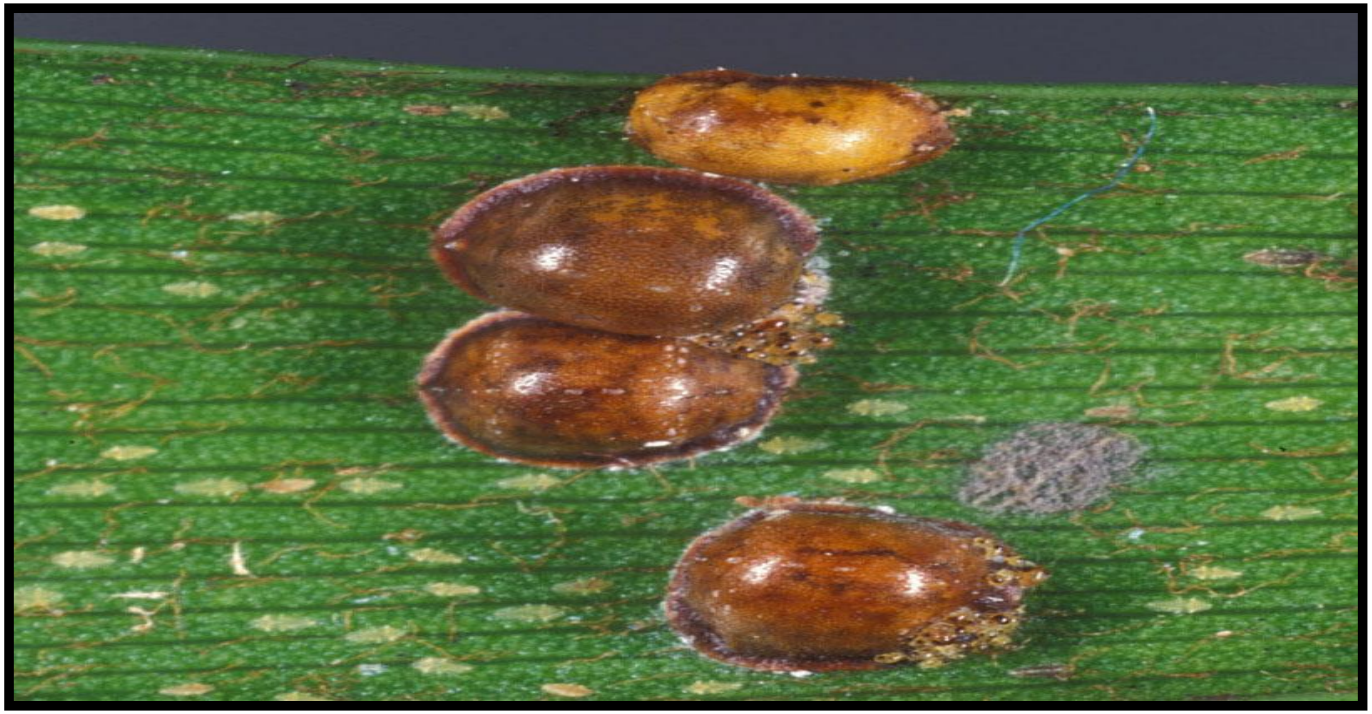
Ceroplastes sinensis

Coccus hesperidum

Coccus longulus

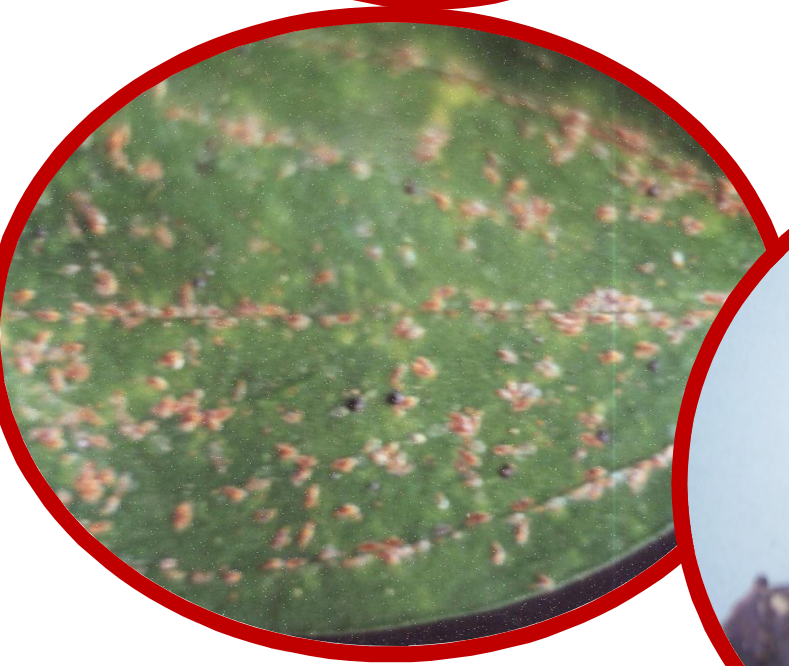
Coccus viridis

Saissetia coffeae



Parlatoria ziziphi



Economic Important

scale insects and mealy bugs which cause damage to the plants in different ways.

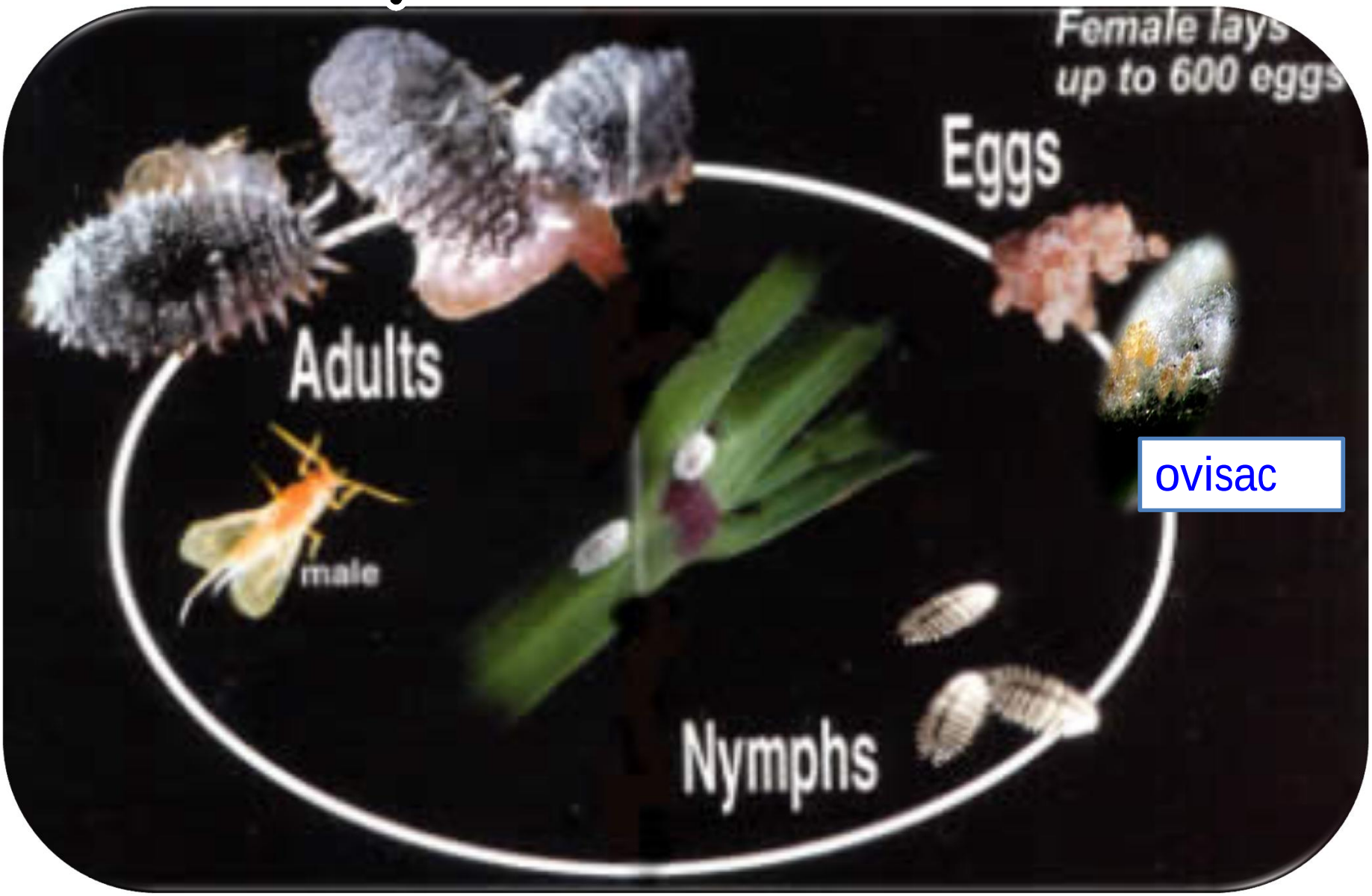
They all suck plant sap, thus weakening their hosts to an extent that the latter sometimes can not mature their fruits and seeds or are rendered subject to the attack of secondary pests, such as bark beetles.

In the absence of control, young apple and pear trees for example can be killed within 2-3 years when infested by *Diaspidiothus perniciosus* and the fruit quality and marketability are greatly reduced by scale attacks. (Kozar & Konstantinova, 1981).

Some scale insects and mealy bugs while feeding are capable of producing disease-like symptoms of varying consequences to the hosts, such insects are termed "toxicogenic" and the resulting damage is called "phytotoximia". This is as the damage caused by fig scale, *Russelaspis pustulans* when infesting fig and mulberry branches.

Soft scales and mealy bugs secrete large amounts of honeydew on which a black fungus, known as "Sooty mould" grows. The fungus covers the leaves, and reduces their photosynthetic ability. Finally, a number of scale insects and mealy bugs are incriminated as vectors of phytopathological microorganisms and particularly of virus diseases (Talhouk, 1969).

Life cycle



The scale insect life cycle