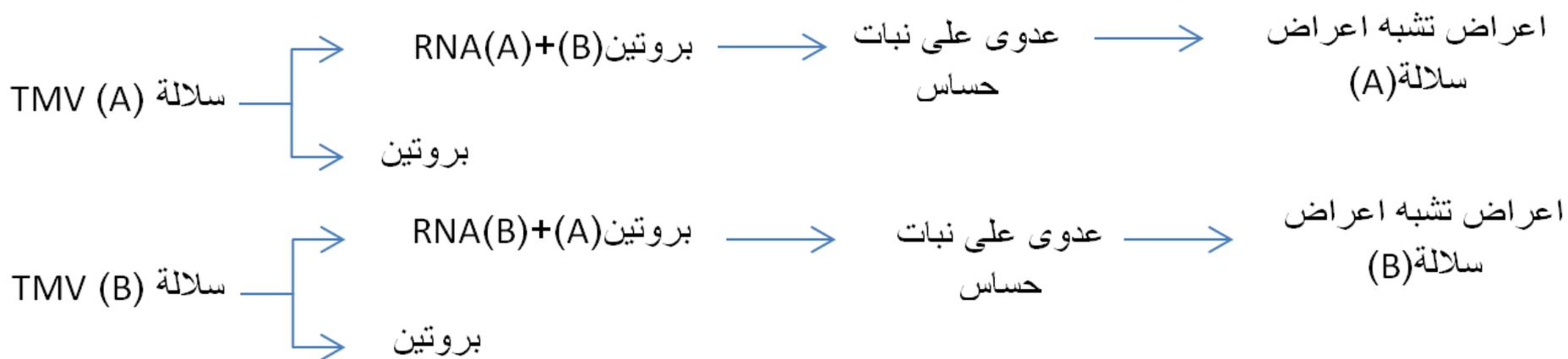


التجارب التي تثبت دور الحامض النووي في حمل المعلومات الوراثية

1. Hershy و Chass 1953 (Bacteriophage T2, *E coli*)
2. Girer & Schramm 1956



3. Williams and Frankle-conart 1956

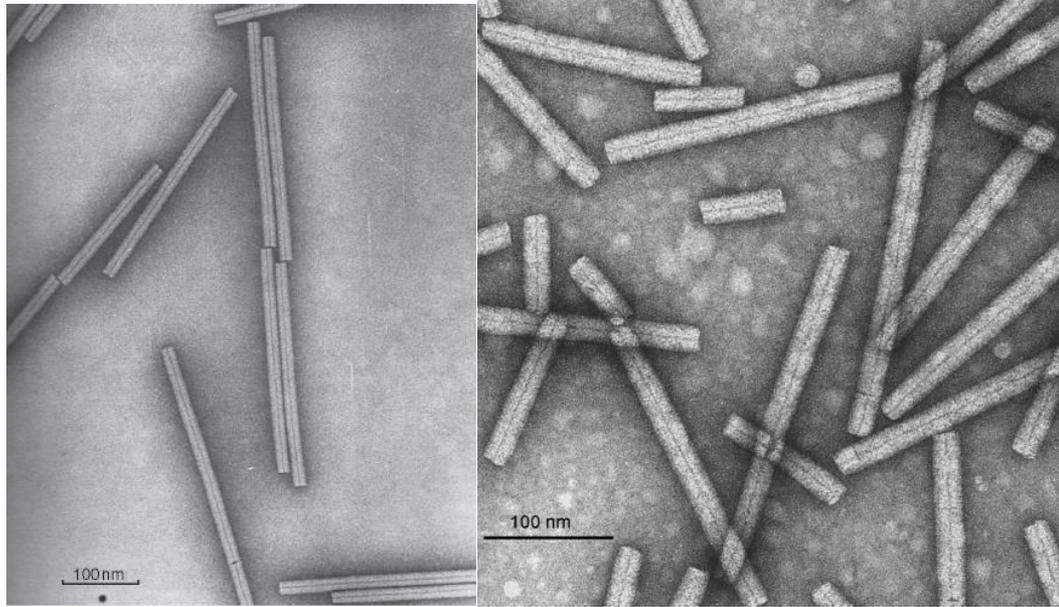


شكل الفيروسات

• اولاً- الفيروسات العصوية

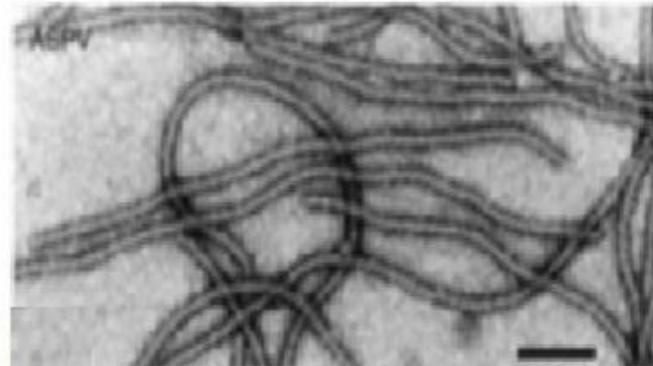
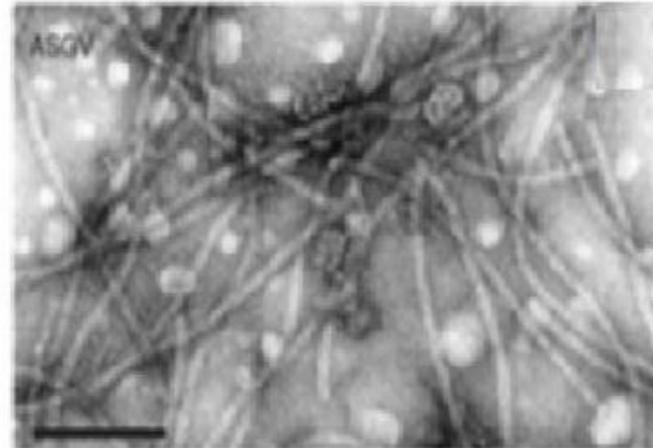
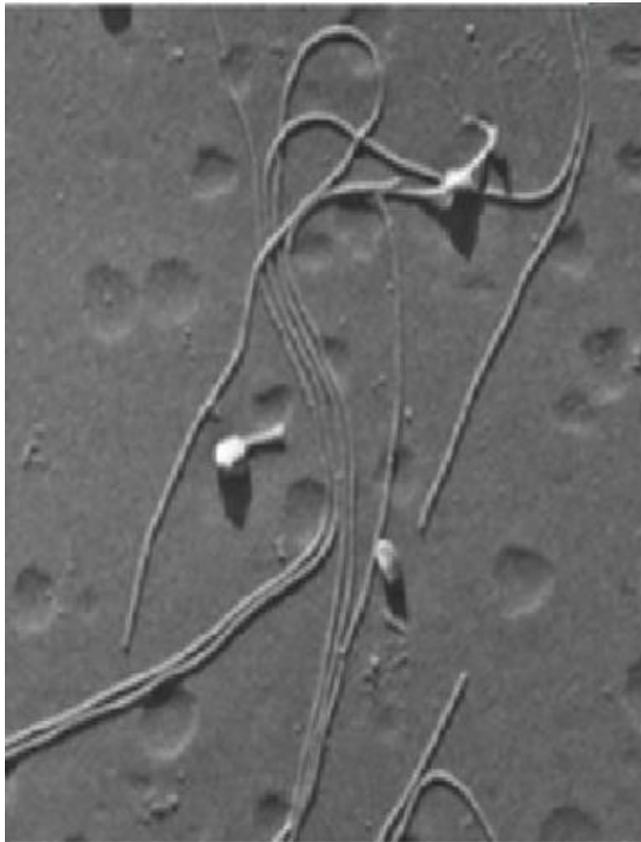
• ١- الفيروسات العصوية الصلدة Rigid rod viruses

(TMV & ToMV)



• ٢- الفيروسات العصوية المرنة Flexuous rod viruses

- Citrus tristeza virus (CTV) & Beet yellow virus (BYV)

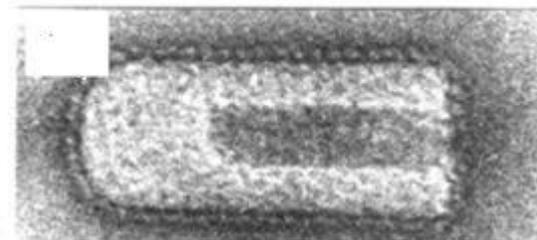
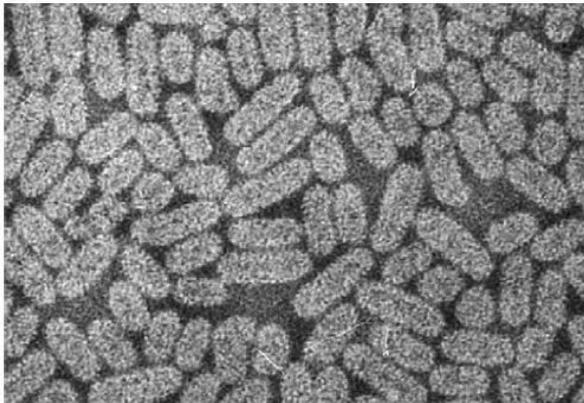
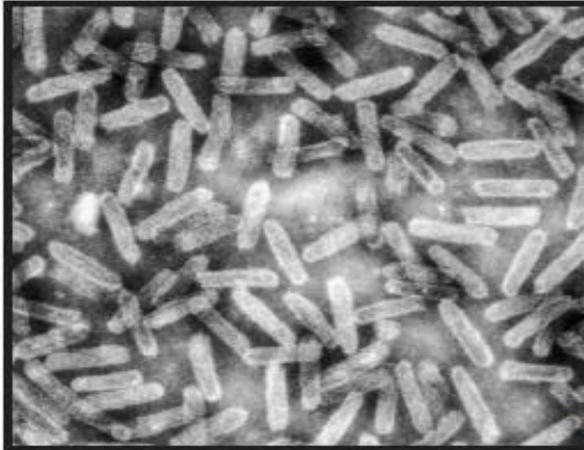


٣- الفيروسات العصوية القصيرة Bacillus viruses

أ- فيروسات قصيرة ذات حواف مدورة Alfalfa mosaic virus (AMV)

ب- الفيروسات الشبيهة بالاطلاقة Bullet-shaped viruses

potato yellow dwarf virus (PYDV)

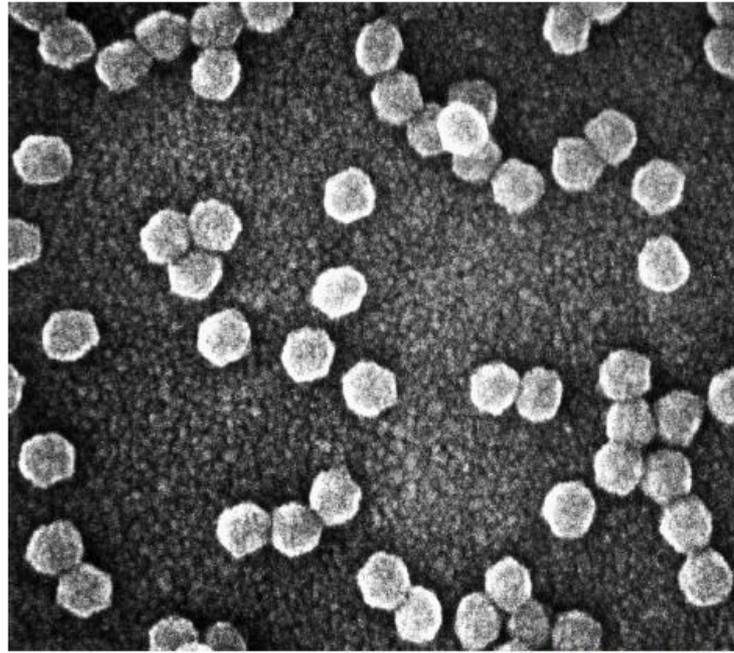
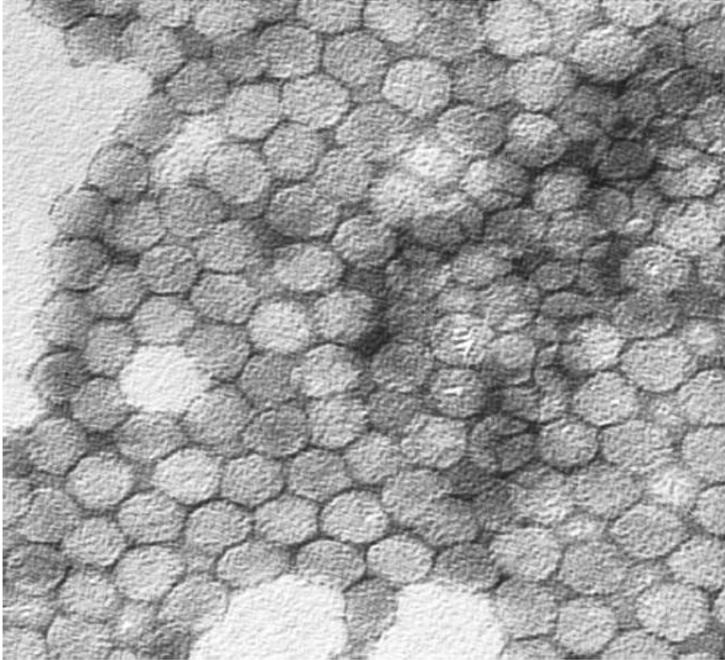


• ثانيا- الفيروسات الكروية **Spherical viruses**
(Polyhedral viruses)

١. Tetrahedral ذات اربع اوجه

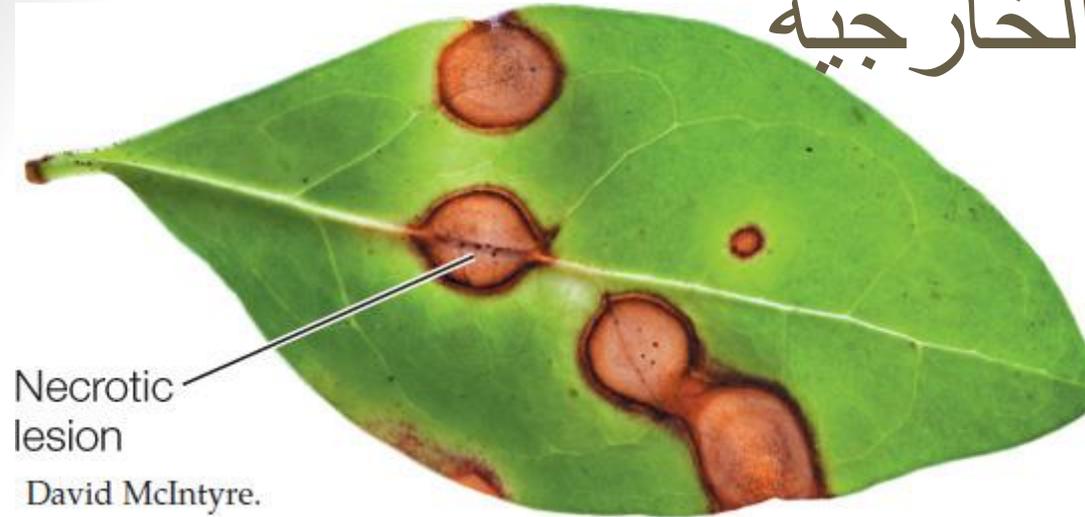
٢. Octahedral ذات ٨ اوجه

٣. Icosahedral ذات ٢٠ وجه



اولاً: الاعراض الخارجية

• أ - الاعراض الموضعية :



Necrotic lesion

David McIntyre.

Necrotic lesion



Chlorotic lesions

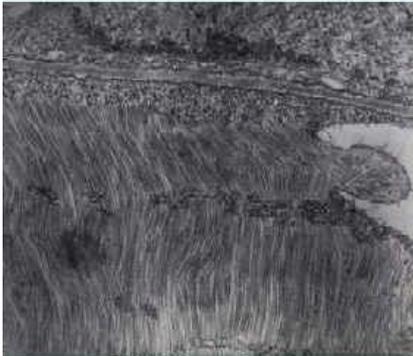


Ring spot

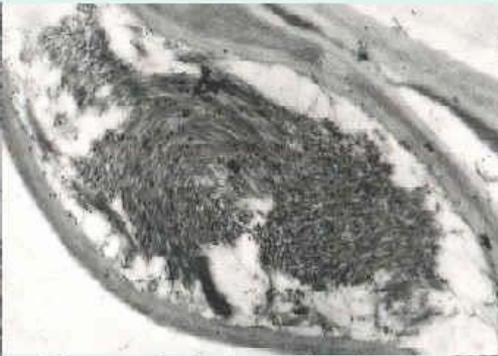
ب- الاعراض الجهازية



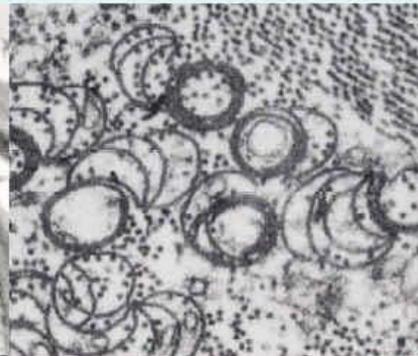
Some Plant Viruses Induce Characteristic Inclusions



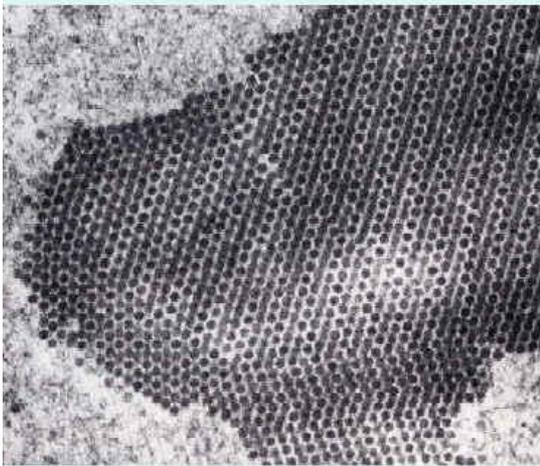
TMV Inclusions



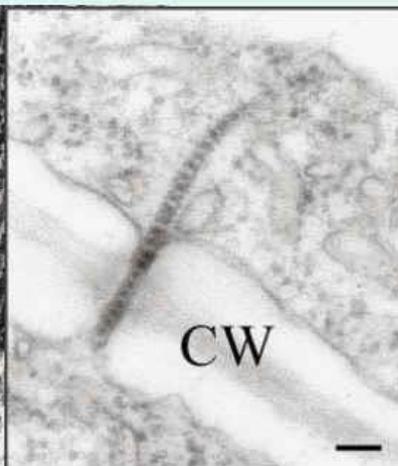
Citrus Tristeza Inclusions



Potyvirus Pinwheels



Spherical Virus Inclusions



CPMV Wall Inclusions

