

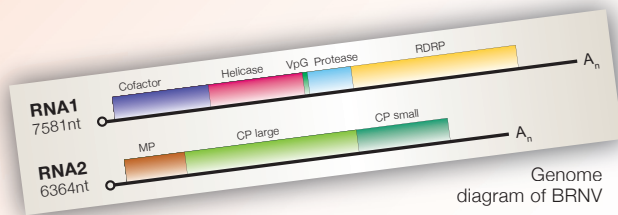
Diagnosis of virus diseases of raspberry using new sequence information

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Raspberry plants are known to be infected by more than twenty different viruses which, especially when present as mixed infections, can cause severe symptoms and greatly affect fruit yield and plant viability. Accurate diagnosis of these viruses can be important, for example to ensure that planting material is virus-free or to suggest approaches to prevent the spread of the viruses within and between plantations.

Some diagnosis can be achieved by visual inspection of symptoms and graft reactions, however, symptoms do not appear in all varieties and are easily misinterpreted. More specific tests include antibody-based ELISA, which can be effective if virus concentrations in the plant are sufficiently high, and nucleic acid sequence-based technologies such as PCR. We are attempting to obtain sequence information for the most commonly occurring viruses in UK raspberry crops, a procedure which is also identifying other viruses that were previously unknown.



Black raspberry necrosis virus (BRNV)

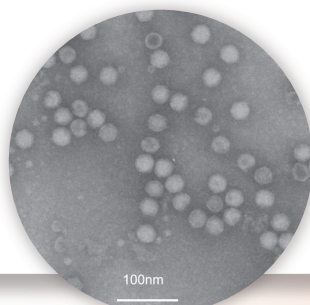
Thought to be very quickly spread in plantations and responsible for severe disease when in combination with other viruses such as Raspberry bushy dwarf. We have obtained nearly half of the sequence of a Scottish isolate of this virus, and found it to be similar to but also significantly different to American BRNV. A PCR diagnostic is under development.

Raspberry leaf mottle virus (RLMV)

Based on our sequencing we think RLMV is probably the same as RLSV.

Rubus chlorotic mottle virus (RuCMV)

Newly discovered at SCRI, this is a sobemovirus that is present in local raspberry and bramble plants.



Raspberry leaf spot virus (RLSV)

Very common in local crops. We have sequenced part of this virus and found it to be very similar to a newly reported raspberry virus from America. A PCR diagnostic is under development.

Raspberry vein chlorosis virus (RVCV)

Very common locally and transmitted by the small raspberry aphid. This virus is proving difficult to analyse and no sequence has yet been obtained, so work is ongoing.

Raspberry green leaf blotch virus (RGLBV)

Newly discovered at SCRI and not yet characterised but is probably spread by leaf and bud mite and is associated with very severe disease symptoms. Future efforts will concentrate on this virus.

