

## **Continuous replication of *European mountain ash ringspot associated virus* (EMARaV) in in-vitro cultures of *Sorbus aucuparia***

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The European mountain ash ringspot-associated virus (EMARaV) is the eponymous species of the genus *Emaravirus*. Presently, four virus species are allocated into this genus, namely, in addition to EMARaV, *fig mosaic virus* (FMV), *rose rosette virus* (RRV) and *raspberry leaf blotch virus* (RLBV), including several geographic variants. *Emaraviruses* are negative-strand RNA viruses with a divided genome of four up to probably eight RNA molecules. EMARaV causes the serious ringspot disease in *Sorbus aucuparia* L.. Since up to now the virus could not be mechanically transmitted to herbaceous host plants, studies on its replication and gene expression strategies are hampered. Therefore, tissue cultures were established from shoots of EMARaV-infected *Sorbus aucuparia*, and long-term replication of EMARaV was analyzed by detection of viral RNA3 through RT-PCR. EMARaV infection was continuously detectable even after 18 months of in vitro culture, indicating that callus and cell suspension cultures sustain long-term replication of the virus. Interestingly, growth characteristics and morphological appearance of calli and suspended cells were not affected by EMARaV-infection. These cultured cells should overcome the difficulties of virus isolation that probably originate from the high content of phenolics in the mountain ash leaves, thus facilitating isolation and analysis of virus particles, which was not achieved yet from *Sorbus aucuparia* leaf tissue. Finally, cultured cells of *Sorbus aucuparia*, either uninfected or EMARaV-infected, provide a suitable source of protoplasts for transfection or transformation with viral and other foreign genes.