

***Study on transmission modes of Cherry leaf roll virus: genetic basis of seed transmissibility based on the model system CLRV/A. thaliana and investigation of possible vectors***

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*Cherry leaf roll virus* constitutes a worldwide dispersed Nepovirus that naturally infects a wide range of woody hosts. Although the virus is only reported to be transmitted in nature vertically - through seed and pollen -, the underlying mechanisms of seed infection are not specified. After transmission experiments of CLRV on birch and *Arabidopsis thaliana* seedlings, vertical spread of the virus is believed to be achieved due to virus presence in the embryo rather than in the seed coat. To confirm the speculated indirect embryo invasion, we intent to use the model system CLRV/*A. thaliana* to investigate the protein-protein interactions during seed embryo infection. In this way we expect to confirm the virus invasion of the floral meristem, to localize the virus in the gametes and gametophytes and indentify host and viral determinants involved in seed transmission. Concerning farther epidemiological studies on CLRV we intent to investigate possible transmission through vectors on birch forests and elderberry plantations in Germany and Finland. Transmission of CLRV through aphids and mites is speculated; this may constitute one factor potentially responsible for the recent broad CLRV epidemics in north European birch forests.