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(Virologische Untersuchungen an erkrankten Birken im Raum Berlin.)

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136 - Investigation of viral diseases in declining birch trees in Berlin

Virologische Untersuchungen an erkrankten Birken im Raum Berlin

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Data from next generation sequencing indicate the complexity of the birch virome in the urban landscape of Berlin. It is well known that plant viruses are widespread and contribute to the decline of birch trees. The occurrence and frequency of mixed viral infection by *Cherry leaf roll virus* (CLRV), *Apple mosaic virus* (ApMV) and two newly

discovered viruses from the genus *Badna-* and *Carlavirus* were investigated in Southern Berlin (Steglitz-Zehlendorf) in 2015 and 2016. To gain a more detailed view on epidemiology of this viral complex in birch, the study was enlarged in 2017 including eight districts all over Berlin with the exception of Friedrichschain-Kreuzberg, Pankow and Lichtenberg. New birch trees with symptoms like defoliation and degeneration were selected for detection of viral pathogens by molecular biological methods. Different combinations of these plant viruses in single and mixed infection were detected by RT-PCR. 80 % of investigated birch leaf samples in 2017 confirmed to be infected by plant viruses. Out of the four tested plant viruses from 72 symptomatic birch leaf samples, *Badnavirus* was recorded as the most prominent virus in the investigated trees followed by CLRV, ApMV and *Carlavirus* respectively. CLRV and *Badnavirus* combinations have shown to be distinct and widely distributed. Currently we try to correlate observed leaf symptoms with known viruses. A protocol has been setup to study the pattern of detected viruses by visualizing tissue prints of leaf material by smFISH with a fluorescence microscope.