



„Studies on *Ribes* plants, *Cecidophyopsis* mites and Blackcurrant Reversion virus for sustainable resistance breeding and cultivation of *Ribes*”

1.1.1.1/18/A/026

Progress of the project (01.12.2019 – 29.02.2020)

Within **Activity No.1**, application protocols for amplification and cloning of the ITS/5.8S region of mites were developed, the cloning and preparation of samples for sequencing has been done and first samples sent for sequencing to the project partner BMC. The studies on *Cecidophyopsis* morphology using non-destructive electron microscopy has been started and isolation of nucleic acids from single mites performed. The testing of BRV in single mites after electron microscopy was started.

In **Activity No.2**, further development of methods for the *Ce* and *P* resistance gene identification in *Ribes* plants was performed on the *Ribes* plant material selected in earlier stages of the project, as well as involving additional *Ribes* samples. The material for cloning and sequencing of the *Ce* gene specific amplification fragment was prepared, cloned and sent for sequencing to the project partner BMC. Work was continued on the analysis of existing *Ribes* genetic resources genotyping information for preparation of a publication manuscript. Adaptation of the methodology was started on the set of chloroplast molecular markers (cpSSR or chloroplast microsatellites) selected in the previous reporting period, to select the most suitable markers for explaining of the inter-specific structure of *Ribes* plant material. The isolation of total RNA from mite-infested and control samples of blackcurrant (cultivar ‘Mara Eglite’) sampled in May and August and stored at -80°C has been initiated by BMC following the previously optimized RNA isolation protocol. The work has been undertaken on the preparation of NGS libraries for sequencing on MGISEq2000.

The evaluation of genotypes according to RIBESCO descriptors in *Ribes* germplasm collections of LatHort in field collections was continued to select the most valuable genotypes for including in the National Genetic Resources Conservation Database and international databases. The evaluation data of the previous season were summarized. The assessment of damages by gall mites in the *Ribes* LatHort field collections in Dobele and Pūre was done and development of evaluation methods was continued. In vitro propagation and maintenance of the most valuable local *Ribes* genotypes and selected genotypes for industrial research was continued in Plant Tissue Laboratory.

The work was continued to collect information and writing an article on resistance of *Ribes* to *Cecidophyopsis* and BRV, and their interactions. Interested parties were informed about the progress of the project and the achieved results in the practical conference "Sustainable Agriculture", where scientists from the Institute of Horticulture presented a poster and submitted a manuscript for publication in the conference proceedings.

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