

Master thesis at the Institute of Sugar Beet Research

Topic:

Development of a reverse genetic system for the Beet necrotic yellow vein virus P-type.

Research issue:

Beet necrotic yellow vein virus (BNYVV) is a member of the genus *Benyvirus* in the family *Benyviridae*. BNYVV causes Rhizomania disease in sugar beet, which is characterized by the abnormal proliferation of lateral roots leading to a significant decrease in sugar content and massive yield losses. BNYVV can be divided into the virus types, namely A-, B-, J- and P-type. The virus types differ in their genome sequence and number of RNA components. Interestingly, the P-type is the only virus type carrying an additional RNA component (RNA5). The RNA5 encodes a pathogenicity factor (P26) which is assumed to be responsible for enhanced symptom expression in sugar beet. Furthermore, an involvement in systemic movement is suspected. Recently, an infectious full length cDNA clone of a BNYVV P-type has been developed at the Institute of Sugar Beet Research. This cDNA clone can be used in a reverse genetic system to study the pathogenicity of the BNYVV P-type in sugar beet. It is the aim of the master thesis to implement an infection system in sugar beet and to study the effect of the different RNA components on the virus pathogenicity. The student will learn modern molecular techniques including PCR mutagenesis, cloning and agroinfection of sugar beet.

Start: At any time

Supervisor: Dr. Sebastian Liebe

Are you interested? Feel free to contact:

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