Česká zemědělská univerzita v Praze
Fakulta agrobiologie, potravinových a přírodních zdrojů

DOKTORSKÝ STUDIJNÍ PROGRAM

NÁVRH TÉMATU/PROPOSAL OF THEME

Studijní program/*Study Program*: **Special Agricultural Science/Agricultural and Forestry Phytopathology and Plant Protection**
Katedra/*Department of*: **Plant Protection**
Školitel (včetně titulů), email/*Supervisor*, email: prof. Ing. Pavel Ryšánek, CSc., rysanek@af.czu.cz
Konzultant (včetně titulů)/*Co-supervisor*: Ing. Jiban Kumar, Ph.D.
Forma studia/*Form of Study*: **Full_time**
Typ tématu/*Type of Theme:* **Framework**

Téma/*Theme:* Wheat dwarf virus (WDV) and the resistance of wheat against this virus

Hypotéza/*Hypothesis*: In different cereals there are present different strains of WDV. There are materials varying in the resistance towards WDV.

Anotace/Annotation: Wheat dwarf virus (WDV) is one of the most ubiquitous viral pathogens of cereal crops. WDV has a wide range of hosts among the Poaceae family including crops, weeds, and grasses. WDV has a single-stranded (ss) circular DNA genome of about 2.75 kb, and belongs to the genus Mastrevirus and family Geminiviridae. WDV has several strains with significant sequence diversity, but wheat and barley strains are the most predominant with their overlapping host range. WDV is transmitted solely in a persistent, non-propagative manner by leafhoppers from the genus Psammotettix (Hemiptera, Cicadellidae, Deltocephalinae). The most important vector is Psammotettix alienus, commonly found in cereal fields and in grassland. WDV causes severe disease in cereal crops and yields loss usually ranges of 100 % in the infected field. The cultivars or genotypes' resistance to WDV is of a great concern for the cereal growers, particularly in Europe. Most of the recently available cultivars (wheat/barley) are susceptible to WDV. The aim of the Ph.D. thesis will be i) to investigate the incidence of Wheat dwarf virus strains in Poaceae plants (both crops and non-crops), ii) to evaluate the sources of plant resistance to the major WDV strains, and iii) to identify the genes associated with resistance to WDV strains.

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Datum/*Date:* 13.1.2020

Podpis/*Signature:*