

spikelet. As environmental conditions influence viral infection, the experiment was sown in three periods. The study of the effects of crop rotation was performed in an experiment established in 1980 by Embrapa Wheat. The crop rotation schemes were monoculture of wheat, oats-wheat, vetch-oats-wheat and oats-barley-oats-turnip-wheat. Parcels (120 m<sup>2</sup>) were divided into three sub-plots, and sown with BRS Parrudo (resistant), BRS Reopente (moderately susceptible) and BRS Guamirim (susceptible) cultivars. Experimental areas has a history of the presence of the vector and the virus and was confirmed by molecular test. The effect of N on the incidence of SBWMD was not evident. The incidence ranged from 0.5 to 17% for cultivar Embrapa 16 and 1 to 95% for cultivar BRS Guamirim. Productivity for cultivar BRS Guamirim was positively influenced by N doses when the incidence were below the 50% threshold. The sowing period with higher rainfall showed higher incidence of the virus. The incidence in the crop rotation experiment was very low (0-0.12%). In wheat monoculture, the incidence was significantly higher in relation to crop rotation, although it showed a weak correlation with grain yield (-0.37) for BRS Reopente cultivar. Cultural practices may be used as complementary tools for managing soil-borne viruses in wheat in southern Brazil. Financial Support: EMBRAPA, UDESC, CAPES.

**Palavras-chaves:** Polymyxa graminis, Crop rotation, Fertilization, Grain yield

## **TOMATO SEVERE RUGOSE VIRUS: A PREVALENT BEGOMOVIRUS SPECIES INFECTING POTATO IN THE CENTRAL REGION OF BRAZIL**

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### **Resumo**

Deforming mosaic disease caused by *Begomovirus* species (Family *Geminiviridae*) transmitted by whitefly (*Bemisia tabaci* biotype B) is an emerging disease affecting potato crop (*Solanum tuberosum* L.) that has been more often detected over the last ten years in Brazil. Despite of been detected at low incidence (, table potatoes and potatoes for the processing industry of different varieties, 45-50 days after planting of tubers and showing yellow mosaic, and leaf deformation symptoms. High whitefly populations were observed in the production fields considered for sampling. Leaf samples were submitted to total DNA extraction using CTAB method, Rolling Circle Amplification (RCA) with Phi-29 DNA Polymerase, followed by polymerase chain reaction (PCR)-based methods for begomovirus detection. The first PCR was performed using degenerate primers (PAL1v1978/PAR1c496; Plant Dis. 77:340-347, 1993) that amplify a 1.1 kbp fragment of DNA-A component. The second PCR was done with ToSRV-specific primers (Phytopathol. 103:436-444, 2013) that amplify 820 pb amplicon also of the DNA-A component. Cloning and sequencing of 15 isolates was performed. Begomovirus detection occurred in 150 samples out of 200 [DF: 89; Goiás: 61 (Cristalina-20; Luziânia-41)] using the universal primers indicating that begomovirus presence is associated with leaf deformation and yellow mosaic symptoms observed in diseased plants in the field. ToSRV-detection was also identified in the same number of samples, 150. Sequencing data confirmed data obtained from PCR using specific primers, and ToSRV was the only *Begomovirus* species identified in all 15 isolates sequenced. These data indicate the prevalence of this *Begomovirus* species infecting potato in the Central region of Brazil.

**Palavras-chaves:** Begomovirus, potato, detection, PCR, ToSRV

## **THE PLANTING POTATO WITH SCIENCE PROJECT (PPWSP): A VOLUNTEER FUNDAMENTAL SCHOOL SCIENCE EDUCATIONAL PROJECT USING POTATO VIRUSES TO BUILD PLANT PROTECTION CONSCIENCE**