

Characterization of the Tunisian PhopGV isolate TU1.11; molecular identification and biological activity on *Phthorimaea operculella* larvae

Saoussen Ben Tiba^{1,2,3}, Andreas Larem¹, Eva Fritsch¹, Karin Undorf-Spahn¹, Asma Laarif², Sami Fattouch³, Johannes A. Jehle¹

¹ Julius Kühn-Institut, Institute for Biological Control, Darmstadt, Germany

² Regional Center for Agriculture and Biological Agriculture, Chott Meriem, Tunisia

³ National Institute for applied technological Science Tunis (INSAT), Carthage University, Tunisia

Email of corresponding author: saoussen.ben.tiba@jki.bund.de

The *Gelechiidae* *Phthorimaea operculella* (Zeller) is a Lepidopteran pest, which causes serious damages in potato crops in the fields and stored tubers in sub-tropical and tropical regions. One of the infectious entomopathogenic agents against this pest is *Phthorimaea operculella* granulovirus (PhopGV) of the family *Baculoviridae*. Baculoviruses are considered as potent biological control agents for different insect orders. The genome of the Tunisian isolate PhopGV 1346 is fully sequenced. It is used as a reference to characterize the PhopGV isolate TU1.11, which is in the focus of this study. For that, different fragments of the TU1.11 genome are sequenced, such as the granulin gene and the

ecdysteroid UDP-glucosyltransferase (*egt*) gene. The *egt* gene of the reference isolate PhopGV-1346 is 1353 bp in length unlike the size of *egt* gene identified in PhopGV TU1.11, which was 1086 bp, placing this isolate in *egt* group III.

TU1.11 was tested against *P. operculella* larvae for its biological activity. First bioassay results showed that the larval development was retarded and that larvae, which were still alive, did not emerge into pupae, even 15 days post infection. Exposed to PhopGV, *P. operculella* do not develop to adults, thus, the population size of the next generation may decrease because of PhopGV infection.