



TRABALHOS APROVADOS PARA APRESENTAÇÃO EM FORMA DE PÔSTER

403 - ÁREA: VEGETAL E INVERTEBRADOS

MOLECULAR, ULTRASTRUCTURAL, AND PATHOLOGICAL CHARACTERIZATION OF SPODOPTERA COSMIOIDES MULTIPLE NUCLEOPOLYHEDROVIRUS, THE FIRST BACULOVIRUS HARBORING A NAD-GLUTAMATE DEHYDROGENASE

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Resumo

Baculoviruses are orally infectious to the larval stage of insects. They are used in biological control of agricultural pests due to their specificity, feasibility to be applied, and safety. The virus has circular dsDNA genome and two infectious virions phenotypes; one of them is trapped into a protective occlusion body (OB) and responsible for the spread between hosts. Currently, baculoviruses are divided into four genera, *Alphabaculovirus* in special infects moths and butterflies. *Spodoptera cosmioides* is a lepidopteran pest of great economic importance during its larval stage that has been detected attacking soybean. In this work, we characterized a novel virus isolated from a *S. cosmioides* extract with baculovirus infection symptoms. To do this, we performed the sequencing of the virus genome using the 454 method and *de novo assembly* with the Geneious-R9 program. Genome annotation was performed using BLASTX. The virus genome contained 148 kbp (G+C of 44.8%) with 141 ORFs. 23 ORFs were unique, including an *NAD-glutamate dehydrogenase (glud)* never related before in baculovirus. Preliminary analyses revealed that the *glud* was closely related to ascoviruses. GLUD is ubiquitous in eukaryotes converting reversely glutamate to α -ketoglutarate and playing a key role to link catabolic and anabolic pathways in cells. The presence of *glud* in insect viruses must be investigated. The virus phylogeny was generated from the alignment of the 38 core genes (shared by all baculovirus), confirming that the virus belongs to the group II of *Alphabaculovirus*, genetically similar to other *Spodoptera*-isolated viruses. The virus fulfills all the criteria for new species demarcation. Electron microscopy analyses have demonstrated the uniform shape of the OBs and the presence of more than one nucleocapsid per envelope within the occluded virions. Thus, we proposed as a tentative name *Spodoptera cosmioides multiple nucleopolyhedrovirus* (SpcoMNPV). A bioassay was performed with third instar host larvae. Insects were fed on artificial diet contaminated by virus in six different OB concentrations. Mortality was assessed after 12 days post-infection. The concentration that generated LC50 was about 3000 OBs/mL (n=710). It is of great importance the characterization of new baculoviruses so that the virus evolutionary history could be better understood. Moreover, this study allows for the development of SpcoMNPV as a biological controller. **Financial support:** CNPq, FAP-DF.

Palavras-chave: Baculovirus, Viruses, Biological control, SpcoMNPV, Alphabaculovirus