Accepted Manuscript

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G. Maciel-Vergara, V.I.D. Ros

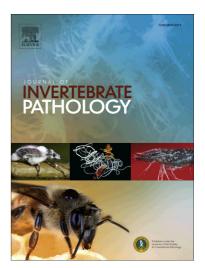
PII: S0022-2011(17)30054-X

DOI: http://dx.doi.org/10.1016/j.jip.2017.01.013

Reference: YJIPA 6915

To appear in: Journal of Invertebrate Pathology

Received Date: 29 June 2016 Revised Date: 26 January 2017 Accepted Date: 31 January 2017



Please cite this article as: Maciel-Vergara, G., Ros, V.I.D., Viruses in insects for food and feed, *Journal of Invertebrate Pathology* (2017), doi: http://dx.doi.org/10.1016/j.jip.2017.01.013

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Viruses in insects for food and feed

Maciel-Vergara, G.1, Ros, V.I.D.2

¹ Department of Plant and Environmental Sciences, University of Copenhagen, Thorvaldsensvej 40, 1871 Frederiksberg C, Denmark.

² Laboratory of Virology, Wageningen University, Droevendaalsesteeg 1, 6708 PB Wageningen, The Netherlands

Corresponding author: Gabriela Maciel-Vergara gmv@plen.ku.dk

Abstract

The use of insects as food for humans or as feed for animals is an alternative for the increasing high demand for meat and has various environmental and social advantages over the traditional intensive production of livestock. Mass rearing of insects, under insect farming conditions or even in industrial settings, can be the key for a change in the way natural resources are utilized in order to produce meat, animal protein and a list of other valuable animal products. However, because insect mass rearing technology is relatively new, little is known about the different factors that determine the quality and yield of the production process. Obtaining such knowledge is crucial for the success of insect-based product development. One of the issues that is likely to compromise the success of insect rearing is the outbreak of insect diseases. In particular, viral diseases can be devastating for the productivity and the quality of mass rearing systems. Prevention and management of viral diseases imply the understanding of the different factors that interact in insect mass rearing. This publication provides an overview of the known viruses in insects most commonly reared for food and feed. Nowadays with large-scale sequencing techniques, new viruses are rapidly being discovered. We discuss factors affecting the emergence of viruses in mass rearing systems, along with virus transmission routes. Finally we provide an overview of the wide range of measures available to prevent and manage virus outbreaks in mass rearing systems, ranging from simple sanitation methods to highly sophisticated methods including RNAi and transgenics.

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