

BIOVEXO – Biocontrol of Xylella and its vector in olive trees for integrated pest management

Deliverable 2.2

Protocol for optimisation of dose range and other parameters of V-biopesticides important for their optimal efficacy

Due Date:	26/2/2021
Submission Date:	26/2/2021
Dissemination Level:	CONFIDENTIAL
Lead beneficiary:	GLOBACHEM
Main contact:	Liesbeth.zwarts@globachem.com

Project acronym: BIOVEXO	Project Number: 887281
Start date of project: 01/05/2020	Project duration: May 2020 – April 2025

D.2.2 Protocol for optimisation of dose range and other parameters important for optimal efficacy

Publishable Summary

Deliverable 2.2 reports on lab testing of the consortium's V-biopesticides in order to obtain a protocol with the optimal concentration ranges, application methods and application parameters. This protocol will form the basis of the V-biopesticide field trials in WP4 (large scale validation of control strategies for integrated pest management).

Preliminary experiments showed strong toxic effects of Glob1 on *P. spumarius* nymphs and adults. Glob2, Glob3 and Glob4 were newly included during the review of the existing solutions at the beginning of the project (Deliverable 2.1). Here, the V-biopesticides were tested on *P. spumarius* if possible. In certain cases; this was not possible due to Covid19-related restrictions. Furthermore, multiple other model- or pest insects were included to get more insight into the products' function. Although species-specific effects were observed on the required concentration range, many other parameters were transferable between species.

The effect of Glob1 was confirmed on different insects, including *P. spumarius*. Furthermore, the efficacy of the formulation was optimized by testing different solvents and additives. Glob1 showed its strongest effect by topical application. This effect was immediate without residual efficacy.

Glob2 could not be tested on *P. spumarius* due to Covid-19 restrictions. However, experiments on multiple insects allowed to determine the concentration range and the application method. Topical application on the insects themselves showed the strongest effect. However, also indirect foliar application induced mortality. The effect of Glob2 was not immediate and an increase in efficacy could be observed in the days after application.

Glob3 showed to have a stronger effect on *P. spumarius* than on other tested insects. Nevertheless, the required concentration remained high. Interestingly, Glob3 showed synergistic effects with different tested additives. These interactions might provide novel treatment options which will be further explored.

Glob4 could not be tested due to Covid-19 restrictions. Lab experiments explored different additive options to include in the formulation in WP3 (biopesticide formulation and upscaling).