University of Guam Coconut Rhinoceros Beetle Biological Control Project
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https://github.com/aubreymoore/rearing3

Bioassay Report: V23BperOS

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https://github.com/aubreymoore/rearing3/raw/master/bioassay-V23BperOS.pdf

Contents

1 Summary 2

2 Laboratory experiment to evaluate the potential infectivity of OrNV isolates in the coconut rhinoceros beetle Guam biotype, Oryctes rhinoceros (L.) (CRB-G) 2

3 Mortality 3

4 Change in Mass 4

5 Post Mortem Images 5
5.1 control . . . 5
5.2 heat inactivated . . . 9
5.3 virus . . . 11

1 Summary

Table 1: Bioassay summary.

	bioassay_name	date_start_bioassay	date_end_bioassay	bioassay_treatment	N
0	V23BperOS-1	2019-03-05	None	control	1
1	V23BperOS-1	2019-03-05	None	heat inactivated	1
2	V23BperOS-1	2019-03-05	2019-04-05	control	5
3	V23BperOS-1	2019-03-05	2019-04-05	heat inactivated	4
4	V23BperOS-1	2019-03-05	2019-04-05	virus	5
5	V23BperOS-2	2019-04-12	2019-05-10	control	6
6	V23BperOS-2	2019-04-12	2019-05-10	heat-inactivated	5
7	V23BperOS-2	2019-04-12	2019-05-10	virus	5

2 Laboratory experiment to evaluate the potential infectivity of OrNV isolates in the coconut rhinoceros beetle Guam biotype, Oryctes rhinoceros (L.) (CRB-G)

Fifteen adult beetles maintained for more than 2 weeks to observe possible contamination from green muscardine fungus infection were employed in a preliminary test to determine the susceptibility of adult beetle to infection by virus **V23 B** isolate (Solomon Islands). Each of 5 beetles (5/treatment) were orally fed 10 µl of a virus + 30% sucrose mixture with a sterile pipette tip. Adults were then placed in clean glass mason jars (bleach-treated) with a piece of banana added for food. Beetles were incubated at 30℃ and 80% RH in a Percival incubator. All beetles will be monitored daily to observe any possible signs of infection.

3 Mortality

Table 2: Mortality summary.

	bioassay_treatment	ntotal	ndead	mortality	adjusted_mortality	significance
0	control	12	6	0.5	0.0	1.000000
1	heat inactivated	5	2	0.4	-0.2	1.000000
2	heat-inactivated	5	2	0.4	-0.2	1.000000
3	virus	10	9	0.9	0.8	0.074303

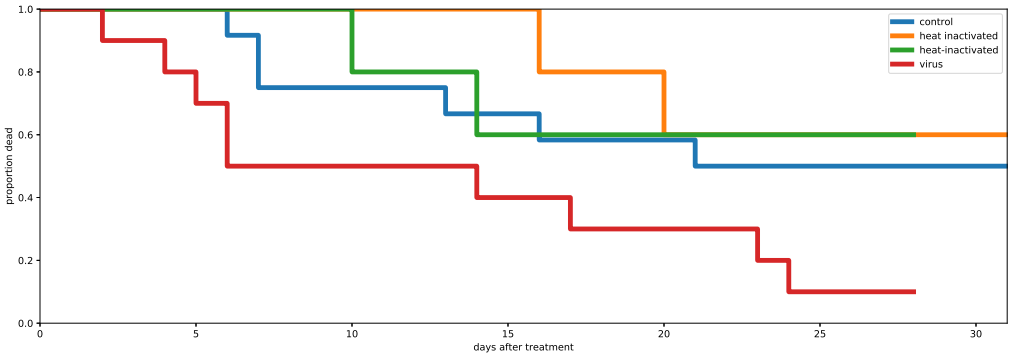

Table 3: Pairwise differences among mortality curves.

		test_statistic	p
control	heat inactivated	0.293458	0.588013
	heat-inactivated	0.142769	0.705544
	virus	4.076804	0.043476
heat inactivated	heat-inactivated	0.065045	0.798693
	virus	3.763369	0.052387
heat-inactivated	virus	3.134795	0.076638

4 Change in Mass

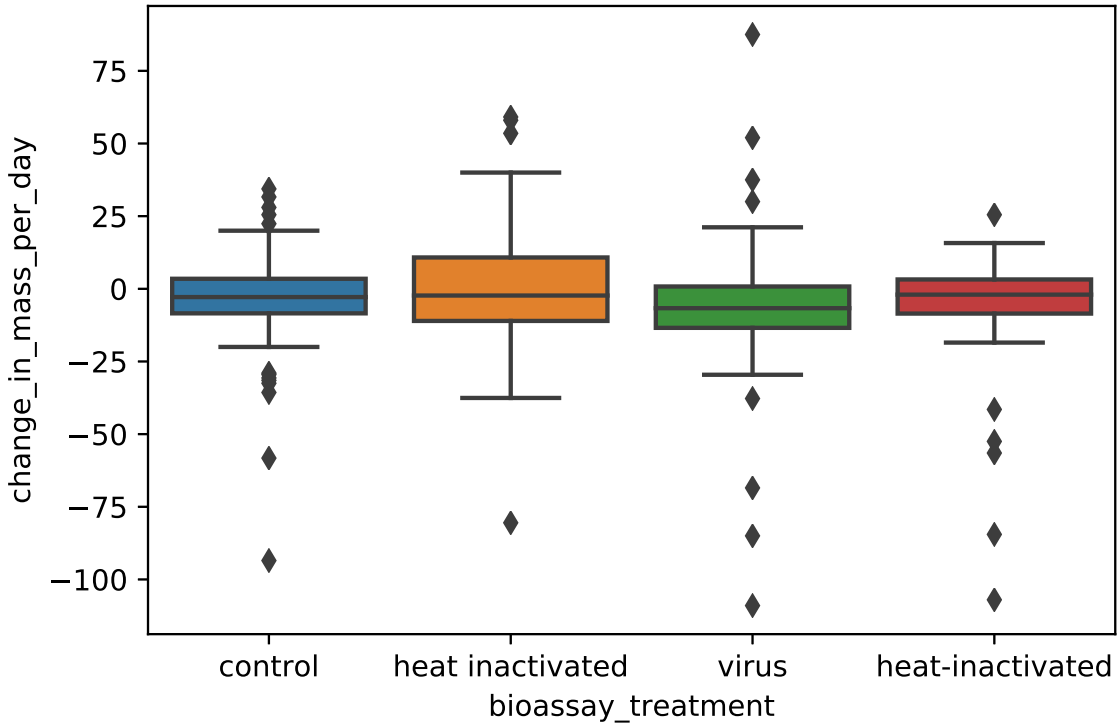

Table 4: Results of pairwise significance tests for differences in change in mass.

	control	heat inactivated	heat-inactivated	virus
control	-1.000000	1.000000	1.000000	0.560673
heat inactivated	1.000000	-1.000000	1.000000	0.259404
heat-inactivated	1.000000	1.000000	-1.000000	0.812923
virus	0.560673	0.259404	0.812923	-1.000000

5 Post Mortem Images

5.1 control

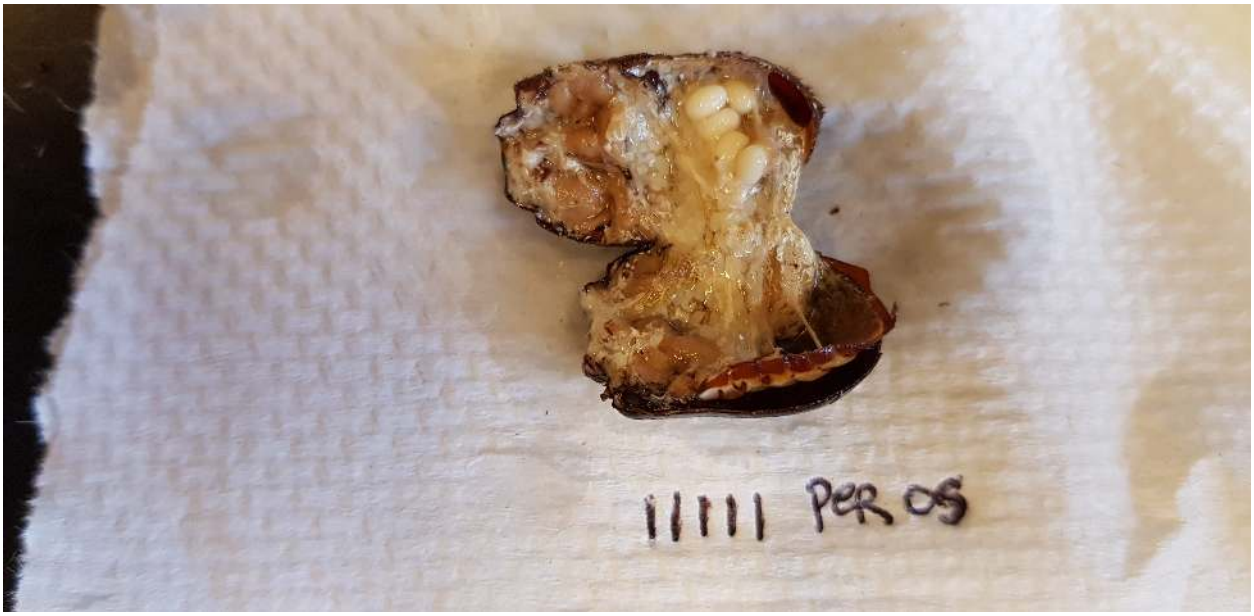

Figure 1: Bioassay: V23BperOS-1; Treatment: control; Beetle ID: 1394

Figure 2: Bioassay: V23BperOS-1; Treatment: control; Beetle ID: 1395

Figure 3: Bioassay: V23BperOS-1; Treatment: control; Beetle ID: 1397

Figure 4: Bioassay: V23BperOS-1; Treatment: control; Beetle ID: 1431

5.2 heat inactivated

Figure 5: Bioassay: V23BperOS-1; Treatment: heat inactivated; Beetle ID: 1402

Figure 6: Bioassay: V23BperOS-1; Treatment: heat inactivated; Beetle ID: 1432

5.3 virus

Figure 7: Bioassay: V23BperOS-1; Treatment: virus; Beetle ID: 1403

Figure 8: Bioassay: V23BperOS-1; Treatment: virus; Beetle ID: 1404

Figure 9: Bioassay: V23BperOS-1; Treatment: virus; Beetle ID: 1405

Figure 10: Bioassay: V23BperOS-1; Treatment: virus; Beetle ID: 1406

Figure 11: Bioassay: V23BperOS-1; Treatment: virus; Beetle ID: 1407

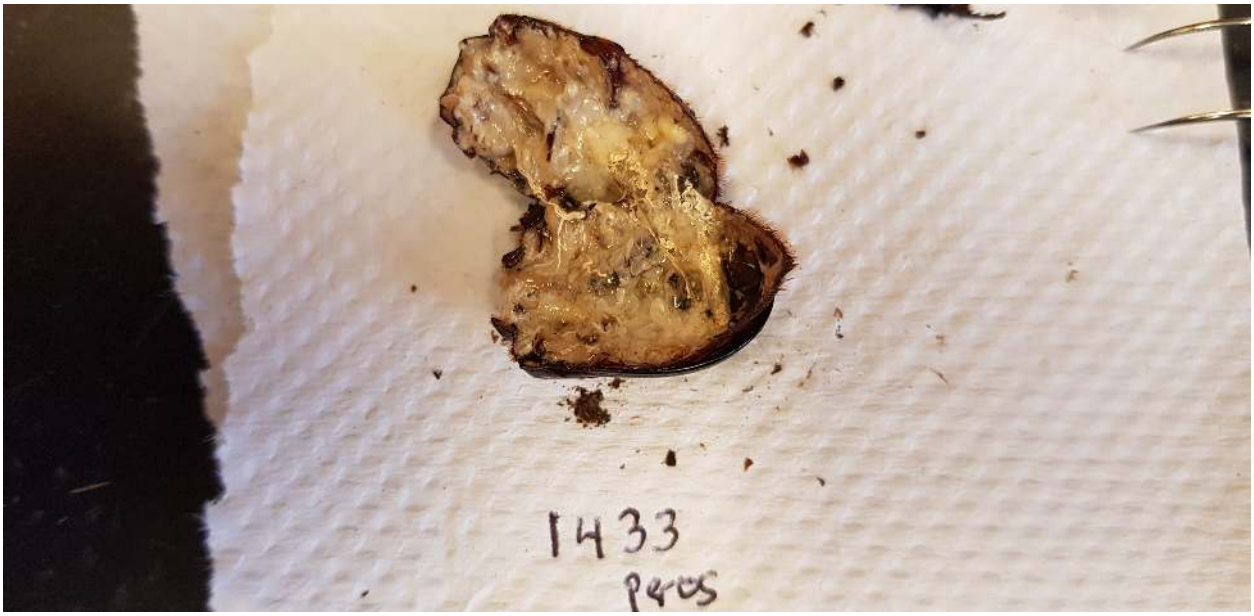

Figure 12: Bioassay: V23BperOS-2; Treatment: virus; Beetle ID: 1433