



University of Guam Coconut Rhinoceros Beetle Biological Control Project

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<https://github.com/aubreymoore/rearing3>

Bioassay Report: V23B_large_bioassay

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[https://github.com/aubreymoore/rearing3/raw/master/bioassay-V23B%5C_large%5C_
bioassay.pdf](https://github.com/aubreymoore/rearing3/raw/master/bioassay-V23B%5C_large%5C_bioassay.pdf)

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1 Summary

Table 1: Bioassay summary.

| | bioassay_name | date_start_bioassay | date_end_bioassay | bioassay_treatment | N |
|---|-----------------------|---------------------|-------------------|--------------------|----|
| 0 | V23B_large_bioassay-1 | 2019-07-07 | 2019-08-08 | control | 27 |
| 1 | V23B_large_bioassay-1 | 2019-07-07 | 2019-08-08 | virus | 26 |

Sixty adult beetles maintained for more than 2 weeks to observe possible contamination from green muscardine fungus infection were employed in a test to determine the susceptibility of adult beetle to infection by virus V23B isolate (Solomon Islands). After this period, food was removed and the beetles were left without food for 3 days. Insects were divided into small and large by weight, sexed, and then randomly placed into one of two treatment groups. A virus-40% sucrose preparation of 20 microlitres was administered per os to each of 30 beetles along with another 30 beetles per os administered with 20 microlitres sterile water-40% sucrose preparation as controls. Adults were then placed individually in a labeled clean glass mason jar (bleached-treated) with a piece of banana added for food. Beetles were incubated at 30C and 80% RH in a Percival incubator. All beetles will be monitored daily to observe any possible signs of infection.

2 Mortality

Table 2: Mortality summary.

| | bioassay_treatment | ntotal | ndead | mortality | adjusted_mortality | significance |
|---|--------------------|--------|-------|-----------|--------------------|--------------|
| 0 | control | 27 | 2 | 0.074074 | 0.000000 | 1.000000 |
| 1 | virus | 26 | 12 | 0.461538 | 0.418462 | 0.001756 |

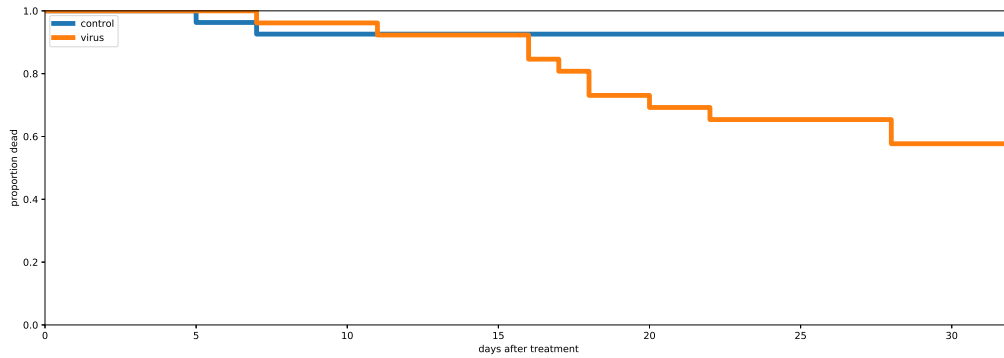


Table 3: Pairwise differences among mortality curves.

| | | test_statistic | p |
|---------|-------|----------------|----------|
| control | virus | 9.25025 | 0.002355 |

3 Change in Mass

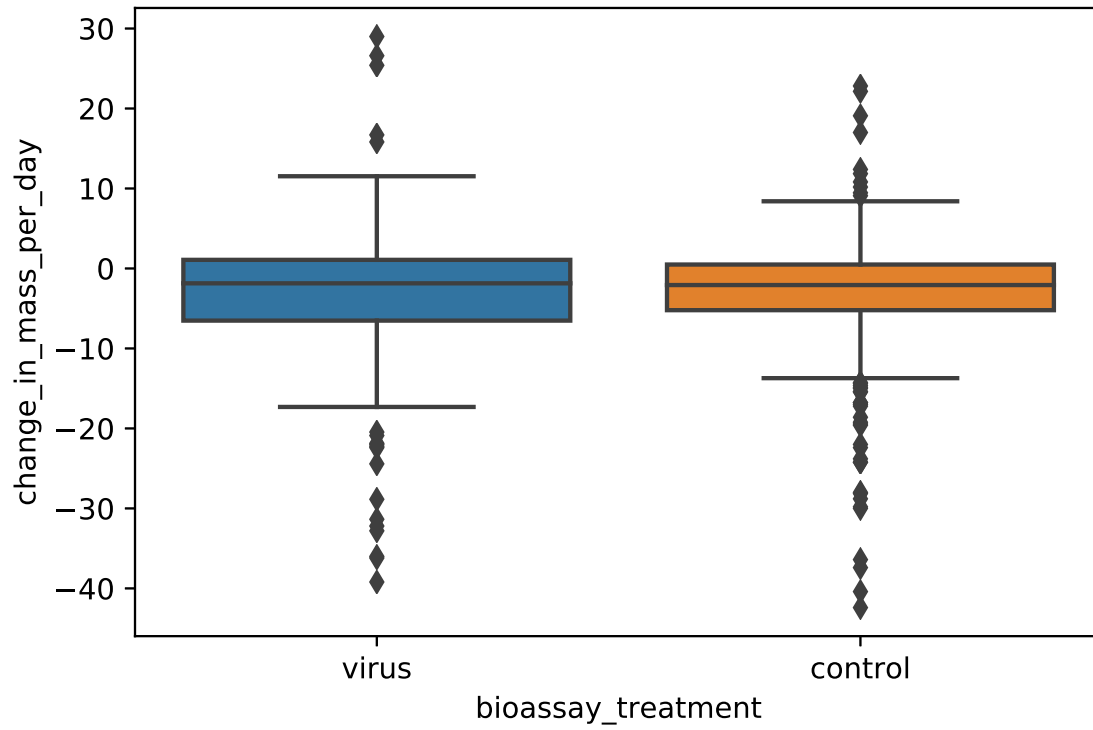


Table 4: Results of pairwise significance tests for differences in change in mass.

| | control | virus |
|---------|-----------|-----------|
| control | -1.000000 | 0.766286 |
| virus | 0.766286 | -1.000000 |