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Comparative Effects of Two Novel Betaproteobacteria Based Insecticides on *Myzus persicae* (Hemiptera: Aphididae) and *Phenacoccus madeirensis* (Hemiptera: Pseudococcidae)

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The lethal and sublethal effects of two novel Betaproteobacteria-based insecticides (*Burkholderia* spp. strain A396 as Venerate® XC; *Chromobacterium subtsugae* strain PRAA4-1 as Grandevo® WDG) were compared for suppression of two polyphagous insect pests of world-wide importance: Greenpeach aphid, *Myzus persicae* (Sulzer) (Hemiptera: Aphididae) and Madeira mealybug, *Phenacoccus madeirensis* Green (Hemiptera: Pseudococcidae). In laboratory and screen house tests, the insects were exposed to residues applied by leaf dipping or by spraying the insects and foliage. These novel products also were compared to a well-established product, spirotetramat (Movento® 240 SC). Spirotetramat was generally effective for suppression of both species of insects and *Burkholderia* (Venerate) induced mortality levels that made it competitive with spirotetramat. *Chromobacterium subtsugae* (Grandevo) was less satisfactory, inducing only moderate levels of mortality in both species. Reproduction by aphids surviving exposure to *Burkholderia* was slightly affected, whereas *C. subtsugae* did not affect reproduction. These new products show promise for a useful role in suppressing important insect pests such as *M. persicae* and *P. madeirensis* and provide opportunities to advance use of bio-based insecticides, along with the potential to enhance insecticide resistance management. To obtain a complete picture of these novel bio-based pesticides, further investigations assessing their efficacy on their promising natural enemies are worthwhile.