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PP-070 [Bee Health]

Efficacy of lithium citrate and amitraz for the control of the mite *Varroa destructor* in honey bee (*Apis mellifera*) colonies in a subtropical environment

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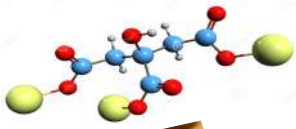
The mite *Varroa destructor* is considered the most damaging biotic factor to honey bees (*Apis mellifera*) worldwide. Therefore, many synthetic and organic compounds are continuously tested in different formulations for their acaricidal activity, mostly in temperate climate countries.

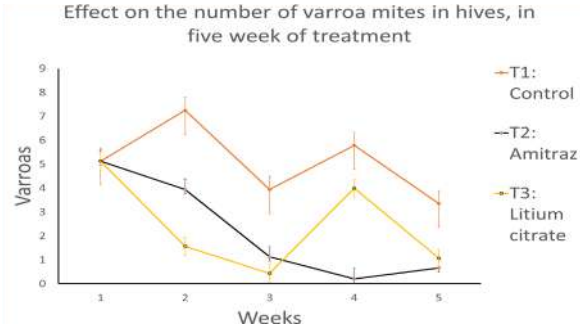


The objective of this study was to evaluate the efficacy of amitraz and lithium citrate applied with two different formulations for the control of *V. destructor* in honey bee colonies located in a subtropical environment

The evaluations were carried out in 21 colonies at the University of Guadalajara's Honey Bee Research Center, in Zapotlan Jalisco, Mexico. The colonies were standardized in population and levels of *V. destructor* and had young sister queens.

The mean mite infestation rate of the colonies at the pre-treatment period as determined with alcohol washes was 5.1±0.7%.

The colonies were randomly assigned into groups of seven units for each of three experimental treatments and received 1 L of 50% sucrose syrup and a weekly treatment for five weeks. Treatment (T) 1, the control group, received only sucrose syrup. T2, 10 ml of a 1% amitraz solution in vegetable oil, was soaked onto two Scott Shop® towels that were placed above the frames of the brood chamber of each T2 hive. T3, lithium citrate, was supplied in 50% sucrose syrup at a concentration of 6 mM.



Mean *V. destructor* infestation rates at the end of the five-week treatment period were 5.2±1.9, 1.9±1.4, and 2.1±1.7% for treatments 1, 2 and 3, respectively. There were significant differences between the treatments ($H = 31.7$, $p < 0.0001$), with both T2 and T3 having significantly lower mite infestation rates relative to the control (T1) and the pre-treatment infestation rate. No significant differences for mite infestation rates were found between T2 and T3.

These results suggest that both amitraz and lithium citrate are equally effective for reducing *V. destructor* infestation rates in honey bee colonies in a subtropical environment.

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Efficacy of lithium citrate and amitraz for the control of the mite Varroa destructor in honey bee (Apis mellifera) colonies in a subtropical environment

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The mite " Varroa destructor " is considered the most damaging biotic factor to honey bees " Apis mellifera " worldwide. Therefore, many synthetic and organic compounds are continuously tested in different formulations for their acaricidal activity, mostly in temperate climate countries. The objective of this study was to evaluate the efficacy of amitraz and lithium citrate applied with two different formulations for the control of " V. destructor " in honey bee colonies located in a subtropical environment. The evaluations were carried out in 21 colonies at the University of Guadalajara's Honey Bee Research Center, in Zapotlan Jalisco, Mexico. The colonies were standardized in population and levels of "" V. destructor " and had young sister queens. The mean mite infestation rate of the colonies at the pre-treatment period as determined with alcohol washes was 5.1±0.7%. The colonies were randomly assigned into groups of seven units for each of three experimental treatments and received 1 L of 50% sucrose syrup and a weekly treatment for five weeks. Treatment (T) 1, the control group, received only sucrose syrup. T2, 10 ml of a 1% amitraz solution in vegetable oil, was soaked onto two Scott Shop® towels that were placed above the frames of the brood chamber of each T2 hive. T3, lithium citrate, was supplied in 50% sucrose syrup at a concentration of 6 mM. Mean V. destructor infestation rates at the end of the five-week treatment period were 5.2±1.9, 1.9±1.4, and 2.1±1.7% for treatments 1, 2 and 3, respectively. There were significant differences between the treatments ($H= 31.7$, $p<0.0001$), with both T2 and T3 having significantly lower mite infestation rates relative to the control (T1) and the pre-treatment infestation rate. No significant differences for mite infestation rates were found between T2 and T3. These results suggest that both amitraz and lithium citrate are equally effective for reducing " V. destructor " infestation rates in honey bee colonies in a subtropical environment.