



EFFECT OF PROTEIN NUTRITION IN *Apis mellifera* (HYMENOPTERA: APIDAE) COLONIES ON INFESTATION WITH THE PARASITIC MITE *Varroa destructor* IN AN EXPERIMENTAL APIARY IN RIBEIRÃO PRETO, SP

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Varroa destructor is a cosmopolitan mite of honeybees that is a serious pest throughout much of the world. All honey bee colonies in Brazil are infested with the mite though there are no documented colony losses due to infestation with this mite. *Varroa* population dynamics can be affected by some conditions including climate and nutrition. Our goal was to determine how honey bee colony nutritional status affects infestations by the parasitic mite *Varroa destructor*. *Varroa* infestations were monitored in six honeybee colonies from September 2013 to August 2014. A protein diet was fed to the test colonies during winter and it was prepared in the following proportions by weight: 20% beer yeast; 16.7% soybean flour; 43.3% finely ground cornmeal and 20% sucrose. These ingredients were mixed with sucrose syrup diluted in water at 70% (w/w) until they formed a moist and homogeneous patty. A 250g patty was provided to each colony weekly during the experiment. Control colonies were provided only sucrose solution. About 900 newly emerged worker bees were marked on the thorax with a yellow pen and were reintroduced into the colonies; 10 μ L of hemolymph was collected from 10 newly emerged workers (day 0) from each colony and stored in microcentrifuge tubes at -20°C . Additional hemolymph samples were collected from marked workers at 7, 14 and 21 days old. The protein levels in the hemolymph were determined using Bradford reagent. Various colonies had higher mite infestations in the brood during Autumn and Winter and lower levels in the following Spring. The infestation of adult bees remained relatively stable over the months. The worker brood infestation rates before and after the experiment were 5% and 2% for hive 4 (control) and 5% and 7% for hive 6 (protein diet). Higher infestations were found in the colony fed protein supplement. Protein levels of workers' hemolymph in the colony that received the protein supplement diet were higher than observed in the control colony throughout the experiment. The mean amount of protein in the hemolymph after 21 days was 35.7 and 31.0 $\mu\text{g}/\mu\text{L}$, for colonies with and without supplemental protein, respectively. We provisionally conclude that supplemental protein feeding increases mite infestations in the bee brood. Additional data are being collected to test this hypothesis.

Keywords: Africanized honey bees, diets, hemolymph

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