

EFFECT OF THE PRE-TREATMENTS OF BEE HIVES ON THE PERFORMANCES OF HONEYBEES (*Apis cerana*)

K. L. Vidumini¹, U.G.A.I. Sirisena¹, N. Geekiyanage¹ and
T.P.G.A. Yasapalitha²

¹Department of Plant sciences, Faculty of Agriculture,
Rajarata University of Sri Lanka, Anuradhapura, Sri Lanka.

²Deputy Director Office, Department of Agriculture, Kaduruwela, Sri Lanka.

Establishment, survival and performance of honeybees depend on the nature of the beehives. Natural odours and chemical compounds in timber may affect the acceptance of man-made beehives. Bait hives can be used to attract swarming colonies; however, the use of bait hives on Asian honeybees is limited. Therefore, this study evaluated the pre-treated beehives on the acceptance and performance of the honeybees. Wooden bee hives (24×24×15 cm) were pre-treated using boiled water followed by treatment with three fruit juices, mango (50%) and pineapple (40%), and mango + pineapple (1:1) along with a control, two times at one-week interval in triplicate. After the honeybee colonies were transferred into the treated hives, the data such as brood area, pollen area, honey area, comb development, and colony weight were measured at weekly intervals, while the Colony Performance Index (CPI) was measured at three days intervals. Temperature and relative humidity inside and outside of hives were measured during the study period. The data were analysed using a one-way ANOVA. The results revealed that the CPI was significantly ($p<0.05$) high in the hives treated with mango (5.71 ± 5.03) and pineapple (4.10 ± 3.44) juices compared to others. The brood area (249.58 cm^2), pollen area (26.09 cm^2), and colony weight (2.76 kg) were significantly higher ($p<0.05$) in the hives treated with mango juices than other treatments. The comb development was also significantly higher ($p<0.05$) in the hives treated with mango (164.86 cm^2) than other treatments. The hive temperature remains less fluctuated (27.2 ± 0.8) even though the ambient temperature is highly fluctuated. According to these results, it is concluded that the pre-treatment of the beehives with mango juices is favourable for the performance and improves the retention ability of established bee colonies.

Keywords: Colony Performance, Fruit juices, Honeybees, Man-made beehives