
II. Bee health issues - country specific experiences including *Varroa* and varroacides

Efficacy of selected acaricides on *Varroa destructor* and evaluation of their environmental risks on *Apis mellifera*

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Abstract

The present study examined the effects of two synthetic (Bayvarol and Apivar) and two natural acaricides (Apiguard and ApiLife Var) on *Varroa destructor* by controlling the level of mite infestation and on the honeybee *Apis mellifera intermissa* by measuring the amounts of protein, carbohydrates and lipids in the whole body and hemolymph and acetylcholinesterase (AChE) and glutathione S-transferases (GSTs) activities in the adult stages. The results showed that all acaricides significantly reduced the levels of varroa infestation on adult honeybees and worker brood, but the efficacy was higher for natural acaricides (93–98 %) compared to synthetic acaricides (82–90 %). The amounts of the principal components (protein, carbohydrates and lipids) were significantly different between honeybees treated with acaricides and the control honeybees. All acaricides have no significant effect on AChE activity but led to increase GST activity as compared to controls.

The biochemical components are affected and bees are exposed to toxic stress when acaricides, especially synthetic ones, are used as treatments in hives. Acaricides, especially synthetic ones, affect bees in controlling mites. For these reasons, beekeepers should take into consideration of timing and doses when using acaricides.

Keywords: *Apis mellifera intermissa*, *Varroa destructor*, acaricides, efficacy, secondary effects.