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ABSTRACTS

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infection was estimated at 58.9%, in batch 2 at 61.1% and in batch 3 at 9.1%. In batch where only Apiguard® was applied, the decrease of the infection was estimated at 53.9%.

Results of the two experiments indicate that both CBB and Apiguard®, alone or in combination, demonstrate fungistatic action against *A. apis*.

In order to estimate efficacy under real conditions, a third experiment, (using the same treatments as in 2004) is being conducted in the spring of 2005 at 5 different apiaries, naturally infected by *A. apis*. Results of these applications are expected in June, 2005.

PERFORMANCE OF ALTERNATIVE ACARICIDES IN ORGANIC BEEKEEPING UNDER PORTUGUESE NORTHEAST CONDITIONS

No 459

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The use of chemical acaricides in organic beekeeping is legally restricted to natural compounds such as essential oils and organic acids. Generally, these alternative methods present good efficiency to control *Varroa destructor* levels in bee colonies and avoid residues contaminations of honey.[1] Their main disadvantage lies in the chemical hazard of this compounds and in the efficacy dependence on natural conditions. Therefore, refined methodologies used in northern or central Europe countries cannot be applied directly to southern countries without further testing. In Portugal the difficulties to apply these products seem a major obstacle to the attraction of beekeepers for the organic production.

To stimulate the Portuguese organic honey production in the Northeast areas, several natural acaricides were tested on field under different conditions. Four organic apiaries were established in two regions with distinct climatic conditions. In each apiary, four groups of Langstroth hives were positioned. One group was the control (without any treatment) while others were tested for formic acid, oxalic acid and thymol. The colony vitality was accessed in the spring based on honey/pollen frames, bee population and brood combs. *Varroa* infestation was evaluated by counting mite fall on bottom boards. Treatment was applied in spring and autumn, after honey harvest. The results from the first year indicates clearly that all the natural compounds can be used for *Varroa* levels control in the hive with good efficacy, however under the conditions used in this study, the oxalic acid treatment shown high level of bee mortality, diminishing the colony strength on the next spring. Despite this effect, no queen loss was observed. In terms of honey quality, no unusual levels of acaricide was found in harvested honey, presenting chemical parameters values similar to honey collected from hives without treatment.

[1] Imdorf S.; Charrière J.; Kilchenmann V.; Bogdanov S; Fluri P. (2003); Alternative strategy in central Europe for the control of *Varroa destructor* in honey bee colonies. *Apiacta* 38, 258-285.

OBTAINING APIS MELLIFERA CAPPED BROOD AFFECTED BY ASCOSPHAERA APIS USING PURE STRAINS

No 460

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Chalkbrood is a nice model for testing hygienic behavior and the use of compatible *Ascosphaera apis* pure strains could maintain homogeneity among experiments. The short viability of *A. apis* in synthetic media has been a problem and integral rice (IRK) is a promising for *A. apis* maintenance. Mycelium aging, viability, purity and capacity to produce spore-cysts were evaluated in MY and IRK medium. *A. apis* strains on MY20, developed aging symptoms at the 30th and 45th day of growing, and developed pure colonies until the 77th day of growing. These strains on IRK showed aging symptoms at the 30th day of growing, but they produce pure colonies during the 360 days of preservation. The possibility of using compatible pure strains preserved as mycelium in IRK to obtain mummies in a control way was tested. Spore-cyst obtained from pure strains preserved in IRK and spore-cysts from wild black mummies obtained from honeybee hives were used to inoculate fifth instar larvae. Pathogen inoculated treatments gave more than 82% of infected larva. Ascospores from black wild mummies or spore-cysts obtained from pure strains preserved in IRK were equally effective to reproduce the disease and this has main advantages: permanent inoculum availability and genetic homogeneity.

HONEYBEES HYGIENIC BEHAVIOR IN PRESENCE OF BROOD AFFECTED BY ASCOSPHAERA APIS OR BROOD PUNCTURED

No 461

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Most research on hygienic behavior have used pin-kill test or freezing techniques to kill the brood. The objective of this work was to study the activities performed by H and NH honeybees in presence of brood affected by *Ascosphaera apis* or pin-killed brood. In observation hives containing *Apis mellifera* hygienic (H) and non-hygienic (NH) colonies one piece of comb