



EVALUATION OF FLUMETHRIN RESIDUES IN HONEY AFTER AN EXPERIMENTAL APIARY TREATMENT



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INTRODUCTION

Synthetic **acaricides** are used for the control of *Varroa destructor*.

In **Spain**, Bayvarol® (Flumethrin) is an **authorized veterinary drug** for this mite control.

Acaricides against *Varroa* constitute a source of **honey contamination** and, consequently, the use of drugs entails a potential **sanitary risk** for human health.

The aim of this study was to evaluate flumethrin residues in honey after an experimental apiary treatment.



MATERIAL AND METHODS

➤ Five honey-bee colonies were treated with Bayvarol® strips (3.6 mg flumethrin/strip).

➤ Samples of honey were extracted from honeycomb portions **before** treatment (blank sample), and **six and eight weeks** after the **treatment** was started.

➤ The analytical method consists of a sample preparation, **SPE** of analytes with C₁₈ cartridges and **HPLC-DAD** determination of residues of flumethrin in honey samples. Previously, a study of validation was conducted according to the Commission Decision of 12 August 2002 implementing the Council Directive 96/23/EC concerning the performance of analytical methods and the interpretation of results (2002/657/EC).

➤ Results obtained were used for evaluating the **sanitary risk** of this residue in honey.



RESULTS



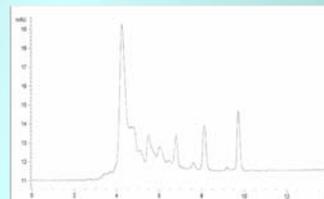
Validation study

Parameters	Results
Decision limit (CC α)	7.9 ng/g honey
Detection capability (CC β)	11.5 ng/g honey
Recovery	93.4±9.8 %
Precision	RSD < 10 %
Selectivity/Specificity	No interferences
Ruggedness	SDi (5.0) SDRwl (3.4)

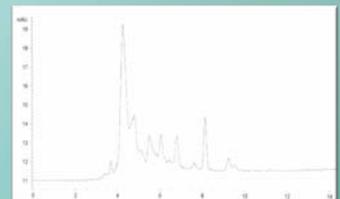


Chromatograms of honey samples

Honey fortified with flumethrin



Honey sample



CONCLUSIONS

➤ Results of validation study are satisfactory according to all guidelines laid down by European Decision.

➤ None of the honey samples analyzed showed flumethrin residues at detectable levels (DL = 8 ng/g honey and QL = 10 ng/g honey).

➤ Our results confirm that the correct use of Bayvarol® strips does not leave flumethrin residues in honey under the tested conditions and the intake of honey from treated combs does not pose a sanitary risk for humans.

