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The global phenolic pattern of honey contains protocatequic, p-hydroxybenzoic, caffeic, chlorogenic, vanilic, p-cumaric, elagic, and cinamic acids as well the naringenin, kaempferol, apigenin, pinocembrin and crisin flavonoids. Using multivariate analysis, it is possible the honey discrimination of three Portuguese Beekeepers Associations by phenolic pattern.

EVALUATION OF ANTIBIOTICS RESIDUES LEVELS IN PORTUGUESE HONEY: A CONCERTED STUDY WITH THE PORTUGUESE BEEKEEPERS ASSOCIATIONS

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The antibiotics residual presence in honey is a current problem with negative implications, mainly commercial, since according to European legislation, antibiotic occurrence in honey samples is forbidden. In Portugal, there is a growing concern among Beekeepers with the residues of these products in honey and they are committed to producing and selling a clean health and natural product.

In order to overcome this concern, the Portuguese National Beekeepers Federation, the Beekeepers Associations and Bragança's Agrarian Superior School participate in a project which aims to trace antibiotics in the honey and study the different ways of honey contamination by these residues (project financed by the Portuguese National Apicultural Program). The main objective is to trace the antibiotic residues to national level in order to infer the global situation of the Portuguese honey and to promote its quality; the second objective meets the necessities of the beekeeper of identifying sources of honey contamination.

The Beekeepers Associations send a number of samples proportional to the volume of honey production, with preference being given to the commercial honey with its own label. Different classes of antibiotics in honey were analyzed such as sulphonamides, tetracyclines and Streptomycin. The screenings were done by CHARM II and the positive results were confirmed by HPLC with fluorescence or UV detector. In the case of the positive results, inquires were sent to the Beekeeper Association so that a survey could be carried out, with the apiculture involved, for evaluation of the contamination origin.

The results show that clearly there are no residues of Streptomycin, while tetracyclines were found in only one sample. The sulphonamides are the main concern but, as the results are low, they reflect external or previous years contaminations.

Evaluation of Antibiotics Residues Levels in Portuguese Honey: A Concerted Study with the Portuguese Beekeepers Associations.



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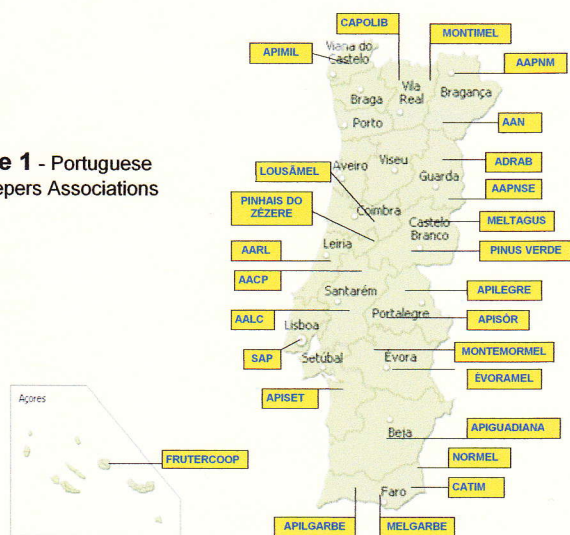
Introduction

In Portugal, there is a growing concern among Beekeepers with the antibiotic residues in honey since they are committed to producing and selling a clean health and natural product. In order to overcome this concern, the Portuguese National Beekeepers Federation, the Beekeepers Associations and Bragança's Agrarian Superior School participate in a project which aims to trace antibiotics in honey and study the different ways of honey contamination by these residues.

Objectives

- The main objective is to trace the antibiotic residues to national level in order to infer the global situation of the Portuguese honey and to promote its quality;
- The second objective meets up with the necessities of the beekeeper of identifying sources of honey contamination.

Figure 1 - Portuguese Beekeepers Associations



Results

Figure 2 - The antibiotics contamination percentage:

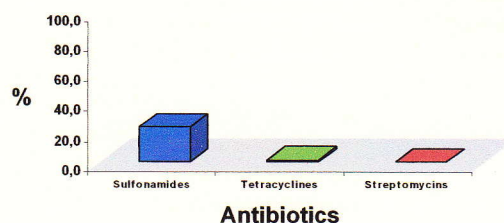
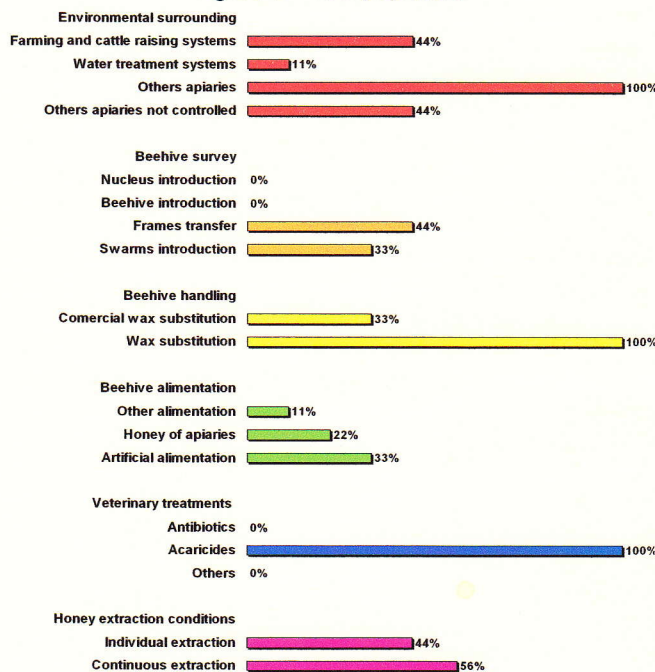


Figure 3 - The inquiry results:



Materials and methods

Sampling - This initial study involved 155 honey samples obtained from 25 Portugal Beekeepers Associations:

- The number of samples was proportional to the volume of honey production;
- Preference was given to the commercial honey with its own label.

Antibiotic analysis analysis:

- Different classes of antibiotics in honey were analyzed such as sulfonamides, tetracyclines and streptomycin.
- The screenings were done by CHARM II.

Number of analysis:

- Sulfonamides - 119 honey samples
- Tetracyclines - 155 honey samples
- Streptomycins - 49 honey samples

Positive results:

Inquires to the Beekeeper Association so that a survey could be carried out, with the beekeeper involved, for evaluation of the contamination origin.

Inquire:

Environmental surrounding, beehive survey, beehive handling, beehive alimentation, veterinary treatments and honey extraction conditions.

Conclusions

- No residues of streptomycins detected;
- Only two samples with tetracyclines contamination were found;
- 24% of honey with sulfonamides contamination.

Sulfonamides are the main concern but, since the results are low, they reflect external or previous years contaminations.

NEXT STEP:

- Analyse the environmental contribution
- Study antibiotic residual stability on the beehive

Acknowledgements – Portuguese Beekeepers National Federation

