



CFU/g. Lot by lot there was a growth of aerobic microorganisms and yeasts in number averaged for once selected assays of pollen load.

Date of taking a sample Number, CFU/g

Aerobes Yeast Moulds

24.05.05 1,8*10⁵ 3,2*10³ 1,2*10⁵

07.06.05 6,1*10⁵ 8,5*10³ 6,2*10⁴

21.06.05 2,3*10⁶ - 2,4*10⁵

28.06.05 2,5*10⁶ 1,0*10⁴ 8,7*10⁴

13.07.05 6,6*10⁶ 1,2*10⁵ 1,6*10⁵

E. coli and coliform bacteria *Citrobacter* and *Enterobacter cloacae* prevailed in all samples gathered in rural zones in summer 2004. Considering the data of common species of enterobacteria in commercial pollen load (Khismatullin Rail G. and others, 2005) we suppose the prevailing bacteria to be a result of influence of live-stock farming.

TEMPORAL CHANGES IN HONEY COMPOSITION

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Honey samples harvested between years 1962 and 2003 were analyzed for the amounts of humidity, saccharose, glucose, fructose, HMF, proline and diastase. The most important parameter for evaluation of honey aging is HMF. (Project VEGA 1/34/75/06)

HONEY DISCRIMINATION OF THREE PORTUGUESE BEEKEEPERS ASSOCIATIONS BY PHENOLIC PATTERN

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Phenolic compounds (phenolic acids and flavonoids) in honey are known to have healthpromoting effects as antioxidants and anticarcinogens. These compounds, considered as the phytochemical profile, have also been used as biochemical markers for the honey geographic origin. Furthermore, these components make important contributions to organoleptic properties and to its physical and chemical properties.

This study involved honey samples of three nearby Beekeepers' associations of the Portuguese Trás-os-Montes region. The objective of this work was to improve the honey's composition knowledge, with intention to know the differences between the honeys of Beekeepers Associations of this region and to gather information that might add economic value to this region's honey.

The honey phenolic acids and flavonoids were extracted with Amberlite XAD-2 resin. Identification as well as quantification of these compounds was carried out via high performance liquid chromatography with Diode-Array detector.

The global phenolic pattern of honey contains protocatequic, p-hydroxibenzoic, 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, inquiries 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.