



SUMMARY REPORT

International Honey Commission

Melissopalynology Workshop

7 May 2019, Sliema, Malta

Program

- ***Melissopalynology and Genetics***
 - Siria Biagioni, GERMANY, DNA metabarcoding to investigate botanical composition of honey
- ***Starch and other atypical particles in honey***
 - Katja Bohm, GERMANY, Determination of starch grains in honey by microscopy and honey atypical sediments – an indication of adulteration
- ***Accreditation in Melissopalynology***
 - Siria Biagioni, GERMANY, Quantitative pollen analysis of honey using microsphere markers
 - Maria Dimou, GREECE, IHC Proficiency Testing Scheme for Honey Pollen Analysis: review and assessment
 - Nazlı Mayda, Determination Plant Origin of Bee Bread Samples with Melissopalynology
- ***Melissopalynological atlas of honeys of the world***
 - Giancarlo Ricciardelli D'Albore, ITALY Atlas of world unifloral honeys
 - Panagiota Gotsiou, GREECE, List of the over-represented, under-represented and nectarless pollen grains in honeys: review and assessment
- ***Open discussion***

On 7 May 2019, the 'Melissopalynology Workshop' took place in Sliema, Malta, in the framework of the annual meeting of the International Honey Commission (IHC) and the 5th International Symposium on Bee Products, co-organized by the IHC, Apimondia, the Maltese Parliamentary Secretariat for Agriculture, Fisheries and Animal Rights, and the Malta Beekeepers Association.

Over 50 public and private sector experts and participants from several countries attended.

Maria Dimou, leader of the IHC Working-Group "Geographical and Botanical Origin",

welcomed the attendants and coordinated the workshop. Speakers and participants shared experiences and reviewed existing limitations and issues that concerned the Working-Group during the last years, significantly contributing to the goals of the meeting. The significance of the workshop was further important considering that the last meeting was held five years ago!

The first session of the Workshop focused on how genetics can contribute to the determination of the botanical origin of honey. **Siria Biagioni** presented the current research in this field, discussed the limitations of the method and how melissopalynology interfere with. The next session was about the starch and other atypical particles found in honeys that are occasionally observed in honey sediments under the microscope. **Katja Bohm** presented several images of starch grains and other atypical particles found in honey sediment and discussed the adulteration indications that can be drawn as well as their possible origin. The third session concerned the melissopalynological methods and harmonization among the laboratories. **Siria Biagioni** discussed the possibility of using microsphere markers for pollen quantitative analysis in honeys and analysed the limitations. **Maria Dimou** presented the results of the Proficiency Testing Scheme for Honey Pollen Analysis that it is organized among the members of the Working-Group the last six years. The review showed a continuous improvement regarding the accuracy of the results from the participant laboratories in qualitative pollen analysis, but not in the quantitative analysis. In general, the limitations were summarized to the identification of pollen species/types of tricolporate form (e.g. *Cytisus*, *Ulex*, *Rubus*), the classification of some pollen species/types as nectar or nectarless, the interpretation of the results for the botanical and/or geographical origin and the wide range of results given in quantitative pollen analysis. The session was closed by a short presentation from **Nazlı Mayda** regarding the determination of the plant origin of bee bread samples from Turkey. At the last session, **Maria Lucia Piana** gave us a short look at the new publication of Giancarlo Ricciardelli D'Albore "Atlas of world unifloral honeys" and the Hungarian Beekeeping Pollen Atlas 1.0 CD coordinated by Etelka Rőzséné Büki. Finally, **Maria Dimou** demonstrated the work that has been done so far by the members of the group regarding the list of the over-represented, under-represented and nectarless pollen grains in honeys and discussed the difficulties that have risen for the validation of the list.

The workshop ended with an open discussion among the participants regarding the topics that were presented and future goals of the Working-Group. The main issues and tasks raised by the discussion were:

- The finalization of the standard list of the over-represented, under-represented and nectarless pollen grains frequently found in honeys of Europe, supported by references (in order to harmonize the results given from different analytical laboratories)
- The need for the harmonization of the analytical laboratories regarding quantitative pollen analysis
- The organization of workshops held by experts regarding pollen analysis of honeys from countries other than European (e.g. South America)
- The development of a database and/or organisation of workshops regarding the determination of the geographical origin of European honeys for the most common pollen combinations per country/ region/ continent
- The involvement of more laboratories in the analysis of starch in honey in order to evaluate further the results given from its presence

In summary, the workshop in Malta demonstrated the need to overcome some limitations of the melissopalynological analysis of honeys and emphasized the necessity of harmonization of methodologies among the analytical laboratories in order to strength the results and reliability of the analysis. Considering the limited time and long period since the last melissopalynology workshop, several issues were left to be discussed through web communication -till our next meeting in Romania!