5.8 Results of a monitoring program of pesticide residues in Beebread in Spain. Using Toxic unit approach to identify scenarios of risk for management programs

Elena Alonso Prados¹, Raquel Martín Hernández, Mariano Higes Pascual
¹Technical Directorate for Evaluation of Plant Varieties and Plant Protection Products (DTEVPF), INIA, Ctra de la Coruña km 7.5 28040 Madrid, Spain
DOI 10.5073/jka.2018.462.061

Abstract
In this work we present the results of a monitoring program of apiaries conducted in spring 2014 in Spain. The aim of the study was to identify the main pathogens and residues in beebread as chronic exposure source to managed honey bees.

Beebread and worker bee samples from 71 and 51 apiaries, respectively were obtained. Beebread from the brood chamber combs were extracted aseptically from each honey bee colony as described previously¹-³. Samples were stored at -80°C until further use. All honey bee worker samples were analyzed for the main pathogens related to the weakening and death of bee colonies in Spain. PCR was performed for Nosema apis, Nosema ceranae, Trypanosomatids, Neogregarines, Lake Sinai Virus complex (LSV complex), and Acute Bee Paralysis Virus-Kashmir Bee Virus-Israeli Acute Paralysis Virus complex (AKI complex). Specific primers and probes for the amplification of Black Queen Cell Virus (BQCV) and Deformed Wing Virus (DWV) were used.

A Screen analysis of chemical residues was conducted with a modified QuEChERS protocol and under ISO 17025 standard and guidance document SANCO/12571/2013.

The most prevalent pathogens were Nosema ceranae (69%), Varroa destructor mite (49%), with a mean percentage of parasitization around 1.7%, and Trypanosomatids (40.7%). Neogregarines (6%), Acarapis woodi (7%) and Nosema apis (7%) were detected at a lower prevalence. Of the six screening viruses, the more prevalent were BQCV (57%) and DWV (54%). LSV complex was detected in the 14% of the samples.

The pesticides most commonly found in the samples were miticides typically used for Varroa mite control: coumaphos (98.6%), chlorfenvinphos (72.86%); tau-fluvalinate (70%) and secondly, carbendazim (40%) chlorpyriphos (45.71%), acrinathrin (24.9%) and imidacloprid (22.6%) were also detected.

Based on these results, we discuss the suitability of different methodologies proposed in the literature to assess the effect of honey bees chronically exposed to multiple residue and nosogenic agents found in hive.

Acknowledgement
This work has been funded by INIA Project “Holistic evaluation of risk factors in honey bees and wild pollinators. The situation in Spain” RTA2013-00042-C10. The authors gratefully acknowledge to subprojects RTA2013-00042-C10-2 and RTA2013-00042-C10-6 for their support.

5.9 Residues of plant protection products in honey – pilot study for a method to define maximum residue levels in honey (MRLs)

Sabine Hecht-Rost¹, Annika Alscher¹, Gaby Oswald¹, Anne Sagner¹, Klaus Wallner²
¹ RIFCON GmbH, Goldbeckstraße 13, 69493 Hirschberg, Germany (e-mail: sabine.hecht-rostr@rifcon.de)
² Universität Hohenheim, Landesanstalt für Bienenkunde, August-von-Hartmann-Str. 13, 70599 Stuttgart, Germany
DOI 10.5073/jka.2018.462.062

Abstract
Honey produced by honeybees exposed to plant protection products (PPPs) can contain residues of the applied active substances. A final decision of the residue definition (RD) in honey and on suitable test designs has not yet been made for MRL settings in honey according to Regulation (EC) No. 396/2005, and the discussion is still ongoing.

The concentration of residues in honey is influenced by many factors, such as the extent of filtration and metabolism by the honeybees, the characteristics of the PPP and its active substance(s) (a.s.), respectively, the use pattern of the PPP and, of course, by the amount of stored nectar containing residues of the active substance. Under realistic field conditions the amount of nectar containing residues depends on the...
Hazards of pesticides to bees
13th International Symposium of the ICP-PR Bee Protection Group
18. - 20. October 2017, València (Spain)

- Proceedings -
History ICPPR-Bee Protection Group conferences
1st Symposium, Wageningen, the Netherlands, 1980
2nd Symposium, Hohenheim, Germany, 1982
3rd Symposium, Harpenden, UK, 1985
4th Symposium, Řež, Czech Republic, 1990
5th Symposium, Wageningen, the Netherlands, 1993
6th Symposium, Braunschweig, Germany, 1996
7th Symposium, Avignon, France, 1999
8th Symposium, Bologna, Italy, 2002
9th Symposium, York, UK, 2005
10th Symposium, Bucharest, Romania, 2008
11th Symposium, Wageningen, the Netherlands, 2011
12th Symposium, Ghent, Belgium, 2014
13th Symposium Valencia, Spain, 2017
14th Symposium scheduled, Bern, 2019

Organising committee 13th conference
Dr. Jens Pistorius (Julius Kühn-Institut, Germany)
Dr. Anne Alix (Dow Agrosciences, United Kingdom)
Dr. Carmen Gimeno (Trialcamp, Spain), local organiser
Dr. Gavin Lewis (JSC, United Kingdom)
Dr. Pieter Oomen (Wageningen, The Netherlands)
Dr. Veronique Poulsen (ANSES, France)
Dr. Guy Smagghe (Ghent University, Belgium)
Dr. Thomas Steeger (US Environmental Protection Agency, USA)
Dr. Klaus Wallner (Hohenheim University, Germany)

Editors
Dr. Pieter A. Oomen, Wageningen, The Netherlands
Dr. Jens Pistorius, Braunschweig

Group photo of all symposium participants, standing in front, from left:
Thomas Steeger (new board member),
Jens Pistorius (new chairman),
Françoise & Pieter Oomen with award (editor & former chairman),
Guy Smagghe (organiser, symposium host and new board member),
Job & Margreet van Praagh with award,
Anne Alix (secretary of the board)

Foto
Pieter A. Oomen (Bumble bee Bombus lapidarius on thistle)

The proceedings of the symposia (such as these) are being published by the Julius Kühn Archive in Germany since the 2008 symposium in Bucharest, Romania. These proceedings are also accessible on internet, e.g. the former symposium proceedings published by JKI can be found on https://ojs.openagrar.de/index.php/JKA/issue/archive (Issues 423, 437, 450). Furthermore, proceedings of former meetings have meanwhile been digitalized and can be found on https://www.openagrar.de/receive/openagrar_mods_00032635.

Bibliografische Information der Deutschen Nationalbibliothek

ISSN 1868-9892
ISBN 978-3-95547-064-7
DOI 10.5073/jka.2018.462.000

Alle Beiträge im Julius-Kühn-Archiv sind unter einer Creative Commons - Namensnennung - Weitergabe unter gleichen Bedingungen - 4.0 Lizenz veröffentlicht.

Printed in Germany by Arno Brynda GmbH, Berlin.