



47th APIMONDIA

International Apicultural Congress

August 24 - 28, 2022
ISTANBUL, TÜRKİYE
www.apimondia2021.com

ABSTRACT BOOK

the relative abundance of opportunistic pathogens such as *Serratia* spp. (e.g. *S. marcescens*), which can have devastating consequences for host health such as increased susceptibility to infection and reduced lifespan. Our findings raise concerns about the long-term impact of the novel insecticides FPF and Sulf, particularly FPF, on pollinator health and recommend a novel methodology for a refined risk assessment that should include the potential effects of agrochemicals on the gut microbiome of bees.

[OP-172 \[Bee Health\]](#)

Changes in the lithium level in bee products as a consequence of anti-Varroa treatment

Éva Kolics¹, Sajtos Zsófi², Kinga Mátyás¹, Kinga Szepesi¹, Izabella Solti¹, Gyöngyi Németh¹, János Taller¹, Edina Baranyai², András Specziár¹, [Balázs Kolics¹](#)

¹Hungarian University of Agriculture and Life Sciences

²Debrecen University

The biggest threat to beekeeping is varroosis caused by the mite *Varroa destructor*. Chemicals available to treat this fatal disease may present problems of resistance or inconsistent efficacy. Recently, lithium chloride has appeared as a potential alternative. To date, the amount of residue lithium treatments may leave in honeybee products is poorly understood.

Honeybees were fed with 25 mM lithiated sugar syrup, which was used in earlier studies. The accumulation and elimination of the lithium were monitored in bees and their products for 22 days. Lithium concentration increased in the entire body of the bees to day 4 post-treatment and then recovered rapidly to the control level. Lithium exposure was found to affect uncapped honey in the short term (<16 days), but ripe (capped) honey measured at the end of the trial remained affected. On the other hand, lithium treatment left beeswax lithium-free. Based on these data, we propose that comprehensive research on harvested honey is needed to decide on the veterinary use of lithium.

[OP-173 \[Bee Health\]](#)

BEST PRACTICES AND INNOVATIONS FOR A SUSTAINABLE BEEKEEPING IN EUROPE: the B-THENET Thematic Network

Marco Pietropaoli¹, Chiara Pocaterra², Riccardo Jannoni Sebastianini³, Alexandre Almeida⁴, Lotta Fabricius Kristiansen⁵, Noa Simon Delso⁶, Flemming Vejsnaes⁷, Peter Kozmus⁸, Aranzazu Meana⁹, Fani Hatjina¹⁰, Ivana Tlak Gajger¹¹, Malgorzata Bienkowska¹², Juraj Toporcak¹³, Dirk De Graaf¹⁴, Kirsten Traynor¹⁵, Aleksejs Zacepins¹⁶, Gyula Kasza¹⁷, Robert Brodschneider¹⁸, [Giovanni Formato¹](#)

¹Istituto Zooprofilattico Sperimentale del Lazio e della Toscana “M.Aleandri”, Rome, Italy

²Agenzia Per La Promozione della Ricerca Europea, Rome, Italy

³Federation International Des Associations D'Apiculture, Rome, Italy

⁴Global, S.A., Oliveira De Azemeis, Portugal

⁵Sveriges Lantbruksuniversitet, Uppsala, Sweden

⁶Bee Life European Beekeeping Coordination, Louvain La Neuve Belgium

⁷Danmarks Bavlforening, Soro, Denmark

⁸Cebelarska Zveza Slovenije, Lukovica, Slovenia

⁹Universidad Complutense De Madrid, Madrid, Spain

¹⁰Ellinikos Georgikos Organismos - Dimitra, Athens, Greece

¹¹University of Zagreb, Faculty of Veterinary Medicine, Zagreb, Croatia

¹²Instytut Ogrodnictwa, Panstwowy Instytut Badawczy, Skierniewice, Poland

¹³Univerzita Veterinarskeho Lekarstva a Farmacie v Kosiciach, Kosice, Slovakia

¹⁴Universiteit Gent, Gent, Belgium

¹⁵Universitaet Hohenheim, Stuttgart, Germany

¹⁶Latvijas Lauksaimniecibas Universitate, Jelgava, Latvia

¹⁷Nemzeti Elelmszerlanc-Biztonsagi Hivatal, Budapest, Hungary

¹⁸Universitaet Graz, Graz, Austria

The B-THENET Thematic Network is an EU Horizon Coordination and Support Action funded by the European Research Executive Agency that involves 18 partners originating from beekeepers' representatives and research institutions from 13 different EU Member States. The Network activities will start on the 1st of September 2022 and will last 48 months (31st of August 2026). B-THENET is the thematic network of European beekeeping, based on a multi actor approach to engage the entire apiculture sector: beekeepers, advisors, researchers, policymakers, industry, consumers, etc. Goal of B-THENET is to collect, categorize and validate in Europe best practices and applicable research innovations not sufficiently known, using a bottom-up methodology.

Goal of the B-THENET thematic network will be to modernize the EU beekeeping sector, sharing knowledge that is ready to be put into practice, while fostering innovation and digitalization. Beekeepers will be advanced toward more economically

viable and sustainable beekeeping through the knowledge sharing and training of useful and applicable Best Practices. The consortium's partners (see above the name of the affiliations of the Authors) consists of a balanced mix provided by research organizations, universities, international and national beekeepers' associations, European NGO, food chain safety office, specialized centre for advisors training, specialized centre for social sciences and humanities and specialized agencies on communication and dissemination activities. In the same time, other organizations will collaborate with the above-mentioned institutions as "Collaborating Partners" in the respective countries: national beekeeping associations (in Spain: Asociacion de Apicultores de Guadalajara, Aula Apicola Sierra de Hoyo, Asociacion de Veterinarios Especialistas en Sanidad y Produccion Apicola de España and Fundación Amigos de las Abejas; in Greece: Federation of Greek Beekeepers'; in Croatia: Associations of Croatian Beekeeper; in Poland: Krakow Beekeepers Association; in Italy: Associazione Romagnola Apicoltori; in Belgium: Vlaams Vulgarisatiecentrum voor Bijenteelt; in Germany: Deutscher Imkerbund; in Latvia: Latvian Beekeepers Association; in Hungary: National Hungarian Beekeeping Association; in Austria: Biene Österreich; in Portugal: Portuguese Federation of Beekeepers; in Sweden: Swedish Beekeepers Association and Swedish Professional Beekeepers) and research institutions (in Denmark: University of Aarhus; in Slovenia: Veterinary Faculty of the University of Ljubljana and the National Veterinary Institute of Slovenia).

[OP-174 \[Bee Health\]](#)

Managing Bees without Chemical Inputs

[Fani Hatjina](#), Yahya Al Naggar, Paolo Fontana, Anna Locsin, Robert Chlebo, Tucka Saville
Apimondia Federation

The parasitic mite *Varroa destructor* is a major challenge to beekeeping industry worldwide. Since varroa appearance in Europe, beekeepers rely on the use of synthetic or organic substance for repeated treatment. The effect of using acaricides to control varroa mites has long been a concern to the beekeeping industry due to unintended negative impacts on honey bee health, the increased resistance of mite populations to acaricides, the residues in the bee products and the high costs and labour.

Untreated and survived colonies exist in several countries, some of which have been survived for more than 14 years. Scientists and beekeepers all over the world are working to increase resistance or tolerance to varroa. At the same time efforts are made to find ways to fight varroa without the chemical use. Years of experience of particular beekeeping groups showed that the use of chemical treatments can be widely reduced by consequent application of different biotechnical measures

Our challenges are:

- To find effective ways to fight varroa without the use of chemicals
- To evaluate these methods in correlation with the colony productivity
- To ensure that any alternative is also sustainable
- To increase the use of organic acids instead of synthetic chemicals, if treatment is needed and to promote organic beekeeping

[OP-175 \[Apitherapy\]](#)

Propolis Isolated from Sulawesi Stingless bees have Promising Effects on Rat Endometriosis Model

Muhamad Sahlan¹, Herbert Situmorang², Diah Kartika Pratami³

¹Research Centre for Biomedical Engineering, Faculty of Engineering, Universitas Indonesia, Campus UI Depok, West Java 16425, Indonesia

²Faculty of Medicine, Universitas Indonesia, Campus UI Salemba, Jakarta 10430, Indonesia.

³Lab of Pharmacognosy-Phytochemistry, Faculty of Pharmacy, Pancasila University, Jakarta 12640, Indonesia.

Endometriosis is one of the diseases that impact on women's quality of life. Chronic inflammation and altered apoptosis activity in ectopic endometrial tissue are two primary pathologies disrupting pelvic organs anatomy and function. Sulawesi Propolis, a native Indonesian natural ingredient, is known for its anti-inflammation and pro-apoptotic properties. This study aims to investigate the anti-inflammatory and pro-apoptotic activity of Sulawesi Propolis active compounds in rat endometriosis models. The endometriosis lesion model was created in sixty rats by laparotomy. Rats were divided into four groups; negative control (NC), positive control (PC) using dienogest 0.25mg/day, propolis 50mg/kg BW/day (P50), and propolis 100mg/kg BW/day (P100). Each group was treated for a duration of 2, 4, and 6 weeks. After completing treatment, laparotomy was performed to determine endometrial lesion growth, apoptosis markers (Bax, Bcl-2, Bax/Bcl2 ratio, Caspase-3 mRNA expression), and inflammation markers (IL-1B, PGE2 mRNA expression, PGE2 in peritoneal fluid). Molecular docking was carried out to analyze the potential binding capacity of propolis' active compounds to NFB and TNF-, estrogen, progesterone B, and prostaglandin E2 receptors. P50-6-week group showed the highest reduction in lesion area (40.47 mm² or 70.66% of the initial area). Apoptosis activity in P50-2 and 4 groups showed the most significant changes with the highest Bax/Bcl-2 ratio and Caspase-3 expressions. The most considerable reduction of inflammation activity depicted by IL-1B and PG-E2 mRNA expression was shown by the P50-4 group and PC-2 group, respectively. There was no change in the estrous cycle in the administration of 50 and 100 mg/kg BW, within all treatment groups (2, 4, and 6 weeks). Among all propolis groups, the best overall performance was reported in the administration of 50mg/kg BW for six weeks.