

Ss. CYRIL AND METHODIUS UNIVERSITY IN SKOPJE  
FACULTY OF VETERINARY MEDICINE - SKOPJE



Joint meeting  
5<sup>th</sup> International Vet-Istanbul Group Congress  
&  
8<sup>th</sup> International Scientific Meeting  
Days of veterinary medicine - 2018

# BOOK OF ABSTRACTS

23-27 September 2018  
Ohrid, R. of Macedonia



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OF THE JOINT MEETING  
5<sup>th</sup> INTERNATIONAL VET-ISTANBUL GROUP CONGRESS AND  
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## FOREWORD

Dear Colleagues,

It is my great pleasure to welcome you to the 5<sup>th</sup> International Veterinary Days of veterinary medicine - 2018, Ohrid, 23<sup>th</sup> to 27<sup>th</sup> September 2018.

This year, in cooperation with the Faculty of Veterinary Medicine, we'll be organizing an academic cooperation (VEE) partners, by the public good.

The Faculty of Veterinary Medicine is proud to have together outstanding experts in the field of veterinary medicine, researchers, veterinary students, off-duty and doctoral students, off-duty in the veterinary education following topics: animal health and food safety.

The program for the meeting will be designed to retain its usual popular format of student papers and posters, authors, whose research is selected for the International Scientific Meeting, electing 117 papers from the following topics followed by two poster sessions and invited speakers for the talks.

A successful conference is a place, where ideas about veterinary medicine are debated, which will open new horizons for enjoyment.

On the behalf of the Faculty of Veterinary Medicine in Macedonia.

We look forward to your participation.



12.50-13.00	<i>Effects of Black Cumin addition to rations on the performance parameters in laying hens</i> <b>Tahir Balevi</b> , Uçkun Sait Uçan, Oğuzhan Kahraman, Abdullah Özbilgin
13.00-14.00	Lunch
<b>Moderators: Prof. Zehra Hajrulai-Musliu and Prof. Ali Aydin</b>	
<b>Scientific papers – Oral presentations</b>	
14.00-14.10	<i>Evaluation Of The Quechers Method And Gas Chromatography–Mass Spectrometry For The Analysis Fipronil And Its Metabolites In Egg Products</i> <b>Aleksandra Tasic</b> , Ksenija Nestic, Tijana Mitrovic, Nebojsa Vukovic
14.10-14.20	<i>Optimization And Validation Of Lc-Ms/Ms Method After Quechers Sample Preparation For Determination Of Fipronil And Its Metabolites In Eggs And Chicken Muscle</i> <b>Elizabeta Dimitrieska-Stojkovič</b> , Dushica Koceva, Aleksandra Angeleska, Biljana Stojanovska-Dimzosa, Gordana Ilievska, Risto Uzunov, Stefan Jovanov, Zehra Hajrulai-Musliu, Dean Jankuloski
14.20-14.30	<i>Determination Of B-Agonist Residues In Liver Using Lc-Ms/Ms Method</i> <b>Risto Uzunov</b> , Zehra Hajrulai-Musliu, Velimir Stojkovski, Elizabeta Dimitrieska-Stojkovic, Biljana Stojanovska-Dimzosa, Stefan Jovanov, Dean Jankuloski
14.30-14.40	<i>The Evaluation Of Histamine Levels In Carp (Cyprinus Carpio) Samples Collected From Afyonkarahisar, Turkey</i> <b>Acaroz Ulas</b>
14.40-14.50	<i>Detection Of Nitroimidazole Residues In Chicken Muscle Tissue And Egg Samples Using Competitive Enzyme Immunoassay</i> <b>Duška Koceva</b> , Elizabeta Dimitrieska-Stojkovič, Gordana Ilievska, Zehra Hajrulai-Musliu, Dean Jankuloski
14.50-15.00	<i>Development And Validation Of A P-35S, T-NOS, And P-Fmv Multiplex Real-Time PCR Screening Method To Detect Regulatory Genes Of Genetically Modified Organisms In Food</i> <b>Katerina Blagoevska</b> , Dean Jankuloski, Gordana Ilievska
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## Parallel Session II

SCIENTIFIC  
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10.00-10.30	Coffee break



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**HONEY SUGARS ANALYSIS BY HPLC-RID METHOD**

Zehra Hajrulai-Musliu<sup>1\*</sup>, Velimir Stojkovski<sup>2</sup>, Risto Uzunov<sup>1</sup>,  
Vangelica Enimiteva, Stefan Jovanov<sup>1</sup>, Elizabeta Dimitrieska- Stojkovic<sup>1</sup>,  
Biljana Stojanovska-Dimzoska<sup>1</sup>, Dean Jankuloski<sup>1</sup>

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Honey is a natural food produced by bees (*Apis mellifera*) from the nectar of plants or honeydew, without any human interference. The main chemical constituents of honey are sugars and water, while proteins, free amino acids, flavors, aromas, pigments, vitamins, and many volatile compounds constitute the minor components in honey. Regarding nutritional standards honey is considered a potential complete food with high nutritional value. Honey is composed primarily of the simple sugars glucose and fructose and other types of sugars such as sucrose. The aim of this study is analysis of honey sugars by HPLC-RID method. In this study were included 59 honey samples. For determination of sugars with HPLC-RID was used the method from International Honey Commission. The analyses were performed on HPLC-RID, model 1260, Agilent technologies. To separate of sugars in the honey samples was used Zorbax Carbohydrate column (4.6x250 mm, 5 µm). In the validation study were evaluated the following parameters: linearity of the method (linearity range: sucrose 1.0-5.0 g/l, fructose and glucose 1.0-20.0 g/l), limit of detection (LOD), limit of quantification (LOQ), accuracy, precision and reproducibility of the method. The coefficient of correlation for linearity was from 0.9983 to 0.9999. The LOD for sucrose, fructose and glucose was 0.12, 0.28 and 1.21 g/l respectively, and LOQ was 0.36, 0.86 and 3.65 g/l respectively. The accuracy, precision and reproducibility were determined with analysis of honey reference material in 20 replicates in two different days. The recovery of the method ranged from 91.56-102.17 %. The CV for precision ranged from 0.617 % to 1.505 %, while for reproducibility CV ranged from 0.467 % to 1.513 %. The reference values (according to Council Directive 2001/110/EC) for reducing sugars (fructose + glucose) are  $\geq 60$  %, and for sucrose the reference values is not more 5 %. The sugars content in honey samples were in compliance with the criteria from 2001/110/EC, and the range for sucrose in these samples was from 1.15 to 4.30 %, while the content of reducing sugars varied from 65.70 to 77.40 %. The results show that the honey sugars analysis by HPLC-RID is a good methodology that gives precise and reproducible results regarding the detection of individual sugars in honey samples.

**Key words:** hohey, honey sugars, validation, HPLC-RID

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