



Book of Abstracts

5TH INTERNATIONAL CONFERENCE

ANTIMICROBIAL RESISTANCE - CURRENT STATE AND PERSPECTIVES

FROM SCIENCE TO PRACTICE



**28-30 MAY 2026
NOVI SAD, SERBIA**



ISBN: 978-86-7520-656-9

5th International Conference Antimicrobial Resistance - Current State
and Perspectives 2026

From Science to Practice

28th – 30th May, 2026. Novi Sad, Serbia

University of Novi Sad, Faculty of Agriculture

Book of Abstracts

University of Novi Sad, Faculty of Agriculture

21000 Novi Sad, Trg D. Obradovića 8

Tel.:++(021) 6350711; 4853-308;

polj.uns.ac.rs

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Antimicrobial resistance – current state and perspectives

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Dear colleagues,

It is our great pleasure to welcome you to the 5th International Conference “Antimicrobial Resistance – Current State and Perspectives”, held in Novi Sad, Serbia. Over the past five years, this conference has evolved into an important regional platform for interdisciplinary dialogue, scientific exchange, and collaborative action in addressing one of the most pressing global public health challenges – antimicrobial resistance (AMR).

This year’s conference is organized under the slogan “From Science to Practice”, reflecting our commitment to translating scientific knowledge into practical solutions and everyday professional practice. Within the One Health framework, the conference brings together experts from veterinary and human medicine, microbiology, pharmacology, food safety, agriculture, environmental sciences, and related disciplines, emphasizing the interconnectedness of human, animal, and environmental health.

The scientific and professional program includes more than 70 scientific contributions presented through lectures, short communications, poster presentations, and 6 practical workshops, covering a broad spectrum of current AMR-related topics. Special attention has been devoted to practical workshops intended for veterinarians and medical doctors, focusing on real-life clinical and field challenges, rational antimicrobial use, diagnostics, preventive strategies, and stewardship approaches.

This year’s conference addresses numerous contemporary challenges related to antimicrobial resistance, including AMR surveillance and monitoring, resistant zoonotic pathogens, food safety, residues of veterinary medicinal products in food, environmental dissemination of resistance genes, wastewater surveillance, and the growing role of microplastics and ecological niches in AMR spread.

Particular emphasis is placed on antimicrobial stewardship and responsible antibiotic use in both veterinary and human medicine, with dedicated sessions focusing on poultry, swine, companion animals, and public health. The program also highlights national and international initiatives developed with FAO support, promoting evidence-based approaches and harmonized strategies for combating AMR.

In line with this year’s slogan “From Science to Practice”, the conference additionally explores innovative preventive and therapeutic approaches aimed at reducing antimicrobial dependence, including biosecurity measures, microbiota-oriented therapies, probiotics, phytotherapeutics, and feed and food safety management. The practical character of the conference is further emphasized through workshops focused on companion animal dermatology, mastitis control, avian pathogenic *E. coli*, hospital hygiene, and responsible antimicrobial therapy.

This year’s conference further emphasizes the importance of interdisciplinary collaboration and coordinated action within the One Health framework. By bringing together experts from veterinary and human medicine, microbiology, pharmacology, food safety, agriculture, and environmental sciences, the conference aims to strengthen dialogue, exchange practical experiences, and support the development of evidence-based strategies for combating antimicrobial resistance.

We sincerely thank all participants, speakers, researchers, institutions, and partners for their contribution and dedication to this important mission. We hope that this conference will inspire meaningful discussions, new collaborations, and practical solutions in the global fight against antimicrobial resistance.

*Dr Zorana Kovačević, associate professor
President of the Scientific and Program Committee*

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STRATEGIES FOR CONTROLLING ANTIMICROBIAL RESISTANCE OF AVIAN PATHOGENIC *ESCHERICHIA COLI* IN BROILER COLIBACILLOSIS CASES IN VOJVODINA

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ABSTRACT

Colibacillosis in poultry, caused by avian pathogenic *Escherichia coli* (APEC), represents one of the most significant bacterial diseases in modern poultry production. The disease is widely distributed and leads to considerable economic losses due to increased mortality, reduced weight gain, and treatment costs. The pathogenicity of APEC strains is associated with the presence of specific virulence genes, and due to the increasing occurrence of multidrug-resistant strains, timely diagnostics and rational use of antibiotics are essential for effective disease control. The aim of this study was to detect selected virulence genes (*iroN*, *ompT*, *hlyF*, *iss*, *iutA*, *eitC*, and *cvaC*) in *Escherichia coli* isolates in order to assess their pathogenic potential. Isolates harboring two or more of these genes are considered capable of causing colibacillosis, whereas those with one or none are generally regarded as commensal strains. A total of 35 liver swab samples from poultry were included in the study, with one sample collected per farm. After inoculation in buffered peptone water, samples were cultured on MacConkey agar. Bacterial identification to the species level was performed using the automated biochemical system *AUTOMIC-I-600*, while detection of virulence genes was carried out by multiplex polymerase chain reaction (PCR). Virulence and antimicrobial resistance genes are often located on the same plasmids, enabling their horizontal transfer between related and unrelated bacterial species. Considering that APEC strains frequently exhibit resistance to antibiotics, treatment of infections caused by multidrug-resistant strains represents a major challenge in modern veterinary practice. Antimicrobial susceptibility testing was performed in accordance with the guidelines of the European Committee on Antimicrobial Susceptibility Testing (EUCAST). *Escherichia coli* was isolated from all 35

samples. Out of the total number of isolates, 29 were classified as APEC. Among these, seven isolates possessed all seven investigated virulence genes, five isolates had six genes, eight isolates had four genes, and nine isolates carried three virulence genes. Six isolates contained only one virulence gene, corresponding to commensal *E. coli* strains. Multidrug resistance was detected in 14 APEC isolates, resistance to two classes of antibiotics in eight isolates, while seven isolates were fully susceptible. The high prevalence of virulent and multidrug-resistant APEC strains highlights the need for continuous monitoring, improved diagnostic methods, and rational antimicrobial use, and the implementation of effective control strategies and preventive measures to reduce the incidence of colibacillosis in poultry production.

Key words: *Colibacillosis; E. coli; APEC; Multiplex PCR; Antimicrobial resistance; Poultry.*

Acknowledgement: This work was funded by the Ministry of Science, Technological Development and Innovation of the Republic of Serbia under the Contract for the implementation and funding of research work of NIV-NS in 2026 (Contract No: 451-03-33/2026-03/200031) and supported by the Provincial Secretariat for Higher Education and Scientific Research of the Autonomous Province of Vojvodina, Republic of Serbia, project No. 003877475 2025 09418 003 000 000 001 04 004 and project No. 003877403 2025 09418 003 000 000 001 04 002.

CIP – Каталогизација у публикацији
Библиотеке Матице српске, Нови Сад

619:616:636(048.3)

**INTERNATIONAL Conference Antimicrobial Resistance -
Current State and Perspectives (5 ; 2026 ; Novi Sad)**

Book of abstracts / 5th International Conference
Antimicrobial Resistance – Current State and Perspectives,
28–30 May 2026, Novi Sad, Serbia ; [editor in chief Zorana
Kovačević]. – Novi Sad : Faculty of Agriculture, 2025 (Novi
Sad : Constanta). – 119 str. ; 30 cm

Tiraž 500.

ISBN 978-86-7520-656-9

а) Ветеринарска медицина -- Апстракти

COBISS.SR-ID 195459081