The Antimicrobial Resistance of *Escherichia Coli* isolated from Meat and Meat Products

Marian MIHAIU\(^1\), Istvan FAZEKAS\(^1\), Alexandra LAPUSAN\(^1\), Romolica MIHAIU\(^2\), Sorin Daniel DAN\(^1\), Carmen TAULESCU\(^1\), Liora MIHAIU\(^3\)

\(^1\) University of Agricultural Sciences and Veterinary Medicine, Faculty of Veterinary Medicine, Mănăştur street No.3, 400372, Cluj-Napoca, Romania, e-mail: lapusan_alexandra@yahoo.com

\(^2\) Babes – Bolyai University, Faculty of Economics and Business Administration, Cluj-Napoca, Romania

\(^3\) University of Medicine and Pharmacology “Iuliu Hateganu”, Cluj – Napoca, Romania

SUMMARY

*E. coli* bacteria in food and water supplies have been responsible for disease outbreaks and deaths around the world in recent years. Bacterial resistance to commonly prescribed antibiotics is an enormous and growing problem, largely due to misuse of antibiotics to treat non-bacterial infections and environmental exposure of the bacteria to low levels of antibiotics used, for example, in agriculture.

In this respect the major aim of this study was to establish the resistance phenomenon of various *E. coli* strains present in meat and meat products and to determine the prevalence of these strains in the products analyzed. The samples taken were collected from various meat products and the methods used were the standardized method ISO 16649-2:2007, the disk diffusion method and the isolation of the bacteria were made on selective media (McConkey and TBX). The 22 antibiotics used were the ones with a large spectrum including the most frequently used.

From the total number of samples the pork meat products had the highest prevalence in *E. coli* resistant strains contamination. The most sensible antibiotic was found to be streptomycin, followed by the Norfloxacin and the Nalidixyc acid. Following these tests we found also strains with a 0 sensibility to Ampicillin, Cloramphenicol, Erythromycin, Oxitetraciclyn and Tetracycline. All the strains of *E.coli* revealed 100% resistance towards Erythromycin, Oxitetracyclin, and Tetracycline. Between the sensitive and resistant strains we noticed also particular strains that were mutant resistant, in a lower level, with the highest frequency at the Flumequin use.

Following this research it was concluded that through these products tested there is a potential risk of genetic transfer from the animal origin bacteria to those pathogen or commensal at humans. Because of these resistant microorganisms at the antibiotics, the infections caused have resulted in a higher degree of mortality, a larger period of hospitalization and greater costs for treatment. Due to this fact we recommend the strict supervision of antibiotic administrations at humans and also farm animals and the surveillance of time remanence in case they are used.

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