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ABSTRACT

Workshop, Tavola Rotonda e Simposio Federale

Di seguito vengono riportati i programmi
e i relativi contributi pervenuti

77° CONVEGNO SISVET

SOCIETA´ SCIENTIFICA DI RIFERIMENTO | **ASSOCIAZIONE NAZIONALE INFETTIVOLOGI VETERINARI - ANIV**

TITOLO | **PRELIMINARY EVALUATION OF LACTOBACILLI ISOLATED FROM AUTOCHTHONOUS ITALIAN CHICKEN BREEDS FOR THEIR USE AS PROBIOTICS: SUSCEPTIBILITY TO ANTIMICROBIALS AND PH RESISTANCE**

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Testo e Riferimenti bibliografici

Bacterial strains belonging to several species within the group of lactobacilli (formerly recognized as *Lactobacillus* spp.) are commonly used as probiotics due to their beneficial impacts on the host's health. These beneficial effects are based on various mechanisms, including i) antagonism against pathogens; ii) enhancement of the immune response; and iii) modulation of the microbiota balance [1]. The employment of probiotics in poultry has proven to decrease mortality rates during periods of stress, as well as in inhibit the intestinal colonization of pathogenic bacteria, such as *Campylobacter* spp., thus enhancing the safety of poultry products [2]. The present study was included in the project TuBAvI-2 (2021-2024) founded by Italian Ministry of agriculture, food sovereignty and forestry – PSRN 2014/2022. It was aimed at providing a preliminary assessment of the antibiotic susceptibility profile and pH resistance of lactobacilli isolates from chicken cloacal swabs. Two hundred and sixty cloacal swabs were obtained from different autochthonous Italian chicken breeds. Swabs were streaked onto MRS agar and plates were incubated for 48 h at 37°C in aerobic conditions. Two hundred and seven isolates were obtained and subjected to the evaluation of their susceptibility to ampicillin, tetracycline, erythromycin, streptomycin, linezolid, and gentamicin by the Kirby-Bauer method, subsequently, resistant isolates were evaluated for the presence of some of the main antimicrobial resistance genes (*tetM, tetL, ermA, ermB, ermC, aac(6')-aph(2'))* by PCR.
The higher resistance rates were observed for streptomycin (64.3%), followed by tetracycline, erythromycin, and gentamicin with rates of 15.9%, 8.2% and 4.8%, respectively. None of the isolates showed resistance to linezolid and ampicillin. Concerning isolates resistant to tetracycline, 33.3% harboured *tetM* and 12.1% *tetL*, while among isolates resistant to erythromycin 35.5% presented *ermB*. On the contrary, none of the isolates resistant to gentamicin presented *aac(6')-aph(2')*. Eleven isolates susceptible to all the antimicrobials tested were selected for further analysis [3] and identified at the species level through the sequencing of *16s rRNA* gene. After that, the pH resistance of isolates (*Ligilactobacillus salivarius, Ligilactobacillus agilis, Lactobacillus kitasatonis* and *Limosilactobacillus reuteri)* was evaluated to assess their ability to survive the gastric barrier. Isolates able to tolerate a pH equal to 2 for a minimum time of 120 minutes (*L. reuteri* and *L. salivarius)* were identified as good candidates for probiotic applications. They will be subjected to further analysis to evaluate their resistance against bile salts, hydrophobicity, ability to produce bacteriocins and to adhere to intestinal epithelia. The use of probiotics in animal productions is among the strategies that can be pursued in an integrated approach to improve animal welfare and at the same time obtain safer food. The evaluation of the susceptibility profiles of the isolates is crucial since commensal bacteria, such as lactobacilli, can serve as reservoirs for antimicrobial resistance genes potentially transmissible to pathogenic bacteria.

[1] Anisimova et al. Alarming Antibiotic Resistance of Lactobacilli Isolated from Probiotic Preparations and Dietary Supplements. Antibiotics, 11, 2022.
[2] Dec et al. Probiotic Potential of Lactobacillus Isolates of Chicken Origin with Anti-Campylobacter Activity. Journal of Veterinary Medical Science, 80:1195–1203, 2018.
[3] EFSA Panel on Additives and Products or Substances used in Animal Feed (FEEDAP); Guidance on the assessment of bacterial susceptibility to antimicrobials of human and veterinary importance. EFSA Journal; 10, 2012.