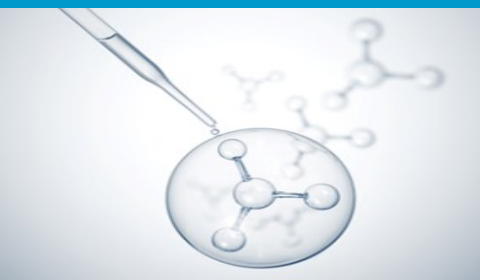


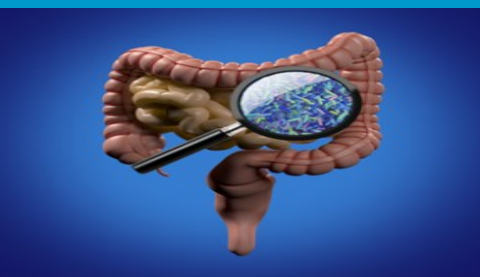
September 22-24 2022, The Royal Hotel, Hammamet, Tunisia



# Book of abstracts



## THIRD INTERNATIONAL SYMPOSIUM ON NATURAL ANTIMICROBIALS:



### Current status, challenges and perspectives



# ANTIMIC 2022

3rd INTERNATIONAL SYMPOSIUM ON NATURAL ANTIMICROBIALS:  
CURRENT STATUS, CHALLENGES AND FUTURE PERSPECTIVES

September 22-24 | Hammamet, Tunisia



Innovet - AMR



## ISOLATION AND CHARACTERIZATION OF *LACTOBACILLUS REUTERI* FROM AVIAN CECAL CONTENT

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**Background:** In developing countries, the poultry agro-business sector has largely been floated with indiscriminate use of antimicrobial agents to enhance production. These could consequently encourage the re-emergence and transmission of antimicrobial resistant bacteria to humans.

**Objective:** This study aims to characterize the antimicrobial resistance profile of *Lactobacillus reuteri* obtained from avian species, isolate, and identify biochemical alternatives that could be useful as antibiotics.

**Methodology:** One hundred six cecal contents of chicken from different regions of Northern Tunisia were collected, processed (February-September 2021) and *Lactobacillus reuteri* strains were isolated from the Man-Rogosa-Sharpe (MRS) medium. Identification of isolates was carried out by PCR and MALDI-TOF-MS. Antimicrobial susceptibility phenotypes and corresponding genes of all *L. reuteri* isolates were analyzed by disk diffusion and PCR, respectively. The evaluation of the antimicrobial activity was performed by direct antagonistic test on various indicator bacteria.

**Results:** Seventy-six isolates were identified as *Lactobacillus spp* by PCR. Further analysis by MALDI-TOF-MS revealed that 4 bacteria (12,12 %) out of 33 strains tested show scores of strong similarities to *L. reuteri*. All the *L. reuteri* isolates were susceptible to penicillin and clindamycin. These strains were resistant to erythromycin, gentamycin, sulfamethoxazole-trimethoprim, and ciprofloxacin. Strains X4392, X4393 and X4394 were resistant to tetracycline, vancomycin and tobramycin. For chloramphenicol, these three bacteria exhibit intermediate resistance phenotype. As for the strain X4395, it was susceptible to clindamycin, tobramycin and vancomycin. All the *L. reuteri* strains harbored the *erm(B)* gene, but lacked the *erm(A)*, *erm(C)*, *erm(T)*, *aac(6')-aph(2'')*, *fex(A)* and *fex(B)* genes. The strain X4395 carried *tet(L)*, *tet(M)* and *tet(K)* genes. However, only *tet(L)* was detected in strains X4392 and X4394. Also, all strains have significant antagonistic effects against several indicator bacteria such as *S. aureus* and *Enterococcus spp*.

**Conclusion:** These data indicate that *L. reuteri* that is supposedly a 'safe' probiotic could acquire AMR determinants of human health concerns. It could be inferred that *L. reuteri* presents 'double-edged sword' traits, as it presents itself as a reservoir of AMR genes and contains biomolecules that can be useful to fight against some pathogenic bacteria.