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Antibiotic resistance of lactic acid bacteria isolated from some Algerian dairy products

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Resistance to antimicrobial drugs (antibiotics) is a common characteristic in the world of bacteria. In the interaction between bacteria, genetic material is transferred from one bacterium to another; Lactic acid bacteria (LAB) colonize the gastrointestinal and urogenital tracts of humans and animalsand are present infoods such as dairy products, fermented meats, fruits and vegetables. There is some concern that antibiotic resistance in LAB could then be transferred to possibly pathogenic bacterial species, complicating the treatment of a disease or infection and lead to the spread of antibiotic-resistant bacteria. In order to illustrate the current situation of antibiotic resistance, distinction between intrinsic and atypical resistances, and some of the genetic determinants, this study was conducted. In the first we have established the resistance profile of 51 of lactic acid bacteria strains from the collection of the LBMB (Laboratory of microorganism's biology and biotechnology), they were tested against 21 different antibiotics. The minimum inhibitory concentrations (MICs) were measured for five of these antibiotics; curves concordances to tetracycline and doxycycline have clarified diameters for discriminating these antibiotics. Several bacteria have expressed simultaneous resistance to tetracycline, nitrofurantoin, bacitracin and spiramycin. The research of mobile genetic elements has led us to detect two plasmids in lactobacilli contains tetracycline resistance gene. These plasmids, pCHM19 pCHTD29, were transferred by electroporation into indicator bacteria and tetracycline-resistant transformants were obtained on selective medium. After horizontal transfer of resistance genes carried by these plasmids, the resistance can be expressed in the indicator. The stability of these plasmids in the transformers in the presence or absence of the selected agent varied from case to case. The expression level of resistance to tetracycline examined in solid medium varied among clones.

Finely lactic acid bacteria may play an active role in the spreading of antibiotic resistance, a series of measures inspired from a principle of precaution should be taken before they are used as commercial starters or probiotic cultures in food products, comple mented by a more prudent use of antibiotics in agriculture, veterinary, and human medicine.

Biography

Benabbou T A is a Doctorate (in the 3rd years of PhD studies) in Microbial Engineering in Oran University, Faculty of life Sciences and Nature, department of Biotechnology. In his engineering studies, he was working on the artificial transformation of *E. coli* K12 with different DNA plasmids, three years later, received his magister from ORAN University which he was working on Antibiotic resistance of lactic acid bacteria isolated from some dairy products. Currently in his PhD thesis, he is working on the Molecular characterization of antibiotic resistance gene cluster diffused in the intestinal microbiota of rat using molecular approach (PCR, sequencing) to characterize the different antibiotics resistance genes. He has participated in different scientific meeting and international congress.

Notes: