

البحث الرابع

Nesreen M. Nasr, and <b>Laila R. Abd Alhalim (2023)</b> . Characterization and Identification of <i>Lactobacillus rhamnosus</i> and <i>Enterococcus durans</i> as Probiotic Potential Isolated from Selected Dairy Products in Egypt. Journal of Umm Al-Qura University for Applied Sciences.	البحث الرابع
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<b>Title</b>	<b>Characterization and Identification of <i>Lactobacillus rhamnosus</i> and <i>Enterococcus durans</i> as Probiotic Potential Isolated from Selected Dairy Products in Egypt</b>
<b>Participants</b>	Nesreen M. Nasr, and <b>Laila R. Abd Alhalim</b> <sup>1</sup> Department of Dairy Science, Faculty of Agriculture, Fayoum University, Fayoum, Egyp <sup>2</sup> Department of Agricultural Microbiology, Faculty of Agriculture, Fayoum University, Egypt.
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ABSTRACT

Probiotics are living microbes that promote consumer health when taken in significant quantities with food. The aim of this research was identifying the probiotic properties (in vitro) of lactic acid bacteria (LAB) isolated from traditional fermented dairy products from Egypt (Kareish cheese, Rayeb milk, local yoghurt and buttermilk). Only 13 isolates were characterizes as Gram-positive, endospore-negative, non-motile and catalase-negative with small round colonies. All 13 isolates were examined for its probiotic properties (antibacterial activity, antibiotic susceptibility, acidity and bile salt tolerance). All isolates showed antimicrobial effect against bacterial pathogens tested. LAB-6 had a significantly larger inhibition zone followed by LAB-2 and LAB-3. Moreover, LAB-6 was the most resistant to all antibiotics tested. Seven of thirteen isolates were Penicillin-resistant. Only LAB-3 exhibited strong chlorophenicol resistance. The isolates that affect pathogens and resistant to antibiotics were found acid-and-bile salt-tolerant in varying degrees. All bile and acid tolerant isolates revealed variable antibiotic sensitivity. Regarding to previous results, only three selected isolates (LAB-2, LAB-3, and LAB-6) had their 16SrRNA gene sequences compared to Gene-Bank. Isolate LAB-2 was found in the genus *Lactobacillus*, with 98.7% similarity to *L. rhamnosus* OP268116 strain GCM20300. LAB-3 was *Lactobacillus*, with 98.9% similarity to *L.*

ABSTRACT



كلية الزراعة  
قسم الميكروبيولوجيا الزراعية



جامعة الفيوم

*rhamnosus* OP268117 strain 6481. Comparative genomic research demonstrated very minimal changes between isolate LAB-6 and *Enterococcus durans* OP268118 strain CAU5334. Thus, these isolates could be used as food biopreservatives, starter cultures in the fermented dairy products and cheese industry, or novel strategies to combat the rising number of antibiotic-resistant pathogens in human infections.