



Q1 Journal-  
Impact Factor:  
**4.996**

**Scientific Reports (Nature publisher), 8(1): 1-15 (2018)**

البحث رقم (2): منشور  
فردى تخصص  
وغير مستخلص من رسالة

Khaled Elbanna, Sahar El Hadad, Abdelrahaman Assaedi, Alia Aldahlawi, **Manal Khider**, Alawiah Alhebshi. **In vitro and in vivo evidences for innate immune stimulators lactic acid bacterial starters isolated from fermented camel dairy products.** **Scientific Reports, (2018) 8(1): 1-15, DOI: [10.1038/s41598-018-31006-3](https://doi.org/10.1038/s41598-018-31006-3)**

### Abstract

Probiotics are commensals with special characteristics that are essential for the development of the immune system, and may protect mucosal surfaces against pathogens. In this study, a total of 40 lactic acid bacteria (LAB) were isolated from different raw and fermented camel's milk samples collected from Saudi Arabia (Makkah area) and Egypt (Fayoum) and tested for the probiotic properties. Among them, Pro 4 and Pro 7 isolates exhibited excellent probiotic potential including bile salt (0.2-0.6%), phenol tolerance (0.2-0.4%) and salt tolerance (0.0-10%). Furthermore, both strains exhibited antimicrobial activity against wide range of food-borne pathogens and Dermatophytes with average zone inhibition of 37.5, 35.5, 34.5, 27.5, 25 and 23.5 mm for *Staphylococcus aureus*, *Trichophyton mentagrophytes*, *Escherichia coli*, *Listeria monocytogens*, *Candida albicans* and *Salmonella typhi*, respectively. Furthermore, the in vivo study indicated that these strains significantly improved the mucosal immune responses through an increase in expression of TLR2 and IFN $\gamma$  mRNA in mice intestine as well as increased the synthesis of polyclonal IgG, IgM and IgA in mice blood sera. Accordingly, due to these unique probiotic properties, both selected strains could be potentially used as probiotic starter cultures for fermented dairy foods as well as functional food and health products.