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## Antibacterial Activity of *Lactobacillus* on Skin Infections' Pathogens: *In-Vitro* and *In-Vivo* Studies

Duaa Al-Dulaimy\*, Julian Marchesi and Eshwar Mahenthiralingam  
Cardiff University, UK

Infectious diseases are considered a public health problem in most countries. The occurrence of antibiotic resistant pathogens is increasing worldwide. As antibiotics are presently losing their effectiveness, there is an urgent need to develop safe alternatives for treating bacterial infections especially those of the skin. One of these alternatives is "Probiotics". Health-enhancing properties of probiotics should be performed by both *in-vitro* and *in-vivo* techniques. The greater wax moth *Galleria mellonella* is used as an *in vivo* model for host-pathogen interactions. A group of *Lactobacillus* type strains was obtained from culture collections, while the other group was isolated from fermented food products: yogurt and olives. Pathogens were isolated from skin infections patients. All the bacterial species were identified by 16S rRNA gene sequencing. *In-vitro* antagonistic activity of lactobacilli was investigated on the major causes of skin infections (*Staphylococcus aureus* and *Streptococcus pyogenes*) by performing both overlay and well diffusion assays during different incubation times and conditions.

*In-vivo* susceptibility of the wax moth larvae to both lactobacilli and pathogenic species was assessed by injection with serial dilutions of three preparations of each *Lactobacillus* food isolates: Bacterial suspension, the supernatant and washed cells. Serial dilutions of pathogenic bacteria suspensions were injected inside the larvae as well. All the tested pathogens were sensitive to the antibacterial effect of lactobacilli. The maximum antagonism was achieved after 72h under anaerobic incubation. Injection of the larvae with both of lactobacilli and pathogens displayed differences in the survival percentages of larvae.

### Biography:

Duaa Al-Dulaimy graduated from Department of Biology/School of Biosciences/Al-Mustansiriyah University/Baghdad/Iraq. Duaa Al-Dulaimy started to work as a laboratory assistant at the same department. At this point, Al-Dulaimy has done a demonstration for undergraduate students in a couple of modules such as General Microbiology, Food Microbiology, Industrial Microbiology and Medical Microbiology. After this position, Al-Dulaimy studied a Master Degree in Microbiology at the same university and got degree to start working as an assistant lecturer for more than ten years. This academic and research position has developed scientific knowledge to supervise final year students and her research ability to perform several studies to produce articles and publish them in different journals. By this, she got a high level in job to be a lecturer in the mentioned university. Then, Al-Dulaimy got a scholarship from government to study PhD in the UK at the school of Biosciences/Cardiff University. Nowadays, she is at the third year of my project, which is investigating the antibacterial activity of *Lactobacillus* on skin infections' Pathogens: *In-vitro* and *In-Vivo* Studies.