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Predominant lactic acid bacteria with probiotic potential for children, animal production and aquaculture in an arid coast region

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Statement of the Problem: Arid and semi-arid regions represent one third of the total area of the world including Australia, the southwest of the United States and northwest of Mexico. Probiotics able to survive in these conditions are important to maintain the health of humans and animals inhabiting the isolated arid coasts. Lactic acid bacteria (LAB) include strains from different genera that colonize mammals, birds, and marine animals and are broadly used as probiotic. The aim of this research was to perform a screening and selection of LAB with probiotic potential from feces and intestinal mucus of humans and organisms important for aquaculture and animal production in the northwest of Mexico, an arid coast.

Methodology & Theoretical Orientation: Fecal and gastrointestinal mucus samples were collected of at least 10 subjects of humans, piglets, goats, calves, fish, shrimps, oysters and sea cucumber. Viable counts of LAB were performed and predominant bacteria were isolated and assayed for their ability to adhere gastrointestinal mucus from the respective host. Adhering bacteria were genetically identified by 16S rDNA sequence analysis.

Findings: Results of viable counts showed an average of 7.0 and 4.0 logs CFU/g of LAB in land and marine animals respectively. Isolates of predominant LAB in all species resulted in 1,031 strains and 59% of them presented the ability to bind gastrointestinal mucus. LAB with high ability to bind mucus and more frequently isolated were Lactobacillus fermentum, L. plantarum, Enterococcus faecium, L. reuteri and L. salivarius.

Conclusion & Significance: These results indicated a rich source of potential probiotics that resist adverse environmental conditions and colonize the intestinal tract of organisms inhabiting isolated arid coasts.

Biography

Maurilia Rojas Contreras has completed her PhD in Microbiology from the University of Gothenburg, Sweden. She is a Research Professor at Universidad Autonoma de Baja California Sur, Mexico since 1997. She has published in international journals regardless lactic acid bacteria, Lactobacillus adhesion to mucus, and probiotics for aquaculture; the main scientific question to answer is to understand the mechanism by which probiotic bacteria benefits your host.

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