



## PRODUCTION OF BACTERIAL INHIBITORS BY STRAINS OF LACTIC ACID BACTERIA ISOLATED FROM RAW MILK

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**Introduction.** Some lactic acid bacteria (LAB) produce antimicrobial substances in order to gain an advantage over other competing bacteria (1). For this reason these type of bacteria are used as protective cultures in the food industry. According to Esain (2) the LAB strains used in the manufacture of dairy products should be isolated from local sources, such as raw milk, to have greater resistance to bacteriophages present in the area and thrive in milk with composition and quality typical of the region.

The objective of this study was to obtain a collection of native strains of LAB capable of producing bacterial inhibitors with potential to be used as protective cultures for local producers.

**Methods.** Forty-eight samples of raw milk were collected from dairy farms located in Tepatitlán, Jalisco, México. Inoculation of bacteria was done by surface on plates of MRS agar (32 °C/48 h in anaerobiosis) and from each sample were selected 5 strains which were inoculated in MRS broth (same incubation conditions). The suspensions were centrifuged at 15,000 rpm/10 min and the supernatant was tested for inhibition of *Escherichia coli* ATCC 8739, *Salmonella paratyphi* ATCC 9150 and *Staphylococcus aureus* ATCC 33862 (3,4).

**Results.** 230 strains were studied, resulting 36 positive according to the relationship shown in Table 1. The microorganism which was inhibited by more LAB strains was *S. aureus*, whose control in the dairy industry is necessary to prevent foodborne intoxications. The efficiency to add protective cultures to ripened cheeses has been demonstrated (5) for the control of pathogens as *S. aureus*, being an alternative to improve the microbiological quality of dairy products.

**Conclusions.** It was obtained a collection of 36 LAB strains which must be characterized to assess their feasibility for use as protective cultures.

**Table 1.** Strains of Inhibitor-producing LAB.

Inhibited strains:	Number of positive LAB strains:
<i>E. coli</i>	5
<i>S. paratyphi</i>	6
<i>S. aureus</i>	15
<i>S. paratyphi</i> y <i>S. aureus</i>	9
<i>S. aureus</i> y <i>E. coli</i>	1



**Fig.1** Inhibition halos of *S. aureus* by three strains under study.

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