

# GROWTH INHIBITION OF SOME PHYTOPATHOGENIC BACTERIA BY CELL-FREE EXTRACTS FROM *ENTEROCOCCUS SP*

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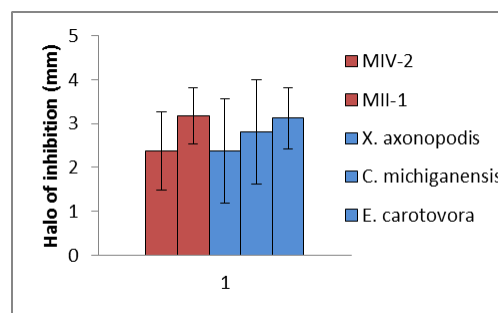
**Introduction.** Currently, there are important economic losses in the Mexican agricultural sector and others Latin-American Countries. A great example is the loss caused by diseases provoked by plant pathogenic bacteria in wheat; which is one of the four most important crops around the world (1). Cropping yield can significantly decrease, caused by the presence of foliar diseases caused by fungi, viruses and/or bacteria (2). Antagonistic microorganisms are able to exert an effect of biological control on different pathogens (3).

**Methods.** Samples of goat milk, whey and buttermilk were used for isolation of *Enterococcus sp.* strains, which were characterized using biochemical methods. Phytopathogenic microorganisms used in this study were *E. carotovora*, *C. michiganensis sp. michiganensis* and *X. axonopodis* which were obtained from the Center for Applied Microbiology, Greencorp Biorganiks de Mexico SA de CV. Free-cell extracts as follow, *Enterococcus* cultures were centrifuged and supernatant was carefully separated and filtered. Then they were tested against phytopathogenic bacteria using diffusion method on nutritive agar plate at 28 °C for 24 h.

**Results.** All isolated strains were identified as *Enterococcus sp.* using morphological and biochemical tests. *Enterococcus sp.* strains grew better at 37 °C and pH = 7.0. Only the free-cell extracts from two strains showed inhibition potential.

A comparison of means by Tukey test (0.05%) shows that MIV-2 strain presents more inhibition potential than MII-1 strain

(red) and the phytopathogens (blue) were equally sensitive (Fig. 1).



**Fig1. Growth inhibition potential of *Enterococcus sp.* and sensitive of phytopathogen bacteria.**

**Conclusions.** Biocontrol of phytopathogenic bacteria by cell-free extracts of *Enterococcus* is effective, and may avoid economic losses in this sector and the use of toxic products.

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## References.

1. Ávila DJD, Santoyo C, Schwentesius R, Palacio, M. El Mercado del Trigo en México ante el TLCAN. Universidad Autónoma Chapingo. Chapingo, Edo. De México. (2001) 132.
2. Hernández LA, Villaseñor MHE, Barrera EG, Rosas RM. Efecto de las enfermedades foliares sobre la calidad y micoflora en la semilla de Trigo. Rev. Fitotec. Mex. (1998) 21:25-35.
3. De Costa DM and Erabaduptiya HRUT. An integrated method to control postharvest diseases of banana using a member of *Burkholderia cepacia* complex. Postharvest Biol. Technol. 2005; 36:31-39.