



## BIOLOGICAL CONTROL OF *LISTERIA MONOCYTOGENES* SCOTT A WITH CITRAL ESSENTIAL OIL AND PH IN A GEL MODEL

Paredes-Cuevas, B.<sup>1</sup>, García-Barrientos, R.<sup>2</sup>, Guerrero-Legarreta, I.<sup>3</sup>, Marín-Iniesta, F.<sup>4</sup> y Minor-Pérez, H.<sup>1</sup>

<sup>1</sup>División de Ingeniería Química y Bioquímica. Tecnológico de Estudios Superiores de Ecatepec. Av. Tecnológico s/n Col. Valle de Anáhuac. Edo. de México. México. C.P. 55210

<sup>2</sup>Universidad Politécnica de Tlaxcala. Km 9.5 Carretera Federal Tlaxcala-Puebla, Av. Universidad Politécnica No.1. Xalvatzinco Tepeyanco, Tlaxcala, México, C.P. 90180

<sup>3</sup>Departamento de Biotecnología, Universidad Autónoma Metropolitana, Av. Rafael Atlixco 186, Col. Vicentina, C.P. 09340, México, D.F.

<sup>3</sup>Grupo de Biotecnología de Alimentos. Facultad de Veterinaria - Universidad de Murcia. Apartado N° 4021 30100, Murcia, España

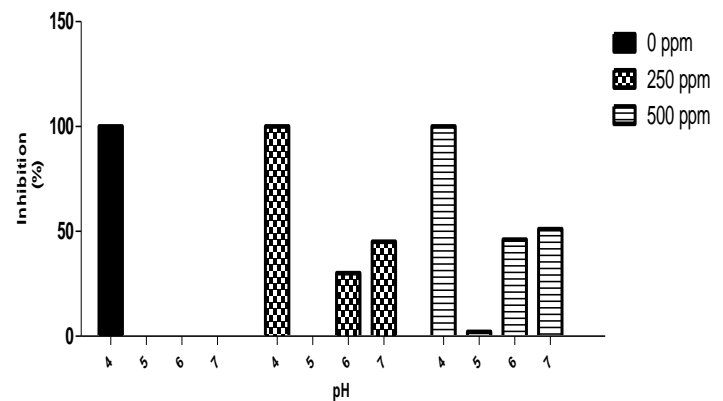
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**Introduction.** *Listeria monocytogenes* is a pathogenic microorganism that can contaminate foods in liquid or solid state. It has the capacity to grow in diverse environmental and nutritional conditions. The objective of this study was to evaluate the effect combined of pH (5, 6 and 7) and citral essential oil (0 ppm, 100 ppm and 200 ppm) in solid conditions (TSA media)

**Methods.** *Listeria monocytogenes* Scott A belongs to microbial collection of University of Murcia, Spain. A microbial culture in stationary phase ( $1 \times 10^8$  UFC/mL) was grown. *Listeria monocytogenes* culture was diluted to final concentration of  $1 \times 10^4$  cells which were to empty in petri dishes. TSA media was supplemented with 0.6% yeast extract and added with citral essential oil (from a stock solution of 10,000 ppm) in different concentrations: 0 ppm, 100 ppm and 200 ppm. pH initial of TSA media was adjusted with concentrated HCl. All treatments were incubated at 35°C during 24 h.

**Results.** All treatments were incubated at 35°C during 24 h. A significant reduction ( $P < 0.05$ ) of *Listeria monocytogenes* Scott A population was observed at pH 5. In these experimental conditions bacterial control showed a reduction of 70% with citral essential oil at 200 ppm. Also in pH 6.0 there was a reduction of *Listeria monocytogenes* approximately in a 50% in 100 ppm. At pH 7 was not significant inhibition ( $P > 0.05$ ) between the treatments of 0 ppm, 100 ppm and 200 ppm of citral essential oil.

**Conclusions.** The combination of pH 5.0 and pH 6.0 and citral essential oil can be used as an alternative to improve the inhibition of *Listeria monocytogenes* in different systems of foods.



**Fig.1** Inhibition of *Listeria monocytogenes* Scott A in treatments of pH (4,5,6 and 7) and citral essential oil. It was used a gel model (TSA)

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