COMBINATION OF SOYBEAN OIL AND ROSEMARY ESSENTIAL OIL AGAINST *ESCHERICHIA COLI* 0157:H7 ATCC 43890 IN A GEL MODEL (TSA GEL)

Rodríguez-Nogueda, M. [1], Sánchez-Villar, D.[1], Rosas-Gutiérrez, K.[1], Cira-Chávez, L,[2], Guerrero-Legarreta, I.[3], Marín-Iniesta, F.[4] y Minor-Pérez, H.[1]

[1]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

[2]Departamento de Biotecnología y Ciencias Alimentarias, Instituto Tecnológico de Sonora, 5 de Febrero 818 sur, Col. Centro. CP 85000 (PO Box 541), Cd. Obregón, Sonora, México

[3]Departamento de Biotecnología, Universidad Autónoma Metropolitana, Av. Rafael Atlixco 186, Col. Vicentina, C.P. 09340, México, D.F.

[3]Grupo de Biotecnología de Alimentos. Facultad de Veterinaria - Universidad de Murcia. Apartado Nº 4021 30100, Murcia, España

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Introduction. Vegetable oils can be used to elaborate meat emulsions. Nevertheless by its molecular characteristics it can interfere with the antimicrobial activity of essential oils from herbs like the rosemary. The objective of this study was to evaluate the effect of combination of soybean oil and rosemary essential oil against *Escherichia coli* in solid conditions of recovery (TSA media).

Methods. A culture in stationary phase of *Escherichia coli* 0157: H7 ATCC 43890 was diluted to obtain $2x10^3$ cells. TSA was added with soybean oil (0%, 2%, and 4%) and rosemary essential oil (0 ppm, 250 ppm, and 500 ppm and 1000 ppm). Tween 80 (3%) was added. TSA was added in petri dishes with *Escherichia coli* ($1x10^3$ cells). The plates were incubated during at 35°C during 48 h.

Results. The Figure 1 shows the results. Microbial populations were not significantly different (P>0.05) between the concentrations of soybean oil of 0%, 2% and 4%. In the treatments with 2% and 4% of soybean oil and 250 ppm of rosemary essential oil was observed a significant increase (P< 0.05) of *Escherichia coli* in comparation to the control. The essential oil of rosemary acts in these experimental conditions stimulating an adaptation mechanism in *Escherichia coli*, for use the soybean oil like nutrient. Treatments of soybean oil (2%) and 500 ppm and 1000 ppm of rosemary essential oil showed a significant reduction (P< 0.05) in *Escherichia coli* populations. At 4% of soybean oil a significant reduction (P< 0.05) in *Escherichia coli* populations was observed with 500 ppm and 1000 ppm of rosemary essential oil in comparison with the 250 ppm treatment.

Conclusions. The results suggest that the rosemary essential oil at 250 ppm acts like a growth inducer of *Escherichia coli* when it is used in combination with soybean oil at 2% and 4%.

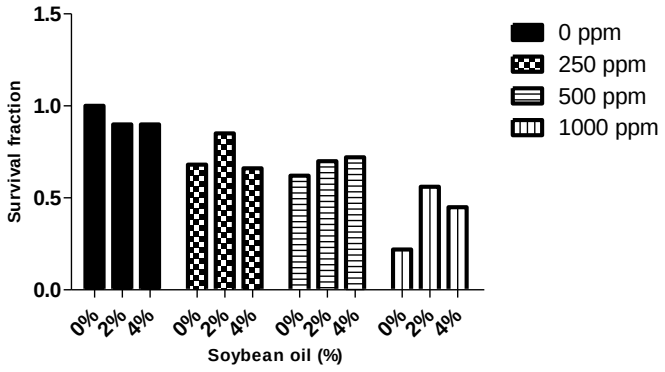

Fig.1 Growth/survival of *Escherichia coli* in gel model during different treatments of soybean oil and rosemary essential oil

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