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**“Application of Reuterin Produced by *Lactobacillus reuteri* DSM 20016 to Inhibit Some Food-born Pathogens in UF-Feta-Cheese**

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**ABSTRACTU**

Broad-spectrum reuterin produced during anaerobic fermentation of glycerol by *Lactobacillus reuteri* strain 20016 was found to be inhibitory and bacteriocidal for *Listeria monocytogenes*, *Escherichia coli*, *Salmonella typhimorium*, *Pseudomonas aerogenes*, *Klebsiella penomoniae* and *Staphilococcus aureus*. Reuterin was produced by a two-step fermentation process. A batch fermentation in a 1.5 liter flask fermentor was applied to produce a biomass of Lb. Reuteri using a modified MRS broth at pH 5.5. Further, harvested cells were used to ferment glycerol (250 mMol) under anaerobic conditions (flushed with nitrogen). The MIC values of reuterin for *Listeria monocytogenes*, *Staphilococcus aureus*, *Escherichia coli*, *Salmonella typhimorium*, *Pseudomonas aeroginosa* and *Klebsiella penomoniae* were 10, 4, 2, 2, 1 and 1 AU/ml, so the strain *L. monocytogenes* was more resistant to reuterin than the others. In potassium phosphate buffer (pH=7.2) using 80 AU/ml reuterin the count of *Listeria monocytogenes* and *Staphilococcus aureus* decreased from  $10^7$  to  $5.5 \times 10^6$  and  $2.5 \times 10^6$  respectively and the counts of *Escherichia coli*, *Salmonella typhimorium*, *Pseudomonas aerogenes* and *Klebsiella penomoniae* decreased to undetectable level in 5 hours. Addition of reuterin (40 units per gr) to the UF-Feta-Cheese reduced the viability of all organisms. The inactivation rate was

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more pronounced with *Pseudomonas aeruginosa* and less with *Listeria monocytogenes*.

Key Words: Biopreservation, Reuterin, *Lb. Reuteri*, Feta cheese