

## The Effect of Sublethal Environmental Stresses on Antimicrobial Susceptibility to Selective Antibiotics by *Listeria monocytogenes* PTCC 1297

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**Background & Objectives:** Most microorganisms spend most of their life in exposure to environmental stresses. Therefore more findings about stresses are necessary to identify the physiology of microorganisms. This will lead to the development of new vaccine, new treatments for diseases, new Methods of food health and identify new antimicrobial agents. *Listeria monocytogenes* is an intracellular pathogenic bacterium and it can causes a wide range of diseases in human and animals and also is very important in veterinary medicine. In this research the effects of sublethal environmental stresses on susceptibility to selective antibiotics by *listeria monocytogenes* were studied.

**Methods:** In present research the cultures were treated with following sublethal factors; ethanol(%5v/v), sodium chloride(%7w/v), hydrochloric acid (pH 4.5). The antimicrobial susceptibility test after each stress was performed on Muller Hinton agar by Kirby-Bauer disk diffusion Methods for seven selective antibiotics including penicillin, ampicillin, gentamicin, trimethoprim, rifampicin, tetracyclin and chloramphenicol.

**Results:** Results showed that inducing the stresses will increase antibiotic susceptibility of the strain.

**Conclusion:** Increased antibiotal susceptibility show decreased bacterium virulence therefore it is easier to control with antibiotics. In this study low levels of stresses were used, which does not have ability to damage human cells. Therefore we can benefit from these stresses to local disinfection and disinfection of surfaces and furnitures.

**Keywords:** Antibiotic Resistance; Environmental Stresses; *Listeria monocytogenes*