

Mygalin and spermidine effect on the growth of *E. coli* DH5a in different culture media.

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Natural polyamines are a group of endogenous compounds essential on the growth in all living organisms. These molecules can bind to DNA and ribosomal and tRNA, which possess specific binding sites and may influence various stages of protein synthesis, cell growth and differentiation. The effect of polyamines on bacteria are mainly during replication, transcription and translocation genes and may involve enzymatic activities. Some polyamines protects the bacteria against toxic action of the external environment as oxidative stress, pH acid and other toxic agents. Due to this stress, microorganisms make multiple changes in your metabolism, necessary to ensure its survival, adapt it and multiplication *in vivo* and *in vitro*. This association can contribute to the control of infections by regulating the expression of virulence genes important for the establishment of infection and disease. Synthetic Mygalin is a bis-acylpolyamine, N1, N8-bis (2,5-dihydroxibensoil) analog of spermidine, has 417 Da and was originally isolated from hemocytes of *Acanthoscurria gomesiana* spider. So far, little is known about the mechanisms of action of this molecule in the growth of various groups of bacteria. This study analyzes the interference of the exogenous addition of Mygalin (1-0,125mM) and commercial spermidine (2-0,125mM) on the growth of *E. coli* DH5a in different culture media (poor medium, MH and LB) in order to define the best conditions for the study. We observed that in all the culture media, the addition of Mygalin in concentrations of 1 and 0.5 mM, inhibited bacterial growth while the lower doses caused no effect, regardless of the culture medium used. However, this effect was more pronounced in bacterial cultures maintained in media MH. In contrast, the addition of spermidine in the same conditions did not affect bacterial growth. Therefore, we confirm that the microbicidal effect of Mygalin and its effect on the growth of *E. coli* DH5a differs from spermidine.

keywords: Acylpolyamine, Mygalin, microbicidal activity, E.coli

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