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ABSTRACT BOOK

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Oral Presentation 178

The Effect of Some Metals (Cu, Co, and Ni) on Expression of OmpC and OmpF Porin Proteins

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Microorganisms have very different and important roles in the ecosystem. They are exposed to many stress factors during their lifetime and developing various protective mechanisms to survive. One of these protection mechanisms is to change the membrane permeability. It is known that *Escherichia coli*, an important model organism, changes the expression levels of OmpC and OmpF porin proteins in order to survive stress conditions such as temperature, pH, osmolarity. However, it is not yet known how metal stress affects the synthesis of these porin proteins. Therefore, in this study, the expression level of OmpC and OmpF porin proteins in rich medium containing Cu, Co, and Ni metal was investigated by β -Galactosidase enzyme activity using Transgenic fusion-generated MH225 (OmpC) and MH513 (OmpF) strains. Consequently, when nickel is added to the medium, OmpC porin protein synthesis was found to increase significantly. Even as the metal concentration increased, this increase was found to occur at a higher rate. However, this high increase in OmpC is not seen in the synthesis of OmpF porin protein. When Co is added to the medium, OmpF protein synthesis is reduced more than the OmpC. This shows us that the bacterium is trying to prevent the uptake of cobalt metal into the cell. In the medium containing copper metal, it has been found that OmpC protein synthesis increases significantly, whereas OmpF synthesis decreases significantly.

Keyword: *E.coli*, OmpC/OmpF, Porin proteins, Metal Stress, β -Galactosidase Enzyme Activity