Abstract

The development and maintenance of biofilm is a complex process that is based on a change in genetic expression. The biofilm formation is observed in some prokaryotic and eukaryotic cells. During its formation, cell aggregation occurs, extracellular matrix is created and we observe the formation of metabolically differentiable cells, often with increased resistance to antimicrobial drugs. This work focuses on important steps leading to biofilm formation associated with specific gene expression and highlights the similar and different processes between bacterial and yeast cells. The work begins by comparison of cell signalling, it continues by comparing the expression of the adhesive proteins and extracellular enzymes, synthesis of exopolysaccharides, formation of extracellular nucleic acid, and in the last chapter we focused on the formation of persistors. The aim of this work is to connect the acquired information and to contribute to the understanding the complexity of this process.

Key words: biofilm, signalling, adhesins, exopolysaccharides, extracellular nucleic acid, persistor