Abstract

Cystic fibrosis is an autosomal recessive disease that mainly effects the Europoid race. The disease is caused by a mutation in the cystic fibrosis transmembrane conductance regulator gene. This gene encodes the formation of chloride channel proteins. The disease leads to the formation of highly viscous secretions from the exocrine glands. The most commonly affected organ is the lung, which accumulates mucus and bacteria. Bacteria that colonize the lungs of patients with cystic fibrosis are exposed to many stress factors such as large amounts of mucus, oxidative stress, antibiotics and immune system of the host. That leads to the selection of mutants that are better adapted to the environment of the lungs. In acute infection, one of the important virulence factors for bacteria is their motility. Motility is provided by flagella and allows the bacterium to move to sites with higher nutrient content and to colonise different parts of the lung. In chronic infection, we can see changes in the genotype and phenotype of bacteria. Nonmotile mutants are selected because they activate the immune system less than motile bacteria, that helps in the persistence of bacteria in the lungs. Chronic infections lead to a higher mortality rate. The aim of this bachelor´s thesis is to compare the motility of bacteria *Pseudomonas aeruginosa*, *Burkholderia cepacia* komplex, *Stenotrophomonas maltophilia* and *Achromobacter xylosoxidans* during acute and chronic infection.

Key words:

cystic fibrosis, flagella, changes in motility, acute infection, chronic infection