Abstract

Cystic fibrosis (CF) is an autosomal recessive disease caused by *CFTR* gene mutation. The consequence of this mutation is an improper function of the chloride channel consisting of CFTR protein. Due to this abnormality, the transport of chloride ions is either reduced or inhibited completely, which leads to a mucus secretion. Mucus is mostly created in the lungs and it is the ideal environment for pathogenic bacteria like *Pseudomonas aeruginosa* (PA).

Pseudomonas aeruginosa is an aerobic, gram-negative conditioned pathogen occurring in patients with weakened immunity such as patients with CF, who are often hospitalized. PA has one polar flagellum which contains filament composed of a protein called flagellin. The flagellum is one of the most important virulence factors of PA bacteria. This thesis focused on the isolation of flagellin from *Pseudomonas aeruginosa* flagella. The isolated flagellin will serve as an antigen for the preparation of prophylactic antibodies for CF patients.

The isolation of flagellin was carried out by four methods using combinations of precipitation and centrifugation. The published methods were optimized to achieve the isolation of flagellin.

Final samples and intermediates were analyzed by SDS-electrophoresis on polyacrylamide gel and the presence of flagellin was verified by mass spectrometry. The results show that flagellin FliC type b has been successfully obtained only by two methods.

Key words

Cystic fibrosis, *Pseudomonas aeruginosa*, flagellum, flagellin [IN CZECH]