

Abstract

Charles University, Faculty of Pharmacy in Hradec Králové

Department of: Pharmaceutical Technology
Mentor: Doc. PharmDr. Zdeňka Šklubalová, Ph.D.
Student: Ngoc Lien Vuová
Title of Thesis: Formulation of freeze dried tablets for buccal
 application of vaccines

Mucosal vaccines represent an attractive way of vaccination with an advantage of inducing both systemic and local immunity. The aim of this diploma thesis was designing a composition of freeze-dried tablets for buccal administration of a model *Bordetella pertussis* vaccine. The easy removal from blister, firmness and aesthetic appearance as well as the appropriate taste and mucoadhesivity were the required product quality parameters. The excipients were characterised by differential scanning calorimetry, osmolality and pH measurement; the mechanical properties and disintegration time of freeze-dried tablets were evaluated. Among the variety of studied excipients and their combinations, dextran 40 as the main component of the preparation provided the best results. For the further modification of properties, the addition of fish gelatin, iota carrageenan and macrogol 300 is suitable. Freeze-dried tablets containing trehalose, mannitol and povidon 25 did not achieve the desirable quality parameters. Freeze-dried tablets containing iota carrageenan as a good alternative to fish gelatin in combination with dextran and macrogol provided the best properties.