

# ABSTRACT

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Title of Diploma Thesis: **Permeation of nanoparticles across sublingual membrane 1**

Theoretical part discusses matters of drug absorption through mucosa of oral cavity. Oral cavity was described from both anatomical and physiological aspects and effects of their own properties on drug absorption.

Further it deals with nanotechnology as a possibility for drug administration. It characterises nanoparticles, their properties and advantages/disadvantages in drug administration via nanoparticles.

Closure of this part belongs to characterization of methods used in experimental part.

In experimental part the results of permeation experiments conducted on porcine sublingual membrane *in vitro* are evaluated. In these permeation experiments the penetration of Chromeon 470 marked nanoparticles through variously treated sublingual membrane (1 cm<sup>2</sup>) was observed. Either fresh membranes or membranes frozen for 1 hour were used, in both cases preserved by sodium azide.

Permeability experiments were preceded by nanoparticle size characterization using DLS (dynamic light scattering) and with observation of nanoparticles using fluorescent microscopy.

Better nanoparticle permeation was observed in sodium azide preserved frozen membranes than in membranes that were not frozen.

Keywords: Anatomy and physiology of oral cavity, sublingual drug administration, sublingual permeation, nanotechnology, nanoparticles.