

## Abstract

Kočová, K.: Natural compounds and their  $\beta$ -secretase inhibitory activity, Diploma thesis, Charles University in Prague, Faculty of Pharmacy in Hradci Králové, Department of Pharmaceutical Botany and Ecology, Hradec Králové 2015, 83 p.

Data used in this Diploma Thesis have been taken from foreigner scientific literature. It provides the whole summary of natural compounds with  $\beta$ -secretase inhibitory activity.

First chapter Alzheimer's disease briefly describes a definition, risk factors and symptomatology of the disease. Most of this chapter characterizes an etiopathology of the disease focused on amyloid theory. Finally there are also mentioned current approaches to therapy of Alzheimer's disease and those, which stay in clinical trials. Next part is dedicated to physiological functions and substrates of the  $\beta$ -secretase. This diploma thesis evaluates the current state of scientific research of synthetic inhibitors of  $\beta$ -secretase, describes the most important methods of testing inhibition and activity of  $\beta$ -secretase *in vitro* and outlines the issue of development of new inhibitors using *in silico* method.

Main part of this work consists of the list of natural compounds with  $\beta$ -secretase inhibitory activity. This part is structured according to particular types of primary and secondary metabolites. Compounds are compared using values of inhibitory concentration  $IC_{50}$  and included in the table.

Key words: Alzheimer's disease, BACE 1, inhibition, natural compounds