

# Abstract

Charles University, Faculty of Pharmacy in Hradec Králové

Department of Pharmaceutical Botany

Candidate: **Mgr. Leona Adamičková**

Supervisor: **Prof. RNDr. Lubomír Opletal, CSc.**

Title of Rigorous Thesis: **Alkaloids screening with a focus on potential drug discovery**

Key words: cholinesterase inhibition, Alzheimer disease, plant extract

Within new anti-Alzheimer agent searching a screening of inhibition activity of various plants was performed. For this study plants used in traditional medicine were chosen and alkaloidal extracts were prepared and their potential to human cholinesterases inhibition was determined. For extraction bulbs of *Fritillaria ussurensis*, bulbs of *F. cirrhosis*, cortex and flowers of *Magnolia officinalis*, flowers of *M. biondii*, *Nelumbo nucifera* seeds, leaves and roots with rhizomes of *Nuphar luteum*, *Papaver rheum* roots, *Laurus nobilis* fruits and seeds of *Ziziphus jujuba* var. *spinosa* were used.

The cholinesterase inhibitory activity was determined *in vitro* by modified Ellman's method. Extract of *Fritillaria ussurensis* bulbs was found to be the most potent inhibitor of BuChE with IC<sub>50</sub> value of 11,63 ± 3,7 µg/mL. Extract of *M. biondii* inhibited both cholinesterases with IC<sub>50</sub> values lower than 50 µg/mL. Among extracts with inhibition activity to BuChE pertain extracts of *F. cirrhosa* bulbs, *Nuphar luteum* root with rhizome and *Papaver rhoeas* roots with IC<sub>50</sub> values lower than 50 µg/mL. Other prepared extracts were considered to be inactive (IC<sub>50</sub> ≥ 50 µg/mL). Any of extracts did not gained activity of the standards used.