ABSTRACT

Kantor E.: Neurotropic and antioxidative activity of some selected species of monocotyledonous alkaloidal plants. Diploma thesis, Charles University in Prague, Faculty of Pharmacy in Hradec Králové, Department of Pharmaceutical Botany and Ecology, Hradec Králové 2013, 64 S.

The aim of the diploma thesis was to process screening of total ethanolic and alkaloidal extracts from 15 selected monocotyledonous plants (*Fritillaria meleagris, Fritillaria assyriaca, Fritillaria imperialis var. lutea, Fritillaria thunbergii, Fritillaria davisii, Fritillaria acmopetalla, Eucomis bicolor, Eucomis autumnalis, Eucomis comosa, Bulbocodium vernum, Brodiaea californica, Bessera elegans, Ornithogalum thyrsoides, Bellevallia romana, Gloriosa rotschildiana*) and test their anticholinesterase activities to human blood acetylcholinesterase (HuAChE) and to human plasma butyrylcholinesterase (HuBuChE) and also test their antioxidant activity.

The alkaloidal extract of *Fritillaria imperialis var. lutea* showed the strongest inhibition activity of HuAChE and HuBuChE ($IC_{50,\ HuAChE}$ = 41,54 ± 1,58 μM; $IC_{50,\ HuBuChE}$ = 5,12 ± 0,37 μM).

The ethanolic extract of *Fritillaria thunbergii* was the most potent inhibitor of HuAChE ($IC_{50,\ HuAChE}$ = 135,0 ± 5,1 μM; $IC_{50,\ HuBuChE}$ = 79,56 μM) and the extract of *Fritillaria imperialis var. lutea* was the most potent inhibitor of HuBuChE ($IC_{50,\ HuAChE}$ = >500 μM; $IC_{50,\ HuBuChE}$ = 43,35 ± 2,6 μM). Further interesting results were measured by extract of *Fritillaria meleagris* ($IC_{50,\ HuAChE}$ = >500 μM; $IC_{50,\ HuBuChE}$ = 53,14 ± 2,5 μM) and *Bessera elegans* ($IC_{50,\ HuAChE}$ = > 500 μM; $IC_{50,\ HuBuChE}$ = 79,65 ± 3,0).

Extract of *Bessera elegans* showed the strongest antioxydant activity (EC_{50} = 56,54 ± 2,3 μM).

Keywords: Alzheimer's disease, alkaloids, acetylcholinesterase, butyrylcholinesterase, antioxidant activity, *Fritillaria.*