

ABSTRACT

Mervartová, M.: Biological activity of plant metabolites XXIV. Influence of alkaloids from some species of the genus *Fritillaria* L. on activity of acetylcholinesterase and butyrylcholinesterase. Diploma thesis, Charles University in Prague, Faculty of Pharmacy in Hradec Králové, Department of Pharmaceutical botany and Ecology, Hradec Králové 2013, 60 s.

Biological activity of extracts to human acetylcholinesterase (AChE) and butyrylcholinesterase (BuChE) was carried out. Extracts were prepared from ten chosen species of the genus *Fritillaria* which could be perspective for the treatment of Alzheimer's disease: *F. camtschaticensis* (bulb), *F. eduardii* (bulb), *F. elwesii* (bulb), *F. graeca* (bulb), *F. hermonis* var. *amana* (bulb), *F. imperialis* (herb), *F. meleagris* var. *alba* (bulb), *F. michailovskyi* (bulb), *F. minuta* (bulb), *F. ussuriensis* (bulb).

Sumary (ethanol) and alkaloidal (ethylacetate) extract were prepared from each sample. The sumary extract was obtained by extraction of pulverized drug by 95% ethanol. The alkaloidal extract was made by following dissolution in 2% H₂SO₄, filtration, alkalization by 10% Na₂CO₃ on pH approx. 10 and final extraction of alkaloidal bases into ethylacetate.

The inhibitory activity of these extracts to human AChE (from red blood cells) and BuChE (from plasma) was detected based on Ellman's spectrophotometric method and then IC₅₀ values were determined by calculation.

Extracts of *F. camtschaticensis*, *F. imperialis*, *F. meleagris* var. *alba* and *F. michailovskyi* showed strong inhibition of BuChE. *F. meleagris* var. *alba* and *F. michailovskyi* could be interesting for further study.

Key words: *Fritillaria* sp., alkaloids, acetylcholinesterase, butyrylcholinesterase, inhibition.