

ABSTRACT

Bulēza Koci: Biological Activity of Plant Metabolites 7. Alkaloids from *Corydalis yanhusuo* W.T. Wang and their inhibitory activity on acetylcholinesterase.

In the process of screening for plants containing alkaloids potentially inhibiting human erythrocytic AChE and human BuChE, *Corydalis yanhusuo* was studied.

10.8 kg of dry tuber was percolated with 120 liters of 95% ethanol. From the primary extract, extracts with individual types of alkaloids were prepared.

In this diploma thesis only one extract was processed (extract type A-ether, pH 9.7). Alkaloids from this extract were separated into bases whose chlorides were either soluble or insoluble in chloroform. From each of the above mentioned fractions phenolic and non-phenolic alkaloids were obtained. Alkaloids were separated from a fraction of alkaloids, whose chlorides are soluble in CHCl_3 , non-phenolic (A- non-phenolic $\text{Cl}^-/\text{CHCl}_3$). From this mixture tetrahydropalmatine was isolated by the use of column chromatography on alumina and preparative TLC on silica gel. This compound was preliminary identified according to data of MS spectra, NMR spectra and optical rotation and by comparison with literature data

The biological activity of tetrahydropalmatine on human AChE and BuChE was found to be: $\text{IC}_{50} 876 \pm 15.3 \mu\text{M}$ for HuAChE and $\text{IC}_{50} > 1000 \mu\text{M}$ for HuBuChE. Antioxidative activity (DPPH test) was $\text{EC}_{50} > 1000 \mu\text{M}$.

The results of this diploma thesis suggest that tetrahydropalmatine is not a useful candidate of compounds with dual inhibition activity (AChE/BuChE) for the treatment of Alzheimer's disease.

Key words: acetylcholinesterase, butyrylcholinesterase, alkaloids, Alzheimer's disease, *Corydalis yanhusuo*