ABSTRACT


The aim of diploma thesis was to process of pool of alkaloids of *Chelidonium majus*, chlorids insoluble in chlorophorm for at least one alkaloid isolated in pure form and for the determination of anticholinesterase, antihelminth and antioxidant activity.

Of the pool in this thesis were isolated by column chromatography two alkaloids. Based on NMR and MS study was the first substance MN-1 identified as protopine. The second substance MN-2 was also subjected to MS and NMR structural studies and identified as allokryptopine. Both alkaloids were previously isolated from *Chelidonium majus*.

The both isolated substances were subjected to studies on their inhibitory activity against human erythrocyte acetylcholinesterase and human serum butyrylcholinesterase. Values were determined (protopine: IC\textsubscript{50} (AChE) = 423 ± 12,7 µM, IC\textsubscript{50} (BuChE) = 322 ± 9,6 µM, allokryptopine: IC\textsubscript{50} (AChE) = 250 ± 7,5 µM, IC\textsubscript{50} (BuChE) = 530 ± 15,9 µM). Both alkaloids showed low activity in comparison. With standard alkaloid acetylcholinesterase and butyrylcholinesterase inhibitors (galanthamine: IC\textsubscript{50} (AChE) = 6,9 ± 0,3 µM, IC\textsubscript{50} (BuChE) = 156 ± 4,69 µM, huperzine A: IC\textsubscript{50} (AChE) = 0,25 ± 0,01 µM, IC\textsubscript{50} (BuChE) >1000 µM). Based on these results, these two substances can not be considered as potentially useful in the treatment of Alzheimer's disease. Both alkaloids were also tested for their antioxidant activity. The resulting EC\textsubscript{50} values of protopine and allokryptopine were higher than 1000 µM. Their antioxidant activity can not be therapeutically usable.

*Keywords: acetylcholinesterase, Alzheimer disease, alkaloids, butyrylcholinesterase, Chelidonim majus.*