ABSTRACT


The aim of the diploma thesis was to process the dried drug of Zanthoxylum nitidum and to obtain the total extract. By means of preparative thin layer chromatogramy one alkaloid was isolated and based on structural analysis (NMR, MS) and comparison of data from the literature identified as (-)-edulinine.

This alkaloid was tested for its inhibitory activity against human erytrocyte acetylcholinesterase activity (HuAChE) and human plasma butyrylcholiesterase (HuBuChE). The measured values for (-)-edulinine were IC₅₀ HuAChE > 1000 µM and IC₅₀ HuBuChE > 1000 µM. Galanthamin (IC₅₀, HuAChE = 1,710 ± 0,065µM, IC₅₀ HuBuChE = 42,30 ± 1,30 µM) and huperzin A (IC₅₀, HuAChE = 0,033 ± 0,001µM, IC₅₀ HuBuChE = >1000 µM) were used as positive standarts which are used in therapy of Alzheimer’s disease. In comparison of standarts (-)-edulinine was inactive and it can’t be considered as perspective substance in treatment of Alzheimer’s disease.

The alkaloid was also subjected to study of its antioxidant activity. The resulting EC₅₀ value was higher than 1000 µM and it does not show any therapeutically significant antioxidant activity.

Keywords: Zanthoxylum nitidum, Rutaceae, Alzheimer’s disease, alkaloids, acetylcholinesterase, butyrylcholinesterase, antioxidant activity.