

ABSTRACT

Sekula, M.: Biological Active Plant Metabolites I. Alkaloids of *Corydalis cava* (L.) Schweigg. & Körte (*Fumariaceae*) and Screening of Their Biological Properties. Rigorous thesis, Charles University in Prague, Faculty of Pharmacy in Hradec Králové, Department of Pharmaceutical Botany and Ecology, Hradec Králové 2010, 65 p.

Within the screening of plants that contains alkaloids inhibiting the activity of the human erythrocytic acetylcholinesterase and human serum butyrylcholinesterase *Corydalis cava* (L.) Schweigg. & Körte (*Fumariaceae*) was studied. This work connect to my diploma thesis (2009). The task was to separate mixture of alkaloids from extract „B-chloroform“ subfraction F₁. This subfraction was prepared within the frame of diploma thesis. From this mixture, using preparative TLC, were isolated two compounds F₁-1A and F₁-1C in the form of free bases. On the basis of MS, NMR and IR spektroskopy the isolated alkaloid F₁-1A was identified as 3-(1-(6,7-dimethoxy-3,4-dihydroisoquinolin-1-yl)ethyl)-2,6-dimethoxy-phenol. It is the first isolation and description of this compound. Structural analysis of compound F₁-1C is continuing.

The isolated compound F₁-1A inhibited the human erythrocyte acetylcholinesterase and human blood serum butyrylcholinesterase with IC₅₀ for AChE ($127,6 \times 10^{-6}$ M) and with IC₅₀ for BuChE ($500,3 \times 10^{-6}$ M). Comparing its biological activity with that of standard alkaloid inhibitors (galanthamine and eserine) the isolated substance is not very interesting regarding further studies of natural products that could serve as lead compounds for the development of potential drugs against the Alzheimer's disease. In the pathology of Alzheimer disease an important role play free radicals. On this account we determined also antioxidative activity of isolated alkaloid. The radical scavenging activity of compound F₁-1A was >10mM. This compound showed no antioxidative activity.

Keywords: Alzheimer disease, alkaloids, *Corydalis cava*, acetylcholinesterase, butyrylcholinesterase, antioxidative