

ABSTRACT

Panchartková, M.: Biological activity of secondary plants metabolites III. Alkaloids of *Narcissus tazetta* L., Diploma thesis, Charles University in Prague, Faculty of Pharmacy in Hradec Králové, Department of Pharmaceutical Botany and Ecology, Hradec Králové, 2015, 67s.

Plants from the *Amaryllidaceae* family contain alkaloids that have multiple biological effects. There is described antiviral, antitumor, antibacterial, antimalarial and anti-fungal effect. Activity against human cholinesterases is important too.

The aim of this thesis was to prepare seven alkaloid extracts of individual cultivars of the plants *Narcissus* and then to realize their GC/MS analysis. Thanks to this analysis, several different structural types of alkaloids from the *Amaryllidaceae* family were identified. The most frequently identified alkaloids were homolycorine, lycorine, tazettine and galanthamine type.

This was followed by the measuring of biological activity against human acetylcholinesterase (HuAChE) and butyrylcholinesterase (HuBuChE). The highest inhibitory activity IC_{50} identified the alkaloidal extract of the *Narcissus jonquilla* cv. New baby with the values in relation to HuAChE $13,78 \pm 1,48$ and in relation to HuBuChE $96,12 \pm 9,55$. The main reason was probably the highest content of galanthamine of all cultivars, which it is well known that shows high inhibitory activity.

There were other cultivars that showed very low inhibitory activity. There was identified only a low percentage of galanthamine without presence of any other alkaloid, which is a potent inhibitor of ChE.

Keywords: Amaryllidaceae, alkaloids, extraction, acetylcholinesterase, butyrylcholinesterase, screening