ABSTRACT

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Title of thesis: Screening of biological activity of various species of the genus *Narcissus* sp. IV

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Plants of the family Amaryllidaceae have a long history of using as traditional remedies. Plants of this family produce structurally unique isoquinoline compounds, which have been called „Amaryllidaceae alkaloids". Over 600 Amaryllidaceae alkaloids have been isolated, which are characterized by interesting biological activity. Cytotoxic, antimicrobial, antiparasitic, anti-inflammatory activity has been described, but the best known is the inhibitory activity against the enzymes acetylcholinesterase and butyrylcholinesterase, which is used in practice for therapy of Alzheimer´s disease. [8, 9] The genus *Narcissus* is primarily known as decorative plants that blooms in early spring. However, daffodils are also used to isolate galanthamine or other alkaloids that are being studied for their effect. [13]

The aim of this thesis was to screen the biological activity of extracts of the genus *Narcissus*. It was prepared 7 extracts from bulbs of 7 cultivars of the genus *Narcissus*. Bulbs were extracted by boiling in ethanol. Ethanolic extracts were purified by liquid-liquid extraction with ether and chloroform. All extracts were analyzed on GC-MS and on basis of results were identified these alkaloids: galanthamine, haemanthamine, galanthine, lycoramine and in smaller quantities some others. Extracts were further tested for their activity against AChE and BuChE using Ellman spectrophotometric method using recombinant enzymes. Five extracts (AL-719, AL-721, AL-724, AL-727, AL-733) showed inhibitory activity higher than 60 %. An IC_{50} value was determined for these extracts. The alkaloids hippeastrine, haemanthamine and lycoramine were isolated from the extract AL-730 using preparative TLC. The result show that Amaryllidaceae alkaloids have great potential not only for the treatment of Alzheimer´s disease.