ABSTRACT

Nováková D.: Biological activity of secondary plants metabolites I. Alkaloids of *Narcissus jonquilla* L. Charles University in Prague, Faculty of Pharmacy in Hradec Králové, Department of Pharmaceutical Botany and Ecology, Hradec Králové 2015, pp. 70.

The aim of the diploma thesis was a preparation of alkaloid extracts to identification of alkaloid patterns and measure cholinesterase inhibitory activity. This activity is useful for treating Alzheimer's disease.

Alkaloid extracts of seven *Narcissus jonquilla* L. (Amaryllidaceae) varieties (Sundial, Sundisc, Sweetness, Waterperry, Simplex, Twinkling Yellow, Yazz) were studied with respect to their acetylcholinesterase (HuAChE) and butyrylcholinesterase (HuBuChE) inhibitory activity and alkaloid patterns. Twenty-three alkaloids were determined by GC/MS, and ten of them identified from their mass spectra and retention times. All samples exhibited content of galanthamine, most samples contained lycorine and tazettine. Promising HuAChE inhibition activity was demonstrated by *Narcissus jonquilla* L. cv. Waterperry with IC_{50} values of 6.53 ± 0.88 μg/mL. The strongest inhibitory activity against HuBuChE was detected in extract from *Narcissus jonquilla* L. cv. Sundisc with IC_{50} value of 5.09 ± 0.64 μg/mL.

Keywords: Alzheimer's disease, Amaryllidaceae, *Narcissus*, GC/MS, Alkaloids, Acetylcholinesterase, Butyrylcholinesteras