

ABSTRACT Jílek L.: The biological activity of secondary plants metabolites II. 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. 74. 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 (Bella Estrella, Bell Song, Fruit Cup, Hill Star, Chit Chat, Martinette, Dick Sichel) were studied with respect to their acetylcholinesterase (HuAChE) and butyrylcholinesterase (HuBuChE) inhibitory activity and alkaloid patterns. Thirteen different alkaloids were identified from their mass spectra and retention times. All samples exhibited content of tazettine, most samples contained lycoramine and galanthamine. Promising HuAChE inhibition activity was demonstrated by *Narcissus jonquilla* L. cv. Bell Song with IC₅₀ values of $6,19 \pm 0,85 \mu\text{g/mL}$. The strongest inhibitory activity against HuBuChE was detected in extract from *Narcissus jonquilla* L. cv. Bella Estrella with IC₅₀ value of $18,39 \pm 1,51 \mu\text{g/mL}$. Keywords: Alzheimer's disease, Amaryllidaceae, Narcissus, GC/MS, Alkaloids, Acetylcholinesterase, Butyrylcholinesteras