

## Abstract

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

**Key words:** Narcissus, Daydream (AL-723), Gay Kybo (AL-725), High Society (AL728), Love Call (AL-734), Peach and Cream (AL-739), Sunny Girlfriend (AL-743) a Yellow Salome (AL-745), inhibition of the AChE and BuChE

For thousands of years, plants in the Amaryllidaceae family have been used as a source of medicinal remedies. Already in the fourth century B.C., Hippocrates of Cos used oil from the daffodil *Narcissus poeticus*, for the treatment of uterine tumors. In addition to the already mentioned antitumor activity, this family has a number of other important biological effects such as antimalarial, antifungal, antibacterial, antiviral, emetic, analgesic, acetylcholinesterase (AChE) and butyrylcholinesterase (BuChE) inhibitory effects [11]. This broad spectrum of properties makes them suitable candidates for the treatment of neurodegenerative diseases, cancer or malaria, whose incidence in the population is increasing. For this reason, it is very important to search for new potential drugs that could find application in the therapy of not only civilization diseases but also many others [32].

The purpose of this work was to screen the biological activity of alkaloid extracts obtained from seven cultivars of the genus *Narcissus* - Daydream (AL-723), Gay Kybo (AL-725), High Society (AL728), Love Call (AL-734), Peach and Cream (AL-739), Sunny Girlfriend (AL-743) and Yellow Salome (AL-745). Fresh bulbs were ground and extracted by ethanol (96%). Summary alkaloid extract was purified by liquid-liquid extraction. Samples of extracts from each cultivar were analyzed by GS-MS and screened for the ability to inhibit human cholinesterases at a concentration of 50 µg/ml.

Four extracts showed inhibitory activity greater than 60% (AL-723, AL-728, AL-739 and AL-745). An IC<sub>50</sub> value was determined for these extracts. The results were compared with the IC<sub>50</sub> values of the AChE/BuChE reference compounds, galanthamine (0.74 ± 0.05 and 12.41 ± 0.98 µg/ml), eserine (0.06 ± 0.00 and 0.08 ± 0.03 µg/ml) and Huperzine A (0.01 ± 0.00 µg/ml).