

Abstract

Mai T. T.: Screening of biological activity of various species of the genus *Kalanchoe*, Diploma thesis, Charles University, Faculty of Pharmacy in Hradec Králové, Department of Pharmacognosy and Pharmaceutical botany, Hradec Králové 2023.

The content of this diploma thesis was the screening of the biological activity of dried flowers, stems and roots of four species from plants of the genus *Kalanchoe*: *Kalanchoe delagoensis* Eckl. & Zeyh., *Kalanchoe fedschenkoi* Raym.-Hamet & H.Perrier, *Kalanchoe blossfeldiana* Poelln. and *Kalanchoe manginii* 'Wendy' Raym.-Hamet & H.Perrier. By boiling the dried parts of the plants with ethanol, the summary ethanolic extracts were obtained, which were subjected to control TLC to detect the presence of alkaloids using Dragendorff's reagent. The presence of alkaloids was confirmed in the species *Kalanchoe blossfeldiana* Poelln, *Kalanchoe manginii* 'Wendy' Raym.-Hamet & H.Perrier and *Kalanchoe delagoensis* Eckl. & Zeyh. Furthermore, they were subjected to evidence reactions to identify the substances contained on TLC. In comparison with the literature, the presence of flavonoids, steroids substances, coumarins, triterpenes and alkaloids was confirmed in most plant extracts. Plants extracts of *Kalanchoe blossfeldiana* Poelln (AL-756 – extract from flowers and stems) and *Kalanchoe manginii* 'Wendy' Raym.-Hamet & H.Perrier (AL-757 – extract from flowers and stems) produced negligible results with detection reagents: aluminum chloride and 2-aminoethyldiphenylborinate-PEG.

The ethanolic summary extracts of selected plants were inactive in the cholinesterases inhibitory assays using Ellman's method compared to the standards. Galantamine, huperzine A and physostigmine were used as reference substances for comparing the inhibitory activities of the extracts against AChE and BuChE.

In addition to alkaloids, flavonoids may also be responsible for cholinesterase inhibitory activity, which were published in research and was confirmed in three plants of the genus *Kalanchoe*: *Kalanchoe crenata* (Andrews) Haworth, *Kalanchoe gastonis-bornieri* Raym-Hamet et Perrier and *Kalanchoe pinnata* (Lam.) Pers.

Key words: *Kalanchoe* - roots – aerial parts - alkaloidal extracts - GC/MS analysis - biological activity - acetylcholinesterase – butyrylcholinesterase