ABSTRACT

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Title of diploma thesis: Evaluation of flavonoids content in various species of Bergenia genus

Originally an Asian genus Bergenia from the family Saxifragaceae includes 32 species described so far and many hybrids that were created by crossing them. The leaves and rhizomes of bergenia used widely in folk medicine of China, India, Mongolia, and Russia are rich in a wide range of chemical constituents. The most important secondary metabolites of this plant are tannins, arbutin, bergenin, but also flavonoids. The drug is valued for its litholytic, antioxidant, anti-inflammatory, antipyretic, or antitussive properties.

This work aimed to determine flavonoid content in red and green leaves of *Bergenia crassifolia* (L.) Fritsch, *Bergenia ciliata* (Haw.) Sternb. and *Bergenia x ornata* Guill. and their comparison with each other depending on the harvest period and climatic conditions. The samples were obtained from the botanical garden of the Faculty of Horticulture of Mendel University in Lednice. Flavonoid content was determined spectrophotometrically.

The highest flavonoid content was measured in *B. ciliata* (1.1829 ± 0.0255 %). The amount of flavonoids in leaves was affected by the length of sunlight and humidity in all selected species. In *B. ciliata* and *B. x ornata* the flavonoid content was also shown to be influenced by temperature and rainfall during the growing season. *B. crassifolia* was less affected by these factors. The spring months are the most suitable for leaf harvesting to maximize flavonoid content in *B. ciliata* and *B. x ornata*. For *B. crassifolia*, autumn seems to be the most suitable season for leaf harvest. The flavonoid content of the red leaves from the autumn harvest was higher than of the green ones.

Keywords: Bergenia, leaves, secondary metabolites, flavonoids, harvesting season