Abstract:

Plants have to cope with the change in the various environmental factors, the change of these factors means stress for plants. Stress factors can cause damage that lead to inhibition of growth and photosynthesis, resulting in the extreme cases in the death of the whole organism and negatively affect farm yields. Plants have to develop defensive mechanisms, including the accumulation of anthocyanins in leaves.

The aim of the present review is to summarize the knowledge about the influence of stress factors on the accumulation of anthocyanins in leaves and about the function of anthocyanins in the protection. Anthocyanins most often act as antioxidants that react with ROS and inactivate them, they can also act as filters against UV radiation and as a protection against herbivores. Further, there are summarized the knowledge about spectral methods of detection of anthocyanins in leaves with emphasis on non-destructive detection methods.

Spectral methods allow the analysis of anthocyanins based on the interaction of the leaf and its chemical components with the incident radiation. The most commonly used method is UV-VIS spectrophotometry. In order to study pigment change in leaves during ontogenetic development, non-destructive methods of pigment detection should be used. Suitable method can allow us to observe the change in leaf pigmentation over time and to better understand these defense mechanisms of plants.

Key words: anthocyanins, stress factors, plant stress response, spectral methods, non-destructive detection