

SUMMARY

The diploma thesis deals with the determination of vitamin E in grains of wheat kernels with unusual coloring. In the theoretical part is mentioned botanical characterization of wheat, barley and tritordeum, vitamin E and its chemical and biological aspects and basics of chromatography with a focus on the high performance liquid chromatography (HPLC).

The analysis to quantify vitamin E was performed in the experimental part of the thesis. The analysis was conducted with samples of winter and spring wheat, spring barley and spring tritordeum from harvests of 2014 and 2015. These were varieties with unusual coloring of the grain. The evaluation was conducted by variety (winter wheat, spring wheat, spring barley, spring tritordeum) and by the color of the kernels (blue aleuron, purple pericarp, yellow pericarp). Subsection part of the thesis is dedicated to a quantification of vitamin E during long-term storage.

Based on the determination of total vitamin E amount in all analyzed varieties of cereal grains with a different color is not statistically significant difference in the values of the total amount of vitamin E. The difference between the content of vitamin E in the samples of the same varieties of different cereals harvest from a year 2014 and a year 2015 were not statistically significant. All varieties of wheat were quantified four vitamers: α -tocopherol, β -tocopherol, α -tocotrienol and β -tocotrienol. The amount of other vitamers was below the limit of detection. The total content of vitamin E and contents of individual vitamers coincide with the data given in the literature for wheat varieties with standard color of grain. Spring barley contained a slightly higher average levels of total vitamin E amount in comparison with varieties of spring and winter wheat. The total average amount of vitamin E in varieties of spring tritordeum was also slightly higher than in varieties of winter and spring wheat. From the long term storage point of view, it is clear that the total amount of vitamin E in both varieties is relatively stable and shows no clear trend in function of storage time.

Key words: wheat grains with an unusual coloring, tocopherols, tocotrienols, HPLC