

# **SUMMARY**

## **The impact of varietal differentiation on the pro-health value of selected vegetable species**

mgr inż. Joanna Kotula

Nowadays processing industry, breeding and seed sector, agricultural sector, scientific community (technologists and doctors) and consumers interest of food with health-promoting properties is increasing. Based on epidemiological research from the last quarter-century it has been proven, that plant-based food contains many active substances which counteract civilizational diseases. Consequently sector of food with health-promoting properties is one of the best profitable and quickly developing branches of economy. In order to meet current requirements of food economy it is necessary to identify, compare qualities and evaluate bioactive components, contained in those products, that are very popular among consumers and are consumed at high frequency, and those whose cultivation in Poland is possible. Bearing in mind above guidelines, the research purpose covered twelve varieties of green beans, eighteen varieties of onion, five varieties of brussels sprouts, four varieties of broccoli and four varieties of tomato which have been cultivated in Poland.

Theoretical part of the thesis presents information about biological progress in agricultural plant production and also shows role of vegetables as constituents of functional food with particular reference to their health-promoting properties, which result from the content of biologically active compounds. In addition, this part contains information about vegetables that are the subject of present thesis, including among others: botanical characteristic of species and their health-promoting properties. Another element described in theoretical part is general information about bioactive compounds with particular reference to polyphenolic compounds – their occurrence and biological activity.

In the experimental part identification and evaluation of the content of bioactive compounds was conducted, in particular varieties of vegetables, with particular reference to polyphenolic compounds and evaluation of their antioxidant activity (ABTS, DPPH, ORAC). In the next phase the analysis of chemical composition of tested varieties was carried out. In addition biological activity was determined by testing content of ascorbic acid in the raw material.

Based on conducted research, those varieties were selected, which may diversify raw material base in breeding sector, fruit and vegetables sector and processing industry. Being marked by high content of biologically active compounds, high concentration of ascorbic acid, high antioxidant activity and good quality of chemical composition, those varieties may be recommended as components in production of functional food.

Data złożenia i podpis