

Antioxidant properties of flours of different origins

Karolina Miśkiewicz, Ewa Nebesny, Justyna Rosicka-Kaczmarek, Dorota Żyżelewicz

Institute of Chemical Technology of Food, Department of Starch Technology
and Confectionery, Lodz University of Technology, Lodz
karolina.miskiewicz@tlen.pl

INTRODUCTION

Plant materials are a rich source of many biologically active compounds that can be applied to food products or intended for direct consumption. Among the plant products Among the plant products with a particularly high antioxidant activity are berries, herbs, spices, grains and legumes. Flour is one of the main raw materials used in both bakery and pastry industry. Flours are rich in biologically active compounds and possess antioxidant properties. According to the literature, botanical origin of raw vegetable materials affects the polyphenol content as well as the antioxidant properties of flours derived from them [1].

The aim of the study was to determine the polyphenol content and antioxidant properties of flours of different origins.

EXPERIMENTAL METHODS

The analysis included the following types of flour: Poznańska wheat flour type 500, spelled flour type 630, rice flour, chickpea flour and flour from the seeds of Amaranthus. The latter three were used as a mixture with Poznańska wheat flour type 500 respectively in the ratios: 1:1 m/m, 1:1 m/m and 3:1 m/m. In these flour blends were determined: total polyphenol content by spectrophotometric method [2] and DPPH radical scavenging ability [3].

RESULTS AND DISCUSSION

The analysis of the total polyphenol content showed that the highest content (2.24 mg/100g of dry matter) has spelled flour, whereas the lowest (0.80 mg/100g of dry matter) was reported for the blend of wheat and rice flour (1:1 m/m). The total polyphenol content in wheat flour and in blend of wheat flour and flour from the seeds of Amaranthus were at a similar level, reaching approx. 1.06 mg/100g of dry matter. Research on DPPH radical scavenging ability of flour showed that the best ability has spelled flour (69.83 mg/mg DPPH), whereas the lowest (83.42 mg/mg DPPH) was reported for the blend of wheat and chickpeas flour (1:1 m/m).

CONCLUSION

Obtained results showed the influence of the botanical origin of the raw material on the polyphenol content and antioxidant properties of flour. Among the analyzed flours, spelled flour was characterized by both the highest polyphenol content and the best antioxidant properties.

REFERENCES

1. Fogliano V. et al., *J Agric Food Chem.* 47(3): 1035-40, 1999.
2. Li W. et al., *J. Agric. Food Chem.* 53: 8533-8536, 2005.
3. Scherer R., Godoy H.T., *Food Chemistry*, 112: 654-658, 2009.

ACKNOWLEDGMENTS

The research was carried as part of a development project R12 0086 06 funded by the National Centre for Research and Development.