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Physical and sensory properties of bread enriched with phenolic aqueous extracts from vegetable wastes

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The water of the breads was replaced with phenolic aqueous extracts from chicory, cabbage, celery, fennel, olive leaf, or grape marc wastes obtained through microwave-assisted extraction. The highest phenolic concentrations were found in the grape marc and in the bread enriched with it. The highest antioxidant activity values were measured in the crust of bread produced with the grape marc extract and in the crumb of bread with olive leaf extract. Generally, the replacement of water caused significant decreases of the specific volume, the shift of the crumb colour towards redder and yellower tones, and modification of gustatory and tactile attributes.

Keywords:

antioxidant activity; functional food; phenolic compounds; sensory properties

References:

AACC (2003): Approved Methods. 44-15A, Moisture – Air-Oven Methods. St. Paul, American Association of Cereal Chemists.

Brand-Williams W., Cuvelier M.E., Berset C. (1995): Use of a free radical method to evaluate antioxidant activity. LWT - Food Science and Technology, 28, 25-30
<[doi:10.1016/S0023-6438\(95\)80008-5](https://doi.org/10.1016/S0023-6438(95)80008-5)>

Bucić-Kojić Ana, Planinić Mirela, Tomas Srećko, Jokić Stela, Mujić Ibrahim, Bilić Mate, Velić Darko (2011): Effect of Extraction Conditions on the Extractability of Phenolic Compounds from Lyophilised Fig Fruits (*Ficus Carica* L.). Polish Journal of Food and Nutrition Sciences, 61, - <[doi:10.2478/v10222-011-0021-9](https://doi.org/10.2478/v10222-011-0021-9)>

del Castillo María Dolores, Ames Jennifer M., Gordon Michael H. (2002): Effect of Roasting on the Antioxidant Activity of Coffee Brews. Journal of Agricultural and Food Chemistry, 50, 3698-3703
<[doi:10.1021/jf011702q](https://doi.org/10.1021/jf011702q)>

Delgado-Andrade Cristina, Morales

Francisco J. (2005): Unraveling the Contribution of Melanoidins to the Antioxidant Activity of Coffee Brews. Journal of Agricultural and Food Chemistry, 53, 1403-1407
<[doi:10.1021/jf048500p](https://doi.org/10.1021/jf048500p)>

Gorinstein Shela, Caspi Abraham, Zemser Marina, Trakhtenberg Simon (2000): Comparative contents of some phenolics in beer, red and white wines. Nutrition Research, 20, 131-139
<[doi:10.1016/S0271-5317\(99\)00145-1](https://doi.org/10.1016/S0271-5317(99)00145-1)>

Gonzalez R.C., Woods R.E., Eddins S.L. (2004): Digital Image Processing Using MATLAB. Upper Saddle River, Pearson Prentice Hall.

Horszwald Anna, Troszyńska Agnieszka, del Castillo Maria Dolores, Zieliński Henryk (2009): Protein profile and sensorial properties of rye breads. European Food Research and Technology, 229, 875-886
<[doi:10.1007/s00217-009-1129-6](https://doi.org/10.1007/s00217-009-1129-6)>

MASOODI F. A., CHAUHAN G. S. (1998):
USE OF APPLE POMACE AS A

SOURCE OF DIETARY FIBER IN WHEAT BREAD. Journal of Food Processing and Preservation, 22, 255-263 <[doi:10.1111/j.1745-4549.1998.tb00349.x](https://doi.org/10.1111/j.1745-4549.1998.tb00349.x)>

Radojkovic M., Zekovic Z., Jokic S., Vidovic S., Lepojevic Z., Molosevic S. (2012): Optimization of solid-liquid extraction of antioxidants from black mulberry leaves by response surface methodology. Food Technology and Biotechnology, 50: 167–176.

Re R., Pellegrini N., Proteggente A., Pannala A., Yang M., Rice-Evans C. (1999): Antioxidant activity applying an improved ABTS radical cation decolorization assay. Free Radical Biology & Medicine, 26: 1231–1237.

Rupasinghe H.P.V., Wang L., Huber G.M., Pitts N.L. (2008): Effect of baking on dietary fibre and phenolics of muffins incorporated with apple skin powder. Food Chemistry, 107: 1217–1224.

Sivam Anusooya S., Sun-Waterhouse Dongxiao, Quek SiewYoung, Perera Conrad O. (2010): Properties of Bread

Dough with Added Fiber Polysaccharides and Phenolic Antioxidants: A Review. Journal of Food Science, 75, R163-R174 <[doi:10.1111/j.1750-3841.2010.01815.x](https://doi.org/10.1111/j.1750-3841.2010.01815.x)>

Sivam Anusooya S., Sun-Waterhouse Dongxiao, Waterhouse Geoffrey I.N., Quek SiewYoung, Perera Conrad O. (2011): Physicochemical Properties of Bread Dough and Finished Bread with Added Pectin Fiber and Phenolic Antioxidants. Journal of Food Science, 76, H97-H107 <[doi:10.1111/j.1750-3841.2011.02086.x](https://doi.org/10.1111/j.1750-3841.2011.02086.x)>

Wang Rong, Zhou Weibiao (2004): Stability of Tea Catechins in the Breadmaking Process. Journal of Agricultural and Food Chemistry, 52, 8224-8229 <[doi:10.1021/jf048655x](https://doi.org/10.1021/jf048655x)>

Zieliński Henryk, Michalska Anna, Ceglińska Alicja, Lamparski Grzegorz (2008): Antioxidant properties and sensory quality of traditional rye bread as affected by the incorporation of flour with different extraction rates in the formulation. European Food Research

and Technology, 228, 371-388
<[doi:10.1007/s00217-007-0576-1](https://doi.org/10.1007/s00217-007-0576-1)>

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