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BOOK OF ABSTRACTS

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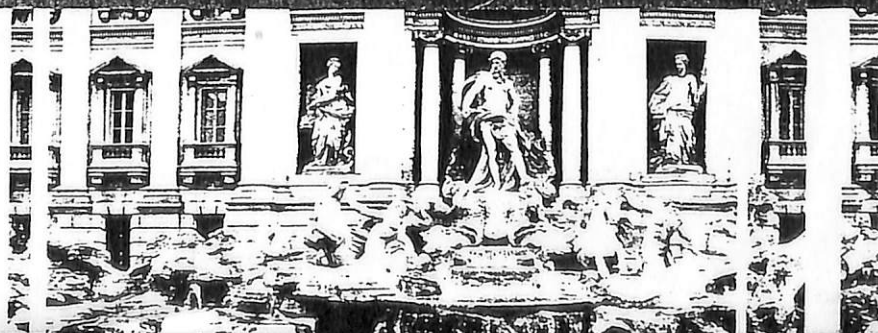
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Using hazelnut skin as a source of dietary fibre and antioxidant in fresh pasta

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Dietary fibre is the edible part of carbohydrates that cannot be digested but partially or totally fermented in the human intestine. Cereal brans and whole grain rye are the principal dietary fibres used as additional ingredients in the production of pasta. Except for these dietary fibre sources, hazelnut skin, obtained by brushing after roasting process, is another source characterized by some phenolic compounds with antioxidant property, as well as by dietary fibre, it can be named antioxidant dietary fibre (AODF) (Saura-Calixto, 1998). Nowadays, it is used as bedding for horses or as antioxidant source by pharmaceutical industry, but it was not yet used by food industry. Therefore, the aim of this study was to evaluate the use of different percentages of hazelnut skins as an additional source of dietary fibre and antioxidant content in fresh pasta.

Hence, four different skins from Tonda Gentile Trilobata (TGT), Tombul, San Giovanni and Georgia hazelnut varieties were used as replacement of the flour at three different percentage (5%, 10% and 15%) in the production of fresh pasta. The fresh pasta was subjected to nutritional label and fibre content analyses to evaluate the possibility to use the claim "source of fibre" or "high in fibre" as reported by the Regulation (CE) 1924/2006. The fresh pasta was also subjected to the total phenolic content analysis (Folin-Ciocalteu method) and to the evaluation of the antioxidant capacity by using DPPH and ABTS methods. The cooked fresh pasta was also subjected to texture and the sensory analyses.

From the obtained results, it was possible to underline that the claim "source of fibre" can be used for all samples, while the claim "high in fibre" is applicable only to those where the flour was substituted with an amount higher than 5%. As regards the total phenolic content an increase of the content, correlated to the addition of the hazelnut skin percentage, was observed. In particular, the fresh pasta made with the Georgia hazelnut skin was the sample with the highest total phenolic content in all used percentages. Instead, after cooking pasta with a decreased total phenolic content, the pasta obtained by using the TGT hazelnut skin showed the highest content. Regarding the antioxidant capacity, values increased in correlation with the percentage used. In particular, among the samples the pasta made with 15% of TGT hazelnut skin showed the highest value before and after the cooking process. The texture analyses underlined a decrease of the work value from the samples with 5% to 15% of hazelnut skin maybe due to the spherical obstruction of the hazelnut skin that led to the destruction of gluten reticulum. Instead, the sensory analysis highlighted that the fresh pasta made by using the 5% of hazelnut skin were the most appreciated by consumers.

Results showed, for the first time, that hazelnut skin could be used as ingredient in functional food and appreciated by consumers.

Keywords: fresh pasta, hazelnut skin, dietary fibre, antioxidant capacity

References

Saura-Calixto, F. (1998) Antioxidant dietary fibre product: a new concept and a potential food ingredient. *Journal of Agricultural and Food Chemistry*, 46, 4303-4306.