ULST Timisoara
Multidisciplinary Conference on Sustainable Development
30-31 May 2024

2024 MULTIDISCIPLINARY CONFERENCE ON SUSTAINABLE DEVELOPMENT

BAKERY SPECIALTY WITH ADDITION OF NETTLE - OBTAINING AND CHARACTERIZATION

Camelia Moldovan[1], Corina Dana Mișcă[1], Viorica-Mirela Popa[1], Diana Nicoleta Raba[2], Diana-Veronica Radu[1], Bogdan Petru Rădoi[1], Aurica Breica Borozan[3], Cristina Elena Toța[3], Mariana Atena Poiana[1], Delia-Gabriela Dumbravă[1*]

[1] University of Life Sciences "King Michael I" from Timisoara, Faculty of Food Engineering, 119 Aradului Street, 300645 Timisoara, Romania.
[2] University of Life Sciences "King Mihai I" from Timisoara, Faculty of Management and Rural Turism, 119 Aradului Street, 300645, Romania
[3]University of Life Sciences "King Mihai I" from Timisoara, Faculty of Engineering and Applied Technologies, 119 Aradului Street, 300645, Timisoara, Romania

**corresponding author, e-mail: deliadumbrava@usvt.ro*

Abstract

In this work we obtained a bakery specialty enriched with nettle. The use of nettle as an additive is justified by nutritional and nutraceutical properties, being notable for its fiber, mineral and vitamin content, as well as antioxidant compounds. The optimal recipe has been established for the use of pureed nettle at a percentage of 10%. The bakery specialties obtained were sensory characterized, presenting a very good acceptability, the smell and taste being better appreciated than in the control group. Moisture and porosity were higher (43.1% and 75.9% respectively) in the fortified samples than in the control (41.4% and 75% respectively). The level of total polyphenols (12.95 g gallic acid / g) of the nettle-fortified variant was close to that of the control variant (12.95 g gallic acid / g). The DPPH free radical scavenging activity was superior, the RSA for the control was 36.11%, and 50.51% in the fortified variant. The proximate composition showed a reduction in carbohydrate (42.5%) and protein content (9.62%), but an increase in fiber content (4.37%) of the fortified version. Nettle has been proven once again to be a valuable ingredient for the development of enriched foods with improved nutritional and functional properties.

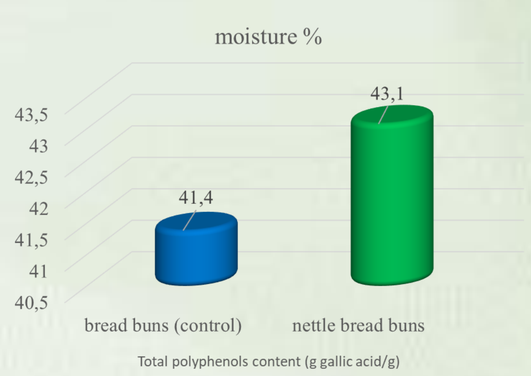
Introduction

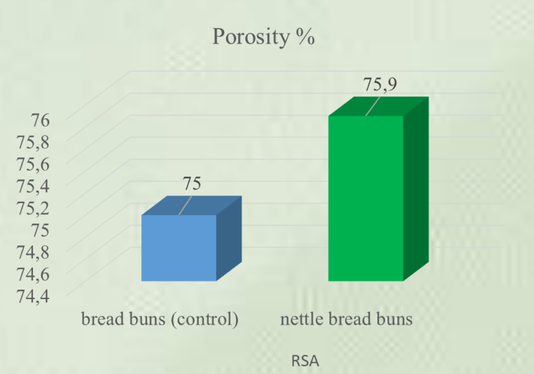
The biological activity of nettle has been investigated in numerous studies showing that the plant and its extracts have antioxidant, antimicrobial, anti-inflammatory, antiviral, antiulcer, hypolipidemic activities (Gülçin *et al.*, 2004; Kukric *et al.*, 2012; Orčić *et al.*, 2014; Upton, 2013; Zeković *et al.*, 2017). Nettle is also an important source of minerals (Ca, Fe, Mg, P, K, Na) and vitamins (C and B complex). It also contains a relevant amount of protein, chlorophyll and carotenoids such as β-carotene and lutein. Nettle leaves are also rich in polyphenols, mainly flavonoids and phenolic acids (Maietti *et al.*, 2021). The use of their nettle leaves for the purpose of fortifying some food products is more recent. Various recipes have been formulated for pasta with nettle leaves (Maietti *et al.*, 2021), bread (Đurović *et al.*, 2020; (Wójcik, 2021).

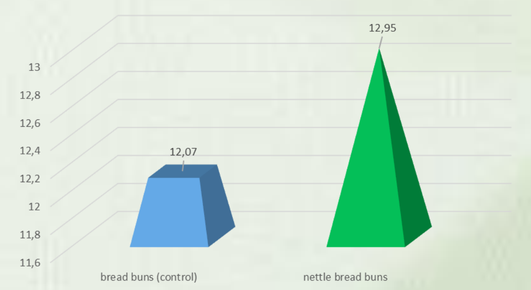
Material and method

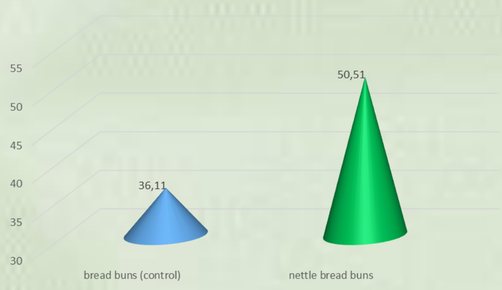


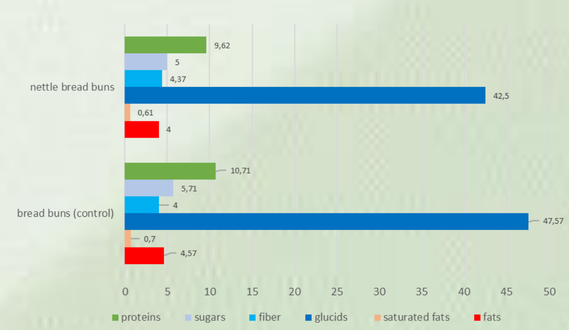

Results and discussions

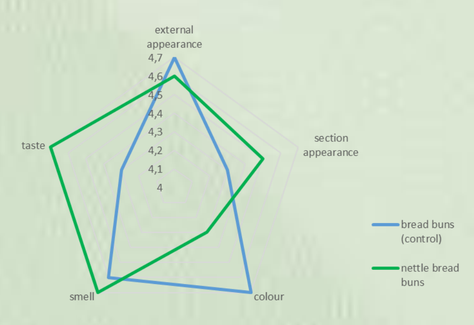












Conclusions

- the recipe was optimized so as to establish a balance between the technological characteristics and quality, sensory and physical-chemical properties;
- the addition of nettle in buns led to an increase in antioxidant activity and polyphenol content;
- the degree of acceptability of nettle buns was very high, which indicates that the evaluated products have a high chance of reaching the market;
- the proximate composition showed improvements in the dietary fiber content, but also a decrease in the carbohydrate content in the version with nettle;
- nettle leaves are a valuable ingredient for the development of fortified foods with improved nutritional and functional properties.