



GLUTEN-FREE OATMEAL COOKIE ENRICHED WITH CRANBERRIES (*Vaccinium macrocarpon*) AND MATCHA POWDER (*Camellia Sinensis*)

*corresponding author: dossasylvestre@usvt.ro

Sylvestre Dossa*, Alexandru Baltatu, Christine Dragomir, Daniela Stoin and Ersilia Alexa

Faculty of Food Engineering, University of Life Sciences "King Mihai I" from Timisoara,
Calea Aradului No. 119, 300645 Timisoara, Romania

Abstract: The present study analysed three types of cookies containing 0%, 5%, and 10% matcha powder, demonstrating that cookies enriched with matcha exhibited enhanced mineral and protein composition, but reduced lipid and carbohydrate content. The polyphenol content exhibited an increase with elevated levels of matcha powder, reaching a maximum of 1287.50 milligrams of gallic acid equivalent per kilogram in the cookies containing 10% matcha. In organoleptic tests, the cookies containing 10% matcha were found to be the preferred option due to their enhanced sensory characteristics, including taste, color, and appearance.

Keywords: Gluten-free cookies; celiac disease; rheological perspective; matcha powder; cranberries.

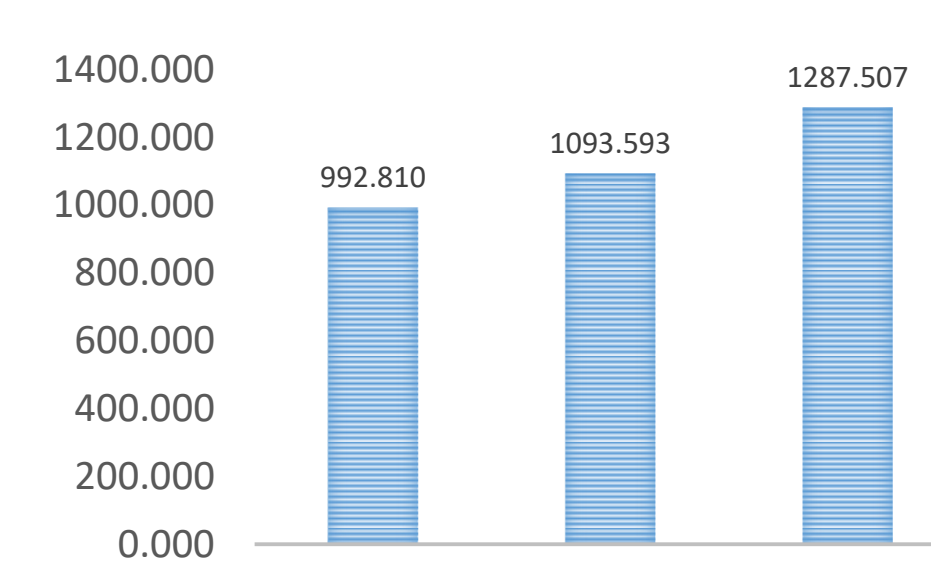
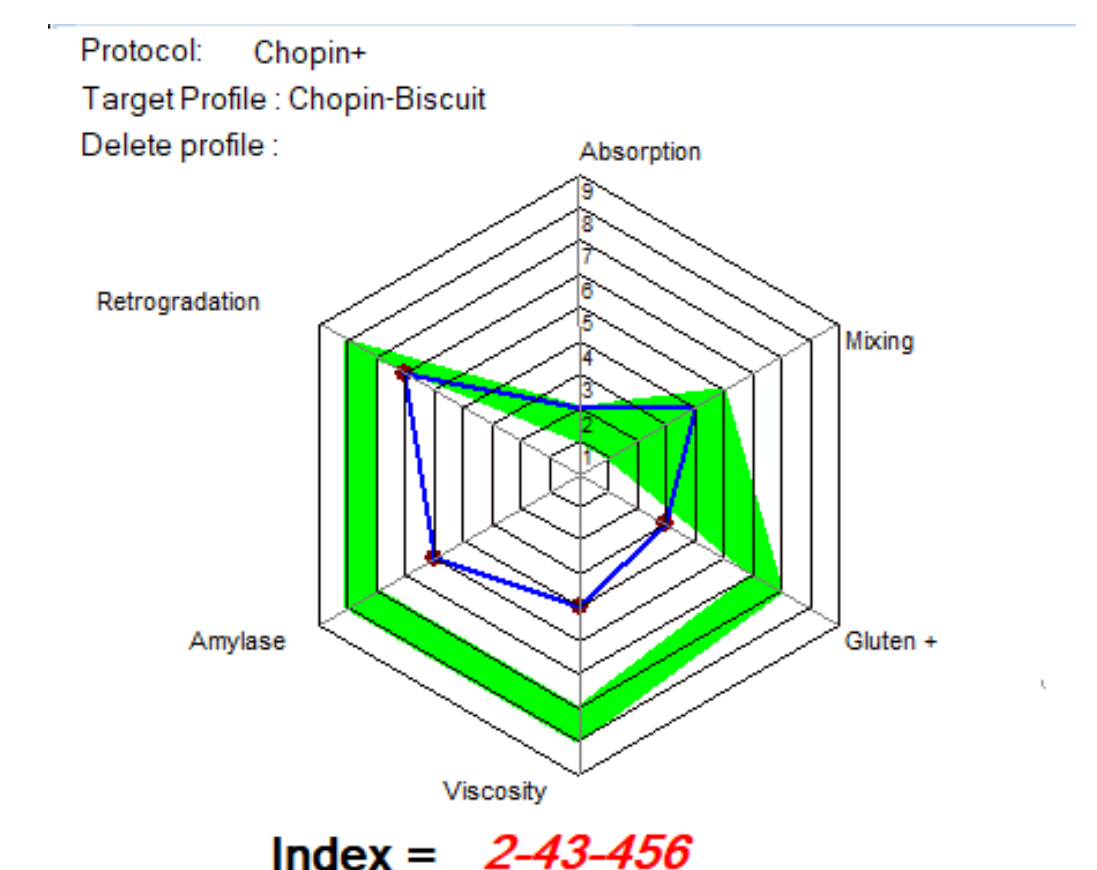
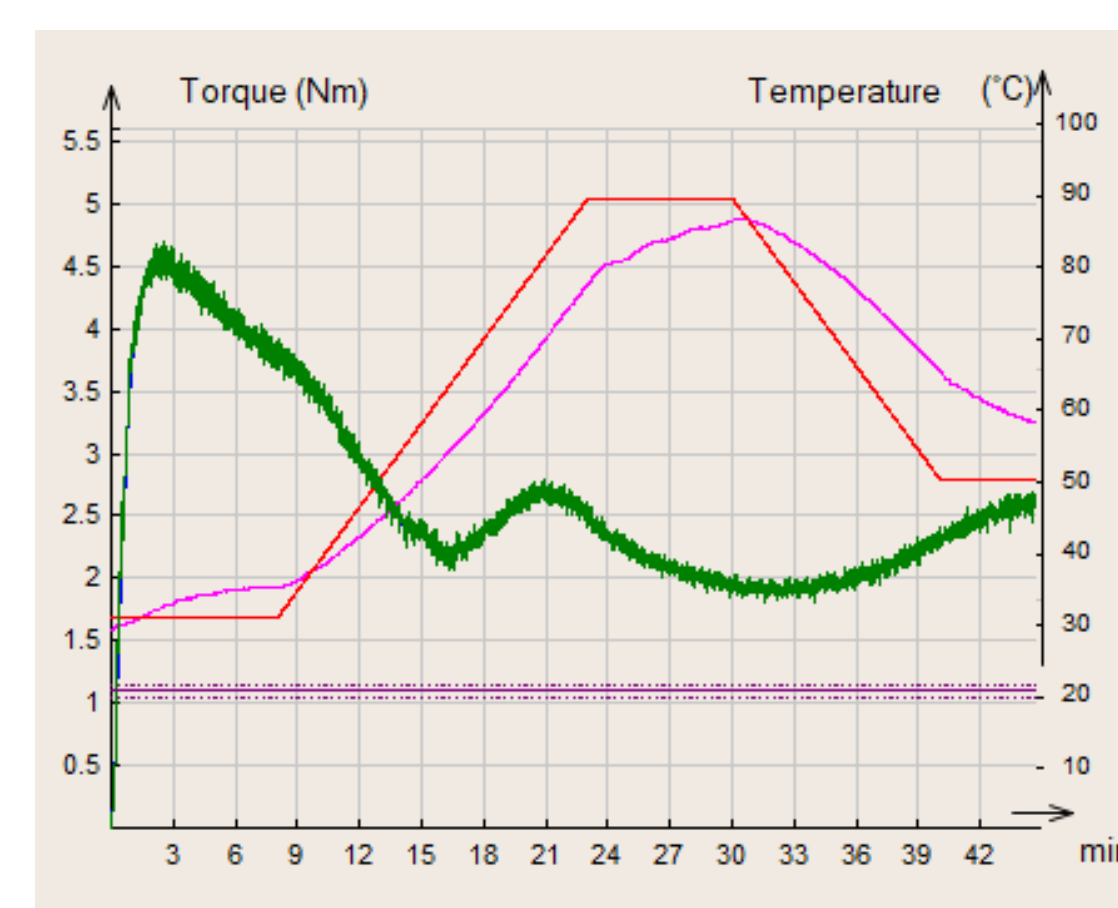
• Introduction

The development of oat-based cookies enriched with matcha powder and cranberries aims to combine pleasure with nutritional benefits. Fiber-rich oats help regulate cholesterol and blood sugar levels. Matcha and its antioxidants offer anti-inflammatory and energizing properties, reinforced by cranberries rich in polyphenols. This innovation makes it possible to create healthy, tasty cookies that meet the expectations of nutrition-conscious consumers.

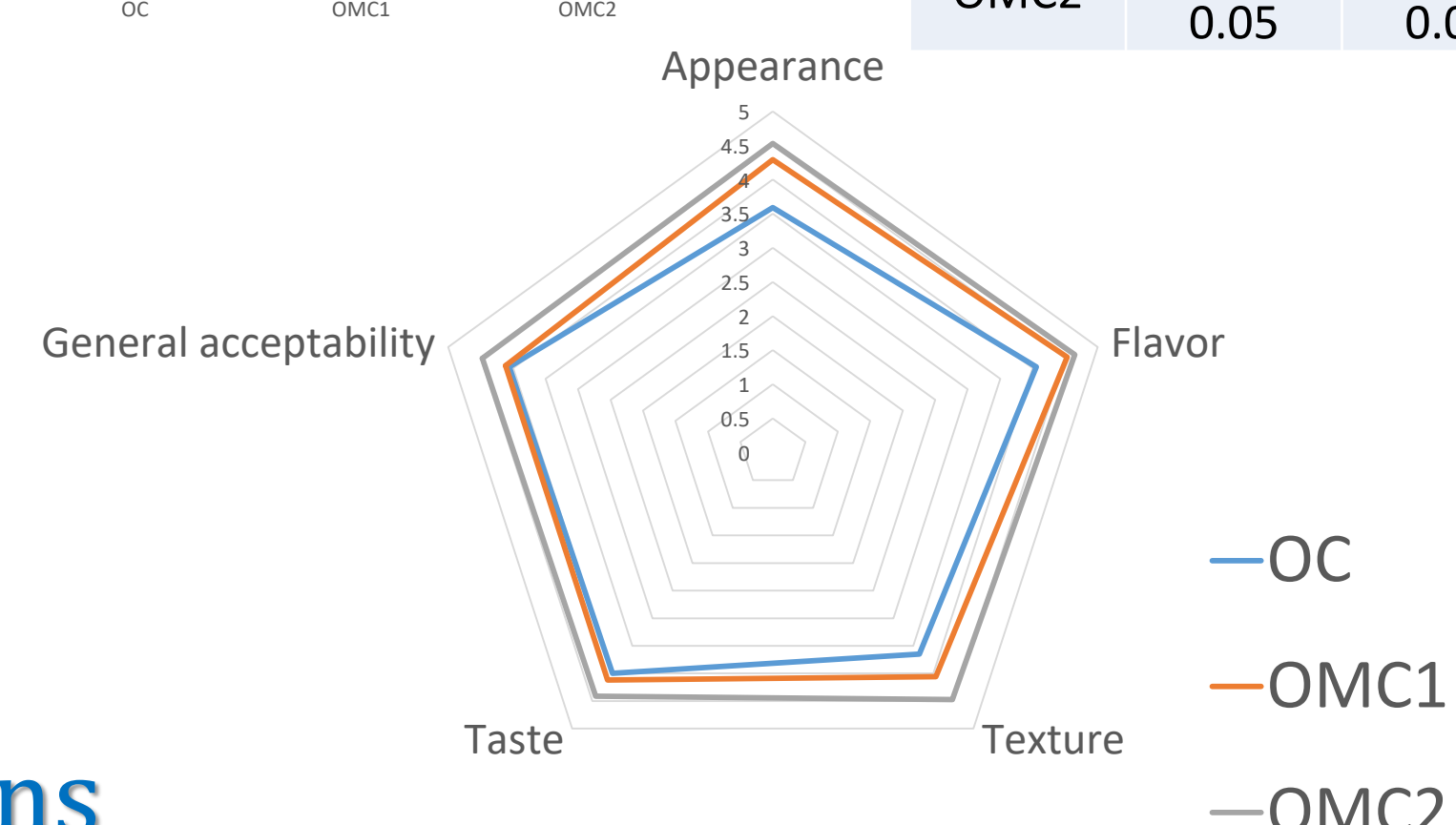
• Material and method

The samples obtained were then analyzed in terms of nutritional value, phenolic compounds, and organoleptic properties. The flour, composed of 90% oats and 10% matcha powder (FCOM2), was analyzed from a rheological perspective.

• Results and discussions



Samples	Nutritional characteristics				
	Humidity (%)	Ash (%)	Proteins (%)	Lipids (%)	Carbohydrates (g/100 g)
Composite flours					
OF	9.80 ± 0.02	1.83 ± 0.01	14.26 ± 0.05	5.33 ± 0.03	68.78 ± 0.04
MF	6.01 ± 0.01	5.2 ± 0.02	31.28 ± 0.05	3.65 ± 0.02	58.86 ± 0.06
FCOM1	9.69 ± 0.24	2.66 ± 0.02	16.05 ± 0.06	4.40 ± 0.05	67.2 ± 0.13
FCOM2	9.55 ± 0.01	3.1 ± 0.18	19.16 ± 0.05	4.12 ± 0.03	64.07 ± 0.17
Cookies					
OC	11.15 ± 0.02	1.95 ± 0.03	11.21 ± 0.01	15.12 ± 0.02	60.57 ± 0.02
OMC1	10.80 ± 0.04	2.89 ± 0.01	12.91 ± 0.01	14.65 ± 0.03	58.75 ± 0.06
OMC2	10.66 ± 0.05	3.95 ± 0.03	13.25 ± 0.02	14.05 ± 0.01	58.09 ± 0.03



Conclusions

Matcha powder can enrich flour products such as biscuits by up to 10% to improve their nutritional, phytochemical, and sensory characteristics. The gluten-free biscuits obtained in the present study were also recommended for people with celiac disease.