

# TECHNOLOGICAL AND NUTRITIONAL QUALITY OF HIGH PROTEIN GLUTEN-FREE PASTA

Dubravka ŠKROBOT<sup>1</sup>, Nikola MARAVIĆ<sup>1\*</sup>, Jelena TOMIĆ<sup>1</sup>, Mladenka PESTORIĆ<sup>1</sup>, Olivera ŠIMURINA<sup>1</sup>



<sup>1</sup>University of Novi Sad, Institute of Food Technology, Bulevar cara Lazara 1, 21000 Novi Sad, Serbia

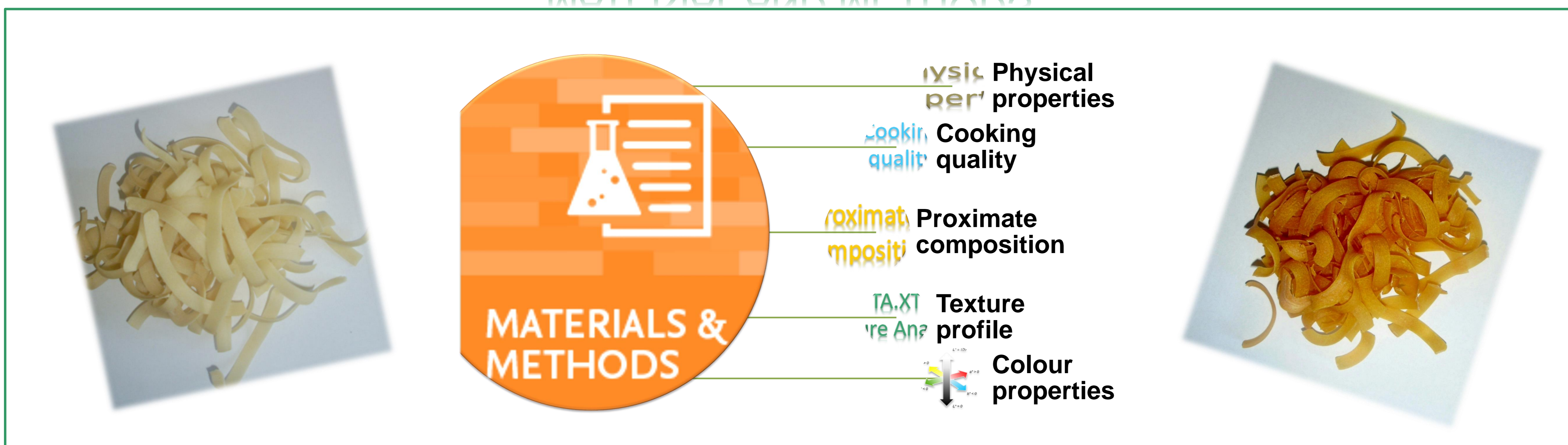


\*contact: nikola.maravic@fins.uns.ac.rs

## INTRODUCTION

In the population that follows gluten free diet, a lot of complicate immune reactions can occur. The intestinal mucosa can be damaged which can cause inability to absorb nutrients. Furthermore, that can lead to development of a lot of diseases such as anemia, osteoporosis, arthritis, autoimmune and malignant diseases. Gluten free diet is characterized by lower content of vitamins, fibers, minerals, proteins, and imbalanced nutrient content. Addition of chickpea and pumpkin seed oil press-cake flour to commercial gluten free baking mix could have positive impact on nutritive content of obtained final product. That assumption is based on fact that chickpea has high protein content (23-27%), especially lysine, high fibre content and low glycaemic index. On the other hand, pumpkin seed oil press-cake flour contains up to 50% of proteins with favourable amino acid content and is source of fiber and minerals (P, K, Mg, Mn i Ca). Lower content of lysine in pumpkin seed press-cake is compensated with addition of chickpea flour.

## MATERIALS AND METHODS



## RESULTS



Figure 1. Textural properties (hardness, flexibility and toughness) of uncooked pasta

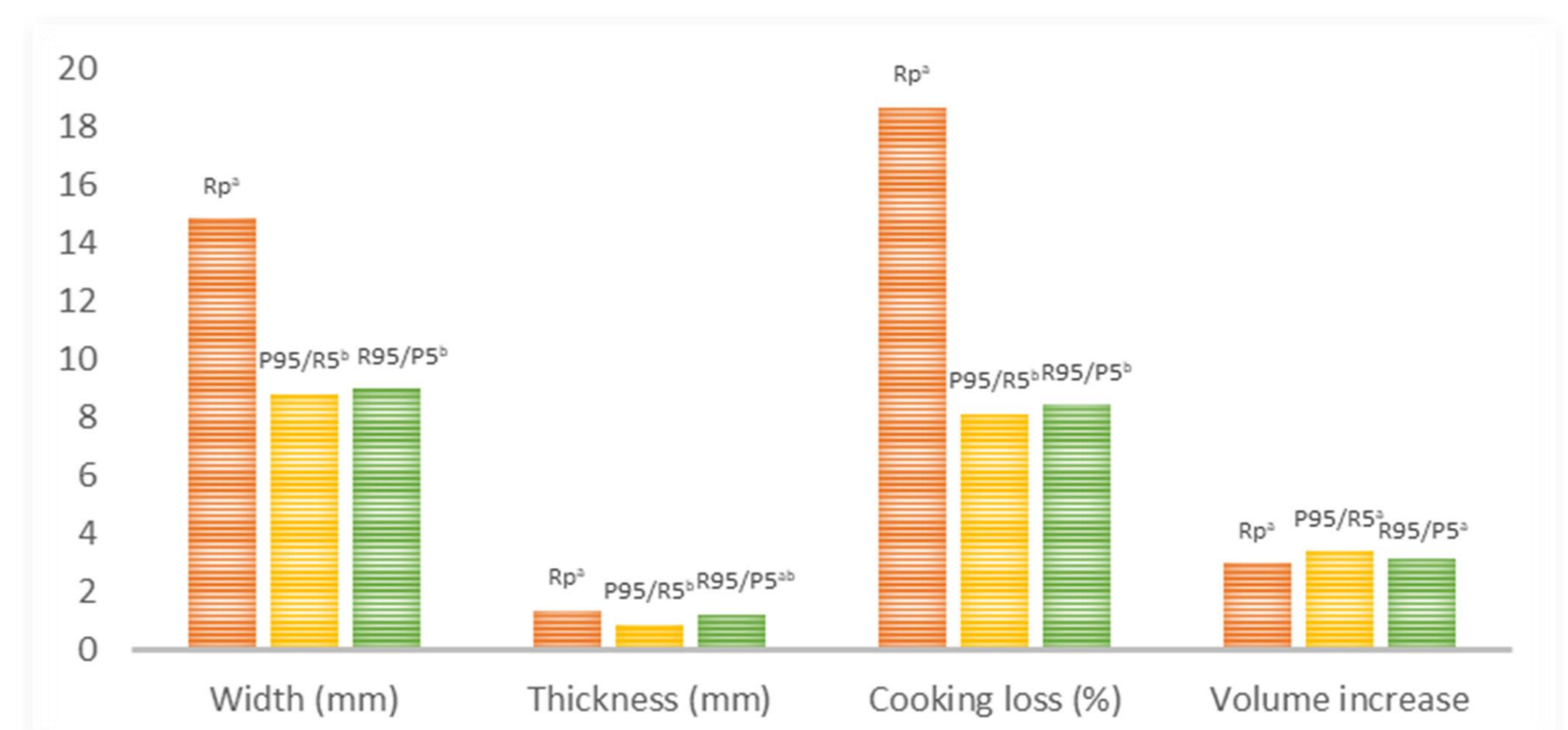


Figure 2. Physical properties (width, thickness) and cooking quality (cooking loss, volume increase) of pasta

	Rp	R95/P5	P95/R5
Moisture	10.62	12.33	11.22
Protein	7.12	8.57	20.43
Fat	1.08	1.21	1.45
Ash	1.32	1.58	2.55
Carbohydrates	79.86	76.32	64.35

Table 1. Proximate composition (g/100g) of pasta

## CONCLUSIONS

- Protein content of pasta based on pea flour (P95/R5) is more than two folds higher than rice pasta (Rp) and rice-based pasta (R95/P5).
- Dry rice based pasta (R95/P5) showed significantly higher hardness and fracturability, while cooked R95/P5 pasta was more adhesive and significantly ( $p < 0.05$ ) less elastic, cohesive, and chewing.
- Cooking loss for pasta samples were lower than rice pasta (Rp) and comparable with gluten containing pasta.
- The results indicate that pea flour may be used for production of protein enriched pasta without altering quality properties.