NUTRITIONAL VALUE OF PUFF PASTRY ENRICHED WITH CHIA SEEDS AND DIETARY FIBERS

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Introduction

Bakery products such as puff pastry are products with high energy value as a consequence of high fat content that has a crucial role in the formation of products' flaky texture.
In the aim to increase nutritional value of puff pastry (to increase the content of both soluble and insoluble dietary fibers and minerals) the formulation of puff pastry dough was modified with the use of whole wheat flour and with the addition of chia seeds and sugar beet fibers.

Results & Discussion

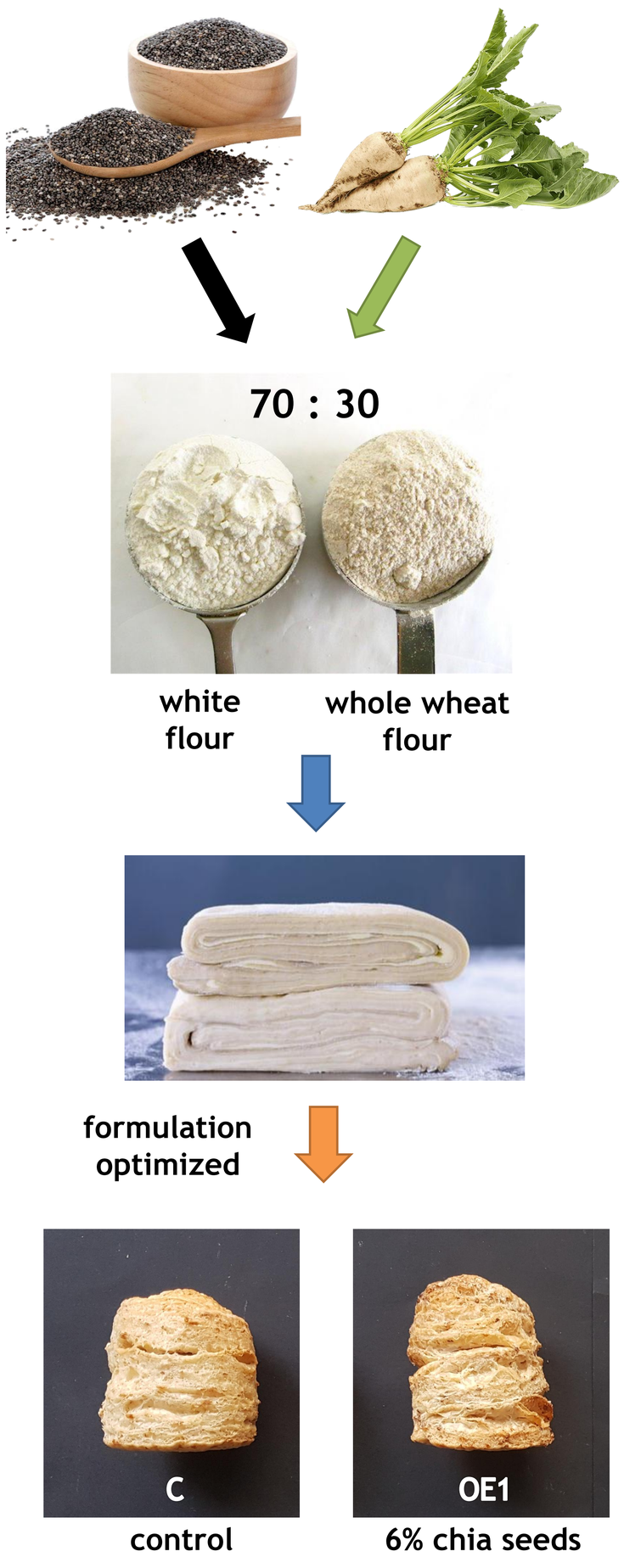
Table 1. Nutritional composition and energy value of 100 g of puff pastry

Nutrients	Sample			
	C	OE1	OE2	OD
Energy value (kJ/kcal)	1926/460	1968/470	1855/443	1909/456
Fat (g)	27.78	29.71	27.22	26.57
Saturated fatty acids (g)	*15.50*	*15.99*	*14.78*	*14.35*
Total carbohydrates (g)	42.15	39.55	39.49	42.92
Total dietary fibers (g)	3.44	5.04	5.63	6.17
Insoluble dietary fibers (g)	*2.37*	*3.77*	*4.35*	*3.98*
Soluble dietary fibers (g)	*0.62*	*1.16*	*1.09*	*1.49*
Proteins (g)	8.66	8.60	7.38	8.30
Salt (g)	1.21	1.13	1.18	1.19

Table 2. Percentage of the recommended daily intake of minerals when consuming 100 g of puff pastry

Minerals	RDI	15% RDI	%RDI			
			C	OE1	OE2	OD
Fe (mg)	14	2.1	14.78	21.07	14.56	18.21
Mg (mg)	375	56.25	14.66	20	12.80	17.10
Mn (mg)	2	0.3	70	85	58	95
Zn (mg)	10	1.5	12	18	13.80	15.40

*RDI – recommended daily intake of minerals;15% RDI – significant amount of minerals; %RDI – percentage of mineral intake in relation to RDI when consuming 100 g of puff pastry



Conclusions

- 6% of chia seeds incorporated in puff pastry formulation (OE1) increased the content of TDF and almost an ideal IDT/SDF (3:1) was achieved.
- 5% of sugar beet fibers (OE2) also increased the content TDF and the lowest energy value of puff pastry was obtained.
- The addition of the combination of 3.6% of chia seeds and 2.25% of sugar beet fibers (OD) resulted in minimal fat content and maximal TDF content (6.17 g/100 g). This content of TDF is sufficient for the use of nutritive statement "high-fiber".
- All samples had high content of Mn which originated mainly from whole wheat flour.
- Additionally, OE1 and OD can be considered source of Fe, Mg and Zn, which was attributed to the effect of chia seeds incorporated in their formulation.