

## HIGH-QUALITY WHOLE GRAIN PROTEIN CONCENTRATE -

produced from non-GMO wheat grains grown in the Baltics, EU origin, rich in fiber, after fermentation.

Moisture, % - <b>6</b>	Water activity ( $a_w$ ) - <b>0.434</b>	pH - <b>4.01</b>	Protein composition in the product - <b>60-65%</b>	Dietary fiber composition in the product - <b>17%</b>	Contains all essential amino acids
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Total amount of amino acids - **60%**

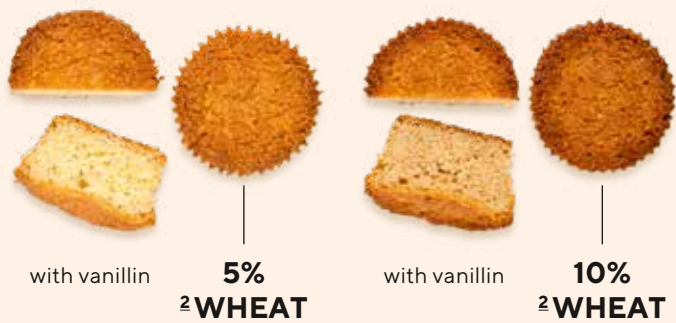


According to experiments - the optimal <sup>2</sup>WHEAT content by physical and sensory parameters is 5-10% of the total flour. If the quantity of flour in the recipe is replaced by <sup>2</sup>WHEAT of 5%, the protein content may increase by ~ 33%.

Samples	Structure (hardness), N	Moisture, %		pH		$a_w$	
		Day 0	Day 5	Day 0	Day 5	Day 0	Day 5
Control sample with vanillin	29.30	18.8	17.2	9.48	9.51	0.845	0.840
5% <sup>2</sup> WHEAT with vanillin	27.14	18.6	17.3	8.18	8.11	0.837	0.843
10% <sup>2</sup> WHEAT with vanillin	29.50	18.7	17.0	7.84	7.75	0.850	0.842
Control sample with cocoa	25.41	14.4	13.6	8.22	7.98	0.802	0.789
5% <sup>2</sup> WHEAT with cocoa	19.21	18.6	16.5	7.91	8.13	0.856	0.826
10% <sup>2</sup> WHEAT with cocoa	24.47	17.2	15.0	7.58	7.62	0.836	0.807

Samples	Color DAY 0			Color DAY 5		
	L* (lightness)	a* (green-red)	b* (blue-yellow)	L* (lightness)	a* (green-red)	b* (blue-yellow)
Control sample with vanillin	70.53	-4.63	27.61	70.95	-4.65	28.01
5% <sup>2</sup> WHEAT with vanillin	68.07	-2.50	25.93	68.45	-2.45	24.36
10% <sup>2</sup> WHEAT with vanillin	65.51	-2.10	23.77	66.13	-1.64	22.22
Control sample with cocoa	25.94	7.74	9.80	26.26	7.53	8.53
5% <sup>2</sup> WHEAT with cocoa	29.73	6.75	11.86	30.84	6.82	11.86
10% <sup>2</sup> WHEAT with cocoa	33.47	6.14	13.48	35.1	6.25	13.43

The amount of <sup>2</sup>WHEAT added is of the total amount of flour.



with vanillin

**5%  
2WHEAT**



with vanillin

**10%  
2WHEAT**



with cocoa

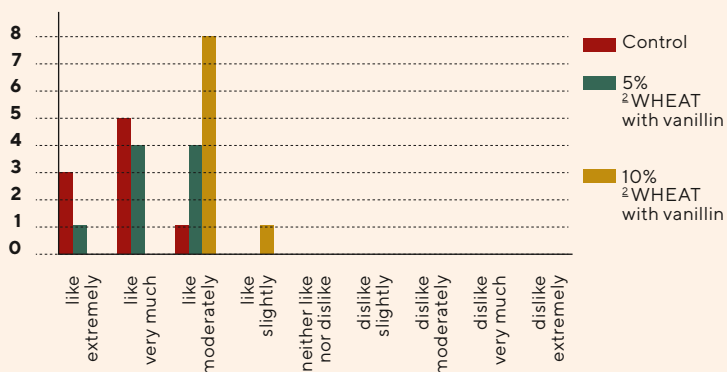
**5%  
2WHEAT**



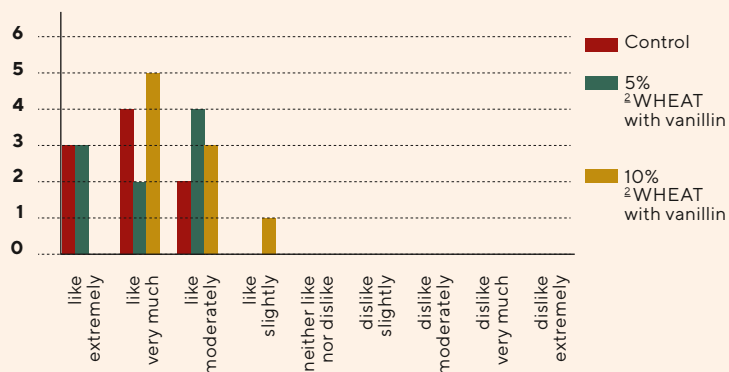
with cocoa

**10%  
2WHEAT**

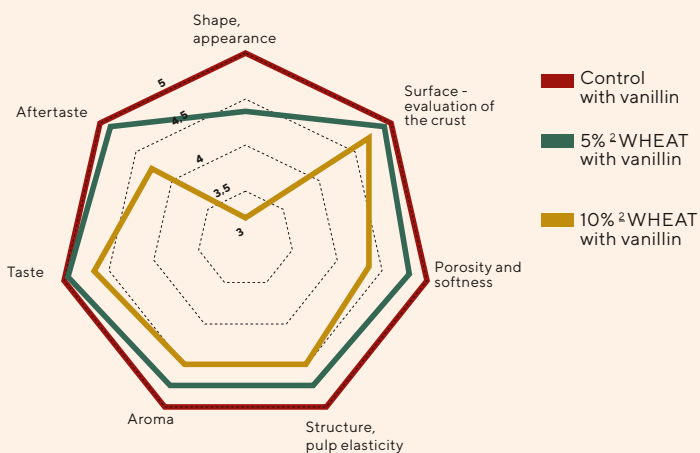
### CUPCAKES WITH VANILLIN LIKING RATING



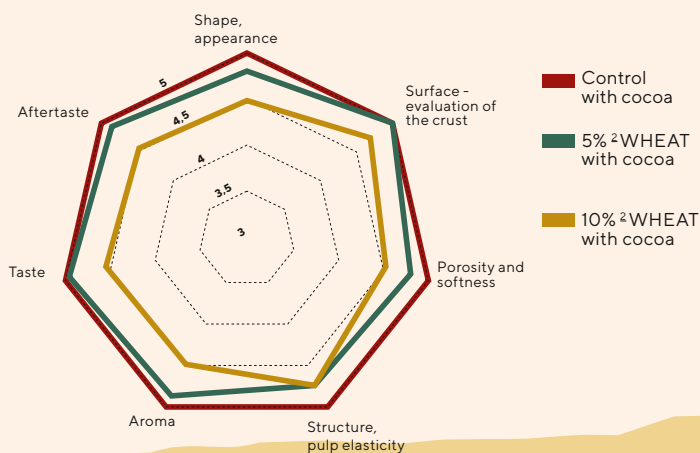
### CUPCAKES WITH COCOA LIKING RATING



### SENSORY EVALUATION OF CUPCAKES WITH VANILLIN



### SENSORY EVALUATION OF CUPCAKES WITH COCOA



### EFFECT OF ADDITION OF 2WHEAT GROUND RAW MATERIAL ON DOUGH:

The 2WHEAT mixes into the dough very well and forms a dough-like control, it also binds into the dough and is practically invisible.

### EFFECT OF ADDITION OF 2WHEAT GROUND RAW MATERIAL ON FINISHED PRODUCT:

Cupcakes with vanillin are moister, less crumbly compared to cupcakes with cocoa. Control cupcakes with cocoa have a very crumbly texture, but cupcakes with 5% and 10% 2WHEAT hold together better, although they also remain crumbly when stored. For cupcakes with vanillin, adding 5% and 10% 2WHEAT makes the color darker, but adding it to cupcakes with cocoa makes the color lighter. Adding 2WHEAT did not affect shelf life - it was the same as Control samples. Shelf life was 9 days at room temperature, using PP packaging until the first signs of mold appeared.

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