

Corn Protein in Waffles



Protein ingredients can be added to bakery and snack products to aid in water and fat retention. Another benefit is protein fortification. An experiment was run to evaluate the impact of adding corn protein to a waffle formula. The experiment compared a control and test.

Corn protein was produced by Cargill with at least 85 wt% corn protein (dry basis) and less than about 1.5 wt% oil (dry basis), as described in patent application WO20161544CPI. The formula could be adapted to use corn protein with a minimum of 65 wt% protein and less than 3 wt% oil (dry basis) and anticipate the same finding.

An example involves a waffle. Waffles with and without the addition of corn protein were prepared using the formula and process procedures listed. The corn protein replaced a portion of each flour type.

FORMULA

Ingredients	Control (%)	Test (%)
Enriched and Malted H&R All Purpose Flour	50.0	46
Enriched Pastry Flour	28.5	24.62
Sugar	6.5	7.3
Corn Protein	0.0	8.3
Soy Flour	1.9	1.88
Dextrose	3.1	3
Salt	1.3	1.19
Soda	1.2	1.18
Bp Pyro (Sapp 28)	1.2	1.18
Natural Vanilla Flavor	1.2	1.05
Buttermilk Powder	1.1	0
Monocalcium Phosphate	0.4	0.4
Dried Whole Egg	1.0	0
Lecithin	0.0	1
Soybean Oil	2.7	2.9
Total	100.00	100.00

PROCESSING PROCEDURE

1. Blend dry ingredients together with the oil to create a homogeneous mixture
2. Preweigh desired amount of dry mix and water
3. Whisk together on speed 1 until homogenous
4. Allow to rest for 2 minutes
5. Place 55g into the small waffle maker and cook for 2.5 minutes
6. Hold while accumulating finished waffles in a bag, then quickly move them to a blast freezer to lock in moisture

For this example, 552 g of Dry Mix was mixed with with 648 g of Water.

RESULTS

The treated and untreated samples were comparable in both processing and final appearance. The viscosity of the test batter was thicker than that of the control.

Bostwick at ambient temperature after 30s	
Control	15.5
Test	10.0



Control waffle (left) and Test waffle with corn protein (right).

CONCLUSION

Corn protein can be used in a formula to create a waffle comparable to a control without added protein.