

Corn Protein in Flat Bread (Pizza Crust)



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 gluten-free pizza crust. The experiment compared a control and test product.

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.

Gluten-free pizza crusts with and without the addition of corn protein were prepared using the formula and process procedures listed. In this example, corn protein was added to replace pea protein and a portion of the whole grain corn flour.

FORMULA

Ingredients	Control (%)	Test (%)
Corn Starch	16.85	16.85
Sorghum Flour	13.40	13.40
MaizeWise™ Whole Grain Corn Flour	6.30	2.90
Tapioca Starch	5.40	5.40
Gluten-Free 5-Grain Flour Blend	4.00	4.00
Quinoa Flour	2.00	2.00
Soy Flour	2.00	2.00
Pea Protein	1.60	0.00
Corn Protein	0.00	5.00
Egg White Solids	1.10	1.10
Guar Gum	0.30	0.30
Xanthan Gum	0.25	0.25
Water, ice	35.00	35.00
Soybean Oil	3.85	3.85
Palm Oil	3.85	3.85
Sugar	1.20	1.20
Salt	1.20	1.20
Yeast	0.70	0.70
Baking Soda	0.50	0.50
Sodium Aluminum Phosphate	0.50	0.50
Total	100.00	100.00

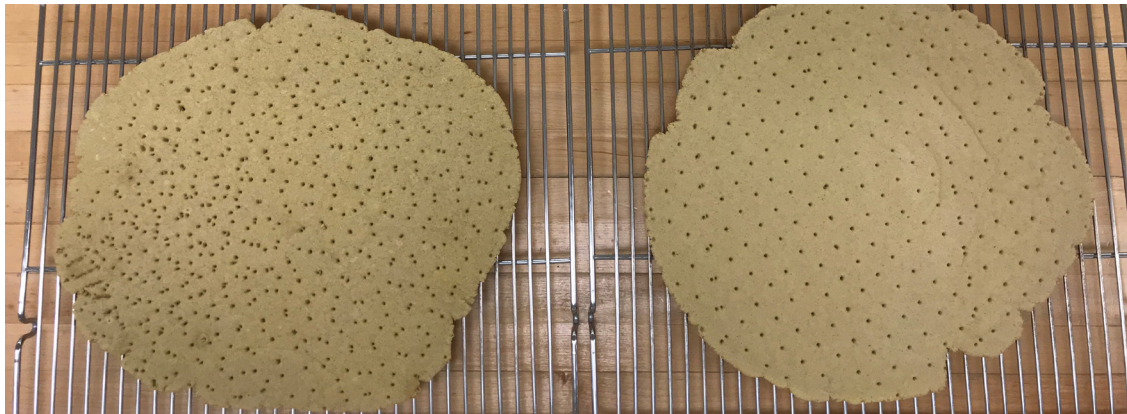
*Note – an additional 10g of water was added to treated sample

PROCESSING PROCEDURE

1. Add fats/oils to Hobart mixer mixing bowl
2. Mix in yeast with the dry ingredients, and then add them to the mixing bowl and mix 15-20 sec on low followed by 40-45 sec on medium.
3. Scrape mixing bowl and mix 2 min on low
4. Add water during first 30 sec of step 3 (scrape after 1 min)
5. Weigh out 300 g of dough, sheet to thickness of 2.75 - 3.25 (thickness setting on dough sheeter)
6. Dock & Par-bake 18 oz crust for 10 min at 380°F

RESULTS

The test and control samples were similar in appearance. Outside of the extra 10g of water added to the treated sample, the blending and baking of the control and test sample were similar.



Control gluten free pizza crust (left) and control gluten free pizza crust with corn protein (right).

CONCLUSION

Corn protein can be used in a formula to create a gluten-free pizza crust comparable to a control without added protein.