

Corn Protein in Pasta



Protein ingredients can be added to food products to aid in functionality or to increase protein fortification. An experiment was run to evaluate the impact of adding corn protein to a pasta formula. The experiment compared control and test samples.

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 fresh pasta. Fresh pasta with and without the addition of corn protein was prepared using the formula and process procedures listed. Corn protein replaced vital wheat gluten in this example.

FORMULA

Ingredients	Control (%)	Test (%)
Pizzeria Flour "OO" Blue Flour	60.2	60.2
Vital Wheat Gluten	2.8	0.0
Corn Protein	0.0	2.8
Eggs	37	37
Total	100.00	100.00

PROCESSING PROCEDURE

- Preweigh dry ingredients separately from wet ingredients
- Place all ingredients into Hobart bowl
- Mix with paddle attachment for 30 seconds on speed 1
- Replace paddle with dough hook and mix for 3 minutes on speed 1
- Remove dough from the bowl and lightly knead
- Form a ball, wrap in plastic wrap and allow to rest at ambient temperature for 1 hour
- Sheet to a thickness of 6 using a KitchenAid pasta rolling attachment
- Place sheet on table and flip every 2-5 minutes over a 20-minute time frame
- After 20 minutes, slice into individual pieces
- Place in boiling water for 3 minutes
- Evaluate

RESULTS

The test and control samples were similar in appearance. The test dough was drier during blending and required the addition of extra water to come together. The additional moisture made the dough tackier during sheeting. As shown in the photos, the noodle of the test expanded to become slightly more rounded than the control sample.



Control pasta (left) and test pasta with corn protein (right).

CONCLUSION

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