

Corn Protein in Coarse Ground Meat



Protein ingredients can be added to coarse ground meat products to aid in water and fat retention. The resulting products are commonly moister after cooking. Products which are frozen before cooking may also suffer water losses during the freeze-thaw cycle and protein ingredients can decrease this loss – which makes a nicer product after cooking as well.

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.

One example involves ground turkey patties. Ground turkey patties were prepared by adding 8.96 g (2%) salt (Cargill Hi-Grade) and 8.96 g (2%) of Cargill corn protein 90 to 430.08 g (96.0%) of lean ground turkey meat (retail, 7% fat).

FORMULA

Ingredients	Test (%)	Control (%)
Salt	2	2
Corn Protein 90	2	0
Ground Turkey (Lean, 93%, Retail)	96	98
Total	100.00	100.00

PROCESSING PROCEDURE

1. The ingredients were mixed for 5 minutes in a Kitchen Aid mixer on setting #1 using the paddle attachment and scraping the sides of the bowl periodically.
2. The mixture was weighed into four ~100 g samples and pressed in a patty shaper to obtain uniform thickness.
3. Patties were cooked on an electric griddle (preheated to 350°F) for 6 minutes per side to an internal temperature of 170°F.
4. The patties were cooled on a paper towel for 15-30 minutes and weighed.
5. Some individual patties were stored in baggies and collected in a larger freezer bag, then stored in a freezer for future observation. After 2 weeks, the frozen patties were thawed in the refrigerator overnight and then 3 hours at room temperature before being reweighed after one week to assess freeze-thaw water holding capacity.

RESULTS

The untreated control had a fresh yield of about 72% and the corn protein supplemented patty had a fresh yield of about 74%. The untreated control had a freeze-thaw yield of 53%, while the corn protein supplemented patty had a freeze-thaw yield of 71%.



Lean turkey patties with corn protein (left) versus control (right).

CONCLUSION

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