

Corn Protein in Brownie Bites



Protein ingredients can be added to bakery 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 brownie bite. The corn protein-supplemented sample was compared with an untreated control.

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.

This example involves a brownie bite dessert. Brownie bites, with and without the addition of corn protein, used the formula and process procedures listed.

FORMULA

Ingredients	Control (%)	Test (%)
Powdered Sugar	28.756	28.756
Granulated Sugar	9.585	9.585
Cake Flour	15.514	5.514
Corn Protein	0.000	10.00
Chocolate Duet Fudge	11.139	11.139
Baking Soda	0.110	0.110
Salt	0.290	0.290
Starch PolarTex™ 12640	1.269	1.269
Sea Salt Topping, Coarse	0.200	0.200
Shortening	3.027	3.027
Vanilla Extract	0.100	0.100
Whole Eggs	8.112	8.112
Soybean Oil	8.921	8.921
Water	12.977	12.977
Total	100.00	100.00

PROCESSING PROCEDURE

1. Combine the following ingredients (sugar, coconut oil, cake flour, chocolate duet, baking soda, salt, and starch) in Hobart mixing bowl.
2. Mix ingredients on low for 1 minute.
3. Combine liquids (water, eggs, sunflower oil, and vanilla extract) and add to mixing bowl.
4. Mix on low for 1 minute.
5. Deposit ~20g batter into each reservoir of a mini muffin pan (pre-lined with paper baking cups)
6. Bake at 350°F for 18 minutes, sprinkling sea salt topping evenly over tops of brownies after ~12 minutes of baking.
7. Remove from oven and allow to cool completely before packaging.

RESULTS

The treated sample was lighter in color, slightly less dense or more cake-like than the untreated sample. Retail brownies usually are described as cake-like when more eggs have been added to the recipe. The untreated version was darker in color, slightly denser, and had a more fudgy texture compared with the treated sample.



Treated brownie bite with 10% corn protein (left) versus untreated brownie bite (right).

CONCLUSION

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