

CRUNCH TIME

Gluten Or Gluten - Free



INGREDIENTS:

Cookie batter divided into 4 portions
70g Self-raising flour
210g Gluten-free flour
divided equally between 3 bowls
Blue food colouring
Yellow food colouring
Red food colouring
Green food colouring
6 Tsp xanthan gum

INGREDIENTS - Cookie Batter:

180g Unsalted butter
50g Caster sugar
180g Brown sugar
1 Tsp vanilla extract
2 Eggs
1 Tsp salt
25g Milk
1 Tsp baking soda
270g Chocolate chips

EQUIPMENT:

T2 paper lined baking trays



METHOD:

1. Coeliac Disease is a disorder in which the immune system attacks the small intestine after it encounters foods containing gluten. People with this disease suffer from stomach pain, constipation, diarrhea and feel fatigued
2. Gluten is a pair of proteins found in grains such as the wheat used in baking flour. The bound proteins give bread, cake and cookie doughs their elasticity and nice spongy texture, something critical for a nice, chewy cookie.
It is possible that without gluten, a cookie has a different texture
3. To understand what gluten is and how it works, we are going to do a cookie baking experiment to find out if substituting gluten-free flour in place of wheat flour changes a cookie
4. Take "prepared earlier" cookie batter without flour, divided into 4 portions
5. In one bowl mix in the self-raising flour and blue food colouring and set aside
6. In the remaining bowls stir in one portion of gluten-free flour into each mixture
7. Mix yellow food colouring in one portion. Mix 1 tsp of xanthan gum and green food colouring through the next portion.
Mix 5 tsp of xanthan gum and red food colouring through the last portion
8. As cookies bake, heat in the oven melts the fats and sugars in the dough. This makes the dough more fluid so that it spreads out. Gluten in the cookie dough forms a matrix which helps hold in the melted fat and sugar. This stops the cookie from spreading too far
9. Roll equal size amounts of the mixture into balls and place on the baking tray, spaced evenly, with a different coloured dough in each row
10. Take the "prepared earlier" baked cookies. Point out the blue cookie which contains the gluten flour.
This is the cookie we would like to replicate in gluten-free
11. Point out the yellow cookie that has substituted gluten-free flour. (It should be bigger and thinner)
12. Removing gluten makes the cookie dough less springy. So the cookies spread as they bake. And then they spread some more. So we need to add back the springiness.
13. Point out the green and red cookies that has substituted gluten-free flour plus varying quantities of xanthan gum.
Which cookie looks closest to the original choc chip cookie that contains gluten?
14. Xanthan Gum is a corn-based, fermented product that is used in gluten-free cooking to bind, thicken and emulsify gluten-free ingredients. If you use too much in a recipe you may notice a heavy, gummy texture in your baked goods, so measure carefully

ADDITIONAL NOTES:

Cookies baked at 180°C for approx. 12 minutes. Cook each coloured batch on a separate tray as cooking times will vary



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It's important to remember that when in the kitchen make sure a grown up know what's cooking and if you're working with anything hot or sharp make sure you ask for help