



# Snacks of flour based on chickpeas and rice for celiacs

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## Summary

Celiac disease is characterized by inflammation of the small intestine as a consequence of permanent and immune intolerance to gluten.

To make our snacks we use rice flour and chickpea flour as the main ingredients, which are gluten-free and provide a high energy index, carbohydrates and proteins. When preparing our snacks we offer an alternative to satisfy the desire for a craving for moments of conviviality without causing discomfort to celiac people.

## Objective

To elaborate a snack based on chickpea flour and rice for celiac people.

## Research question

How to make a snack based on chickpea flour and rice for celiac people?

## Justification

It has been observed that there is no specific treatment for celiac disease, people who have it require a specific diet and care to avoid the effects of gluten consumption but at the same time get the necessary nutrients. That's why we decided to make a snack based on chickpea flour and rice since the combination of legume and cereal provides us with a balanced food, containing carbohydrates, proteins, in addition to a high fiber content, being a suitable option for celiacs.

## Problem statement

Most of the products we consume in our daily lives contain gluten, so the diet of celiacs is limited as their consumption can cause different gastric discomforts, or headache.

The numbers of people with this disease have varied over the last few decades, it is estimated that coeliac disease affects between 1 and 2 percent of the population over their lifetime and this is often increasing. There is no concrete cure of the disease other than abstinence from gluten-containing foods, so it requires a very specific, constant and rigorous diet. Recent studies have shown that this disease was more common during childhood, but over the years the adult population of childhood has increased. At present, between 20 and more than 50 percent of new diagnoses are made in subjects over the age of 50.

The highest incidence is in women between 30 and 40 years of age, although 20 percent of patients exceed 60 years of age at the time of diagnosis.

## Hypothesis

If we prepare a snack based on chickpea flour and rice, then we would eliminate the gluten that produces harmful effects in celiac people.





## Methodology



Combine all the flours and powders in a large bowl.

Add warm water little by little until you have a smooth and homogeneous mass.

Add 1 tablespoon of coconut oil to the center of the dough and mix.



With the masher crush the dough, making churritos form.

Place them in the pan with preheated vegetable oil and move as they cook and making them crisp.

Finally add the chili powder little by little in such a way that all are impregnated with flavor, placing them in bags.



## Results



## Discussion

We obtained 600gr of cylindrical product, which is 6 cm of the argo and 0.5 mm in diameter, with color yellow turning to coffee, with a pleasant chickpea flavor and a crunchy texture, much like commercial sticks.

The total cost of our product is \$75.00 and the presentation we're proposing are individual portions of 50g which would cost approximately \$7.00.

In the market there is a great variety of snacks but none is suitable for people with celiac disease. A drawback in our sandwiches is that due to the high fiber content the affected dough adopts a fairly thick consistency. So adding coconut oil makes it softer and more flavorful.

## Conclusions

Celiac disease is a digestive and genetic disease that causes lesions in the small intestine and causes the absorption of the vitamins, minerals and nutrients contained in the food causing inflammatory reactions.

When we prepare these snacks we provide an alternative to satisfy the desire for a craving for moments of coexistence, without causing discomfort to celiac people.

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