

ELABORATION OF GLUTEN-FREE PASTA FROM SWEET POTATO FLOUR

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ABSTRACT

Sweet potato flour is rich in carbohydrates, mainly containing starch, in addition to presenting vitamins A, B and C and minerals in its composition. Celiac disease is an immune response to wheat proteins, gliadin and glutenin, which limits the diet of people with the disease. Pasta is a food made with wheat flour and is widely consumed. In order for celiac people to be able to consume pasta, it is necessary to develop this product without the use of wheat flour. Therefore, the objective of this study was to develop a gluten-free pasta with appropriate technological characteristics. The sweet potato flour was obtained from a Family Farming Production Cooperative (COOPERAFES), located in the municipality of Moita Bonita, in Sergipe. Three formulations were developed: F1 = 100 g of sweet potato flour, 40 g of egg, 1 g of xanthan gum and 30 mL of water; F2 = 100 g of sweet potato flour, 40 g of egg and 30 mL of water; and F3 = 100 g of sweet potato flour, 2 g of xanthan gum and 65 mL of water. The pastas obtained were analyzed for their centesimal composition, pH, titratable acidity, instrumental color and cooking properties. The results showed that F3 had higher moisture content (40.15%) and carbohydrates (52.75%) and lower protein (1.43) and lipid (4.29) contents. The ash content (1.36-1.38%) did not differ between the formulations. The addition of egg increased the protein (F1 = 4.70%; F2 = 4.84%) and lipid (F1 = 17.60%; F2 = 8.25%) contents. This occurred because egg whites are rich in high-quality proteins, while the yolk contains lipids. F1 showed the highest pH (6.3) and titratable acidity of 5.07 mL 100 g-1. The formulations presented a yellowish brown coloration, with no difference between the parameters L (69.4-77.6), a* (8.9-10.5) and b (25.2-29.6). The three formulations presented a cooking time of 3 minutes and a weight increase of 1.7 g g⁻¹. F1 showed the highest transmittance at 650 nm (67.6%) and the lowest solids loss (5.49%), which indicates a higher cooking quality of this pasta. Thus, we concluded that it was possible to obtain a gluten-free pasta, using sweet potato flour with adequate technological characteristics, with indication of the use of egg and xanthan gum (F1) to give binding and structure to the pasta.

Keywords: pasta, gluten free, xanthan gum, Ipomoea batatas.

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