

DETERMINATION OF GLUTEN IN THREE MAIN METHODS IN DIFFERENT WHEAT CULTIVARS

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ABSTRACT

Wheat flour is an important material for the production of various types of bakery products such as bread, pasta, cookies, etc. Compared to other cereals, wheat flour has some rheological properties due to gluten, a network formed when wheat flour and water are mixed that other cereals are lack.

The main proteins responsible for the gluten network are found in wheat and are part of the group of prolamin and glutenin. Depending on the quality of the gluten, the rheological properties of the dough are determined. A large quantity and quality of gluten mean that the dough is very easy to process from a technological point of view, it has viscosity and elasticity properties and the ability to bind gas and water. They are a very important factor in each stage of the production flow chart of bakery products.

There are different methods for determining gluten and this study aims to determine the amount of gluten in some of them.

We considered about 100 wheat samples varieties and performed the determination of gluten with the traditional washing method referring to the AACC 38.10.1, the glutomatic method approved by the AACC, method 38.12.01 and with near-infrared using a NIR system 5000 with monochromatic scanning.

The data obtained in the determination of gluten by the different methods showed that the gluten content was between 20 and 39%, which is a very satisfactory value for the quality of wheat. In a few samples, the gluten content was more than 40%.

Comparing the values of the three methods, the glutomatic method gave values almost identical to the near-infrared method with $r=0.05\%$. If we refer to the time of the method takes to be realized, the washing method takes too much time in compare with the other methods which is not very suitable in the food technology.

According to this study we think that the glutomatic method and the NIR method should be used in industry in order to determine the quantity of the wet gluten.

Keywords: wheat flour, gluten, wet method, Glutomatic, NIR.