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Gluten-Free Food Products – 3

Durum Wheat vs Gluten Free Pasta: Sensory and Nutritional Properties

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Pasta is one of the most typical dishes of the Mediterranean diet. It presents many advantages: easy to prepare, delicious and nutritious with a large affordability for all kind of consumers.

Traditional pasta is prepared in Mediterranean basin from durum wheat which is considered as the most suitable raw material. For other areas when it is lacking, durum wheat can be substituted partially with hard wheat or even with one part of any other flour (pseudo-cereals, legume, etc.).

Since many years, another type of pasta is also prepared: Gluten-free pasta. This type of pasta has been developed specifically for patients suffering from celiac disease. Nevertheless, in more recent times a worldwide anti-gluten hype has developed that might impact not only on the way pasta is perceived but also on the whole durum supply chain.

The aim of this communication is to analyse the technological, sensory, nutritional and economic consequences of gluten suppression in pasta.

Indeed, gluten proteins play a key role to process durum semolina into suitable conventional pasta by developing a continuous network around the starch granules. When gluten is removed the starchy components must be modified in order to obtain a continuous microstructure. This requires modifying pasta processing through introduction of a heat treatment and nowadays, very often in combination with using additives (emulsifiers, gums and proteins).

Sensory properties of GF pasta are far from those of traditional pasta. Appearance of GF pasta made with rice flour, pseudo-cereals and legume flours are lesser attractive compared to the amber yellow color of durum wheat pasta. Cooking quality of GF pasta is generally poorly rated exhibiting high cooking losses and a lower resistance to overcooking.

Nutritional properties of pasta are also impacted. Generally speaking, GF pasta exhibit less protein content, less fibre and less micronutrient content. As the microstructure of pasta is also affected by no gluten network inside, the glycemic index is increased. This may result in body weight increase and in some deficiencies.

Considering also the economic impact the price of GF pasta may increase significantly with consequences on its affordability.

To conclude, If gluten-free pasta are essential to consumers with celiac disease and other gluten proven pathologies, for a large majority of consumers it is much more recommended to continue to eat traditional pasta made with durum wheat.

Keywords: durum, pasta, gluten-free, quality, nutrition, processing