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A SUSTAINABLE DURUM WHEAT CHAIN
FOR FOOD SECURITY AND HEALTHY LIVES



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CELIAC DISEAS, NON-CELIAC WHEAT SENSIVITY

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The consumption of healthy foods may help substantially to reduce health care costs and may increase life expectation and well-being. Consumption of whole grain foods containing all parts of the grain (bran, starchy endosperm and germ) contribute significantly to reduce several chronic diseases, especially through the high nutritional fibre content. Despite its well-recognized nutritional and health benefits, whole grain wheat (including durum wheat) may cause a variety of diseases associated with allergic responses, sensitivity and intolerance. (1) IgE-mediated wheat allergy (through consumption, or through inhalation of flour dust) is rare, with wheat-dependent exercise-induced anaphylaxis (WDEIA) and occupational baker's asthma as most severe conditions. Allergenic proteins involved are lipid transfer protein (LTP), amylase trypsin inhibitor (ATI) and omega-5 gliadin. Prevention includes avoidance of wheat containing foods, or adjustment of air flows and inhalation protection. (2) During the last decade, avoidance of wheat consumption, mainly based on self-diagnosis, has increased to 10% or more of the Western population and suggests a form of sensitivity (more specific: non-coeliac/non-allergic gluten/wheat sensitivity; NCG/WS). No biomarkers are available for diagnosis. The disorder is likely multifactorial. A relationship with irritable bowel syndrome (IBS) is possible. A role of certain proteins (such as ATI, but not gluten!) and fermentable carbohydrates (FODMAPS) is suggested. Also a bad quality and balance of the (Western, fibre-poor, highly-processed food) diet, not supporting the prominent role in digestion and health of the gut microbiota, may be involved. (3) Coeliac disease, with a prevalence of 1% of the global population, is a well-characterised T cell-mediated autoimmune chronic inflammation of the small intestine in genetically predisposed humans caused by specific epitopes of gluten proteins from wheat, barley and rye, presenting a variety of symptoms. The only remedy is a strict, life-long gluten-free diet. Recent strategies for the production of coeliac-safe wheat will be elaborated shortly.

ABSTRACT