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Effective food allergen risk assessment and food allergen management are important to protect allergic consumers and to comply with allergen labelling regulations. Such approaches require reliable analytical tools for the detection of allergens in food. Both, reference methods and reference materials are urgently needed to assure the quality, reliability and comparability of analytical results obtained with different methods. Ensuring the correctness of analytical results is crucial to laboratories, since incorrect results may trigger decisions that can cause economic damage or pose a risk to public health. The quality of reference materials is critical for accuracy and comparability of analysis results. Reference materials must be sufficiently homogenous, stable and traceable. Usually extensive material characterization and testing for homogeneity and stability of the material precede the availability of reference materials. Ideally a certified reference material shall be used, which has been validated by accredited institutions and is subject to strict quality testing. The first validated reference materials for food allergen analysis are now available and can be ordered from MoniQA Association www.moniqa.org or from authorized distributors. The first set of materials includes testing materials for milk allergen analysis comprising a Positive Control (SMP-MQA 092014, characterized dried skim milk powder, validated protein content), Negative Control (BLANK-MQA 082015, based on a gluten free cookie), and 2 Incurred Materials: LOW-MQA 102016 (SMP incurred in gluten free cookies, milled, 10 ppm skim milk powder, validated concentration 3.5 ppm milk protein) and HIGH-MQA 082016 (SMP incurred in gluten free cookies, milled, 50 ppm skim milk powder, validated concentration 17.5 ppm milk protein). These materials are the outcome of an international initiative (since 2013) led by MoniQA Association that has liaised with the EU funded project iFAAM, the Prolamin Working Group, Health Canada, FARRP, Australia's Allergen Bureau (Vital), and others. Additional food allergen reference materials are in preparation.

Combining reduced gluten content with good rheological properties: a feasibility study POSTER 6

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The identification of wheat genotypes with low toxicity could represent a valid alternative for the prevention of wheat intolerance onset. Over the last years, great efforts have been undertaken to develop effective gluten detoxification strategies mostly based on enzymatic strategies, which, however, involve a simultaneous detrimental alteration of the technological properties. In this frame, obtaining low-gluten wheat products without affecting their rheological properties is still a challenging issue. In this contribution, we present an integrated approach encompassing both proteomic characterization and grains yield/quality evaluation for the identification of durum wheat genotypes combining potential lower toxicity/immunogenicity with satisfactory rheological properties. A preliminary profiling of gluten proteins was accomplished by immunoassay-based quantification and liquid chromatography coupled to UV detection focusing on the gliadin fraction as main responsible for immunoreactivity in celiac disease patients. In addition, complementary information about productivity-related traits and quali-quantitative characteristics were collected. The pool of data was statistically evaluated confirming that durum wheat breeding programs improved the pasta-making quality (gluten strength) without causing an increment of toxic epitopes towards CD patients. The selected genotypes boasting medium and strong gluten strength, all presented a significantly lower number of toxic epitopes compared to commercial semolina. In perspective, such genotypes could represent an innovative alternative for preventive and therapeutic wheat-based foods in genetically predisposed individuals who may develop CD after prolonged wheat or gluten consumption. The research was funded by the Ministry of Education, Universities and Research (MIUR-Italy), program SIR 2014 within the project titled 'S. Wheat Pro. – Proteomic characterization of Selected durum Wheat cultivars for PROduction of low toxicity-food products towards celiac disease patients (RBSI14QQ1W)'.