Poster

COMMISSIONING AND VALIDATION OF A METHOD FOR THE DETERMINATION OF GLUTEN IN DIFFERENT FOODS AND READY MEALS

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ABSTRACT

Gluten is the main storage protein of grains from Triticum genus (wheat, rye, barley and oat). Thus, it is present in diary diet, being 5-20g/d the average intake of this protein in east population. However, it has been demonstrated that gluten can provoke allergies (0,4 per cent of the world population), celiac disease (1-3 per cent of east population) and non-celiac gluten sensitivity. The way to solve gluten intolerance is to avoid gluten intake or not to exceed their tolerable intake, in case of people who are able to tolerate a small amount of gluten. Thus, it is important to know the quantity of gluten present in food and show this information on food labels (1). Commission Regulation (EC) No. 41/2009 of 20th January 2009 states the composition and labeling of food products appropriate for gluten-intolerant people and the maximum limit allowed based on the food (2).

There are several methods for the detection of gluten in food, such as ELISA assays, PCR techniques, Western Blot, mass spectrometry, chromatography, immunochromatographic strips, biosensors and lab on a chip. In this work, the implementation of the sandwich ELISA technique is carried out, since this technique has received the recognition of the Codex Alimentarius as the most reliable technique (Type I). This method is simple, fast, and economical and it has a high sensitivity (3) that is based on selective and specific antibody-antigen recognition (4). As for the development of the technique, a calibration line was constructed with standards and a flour-ethanol solution was used as the reference material with which the samples were fortified to a desired concentration of gluten. After the calibration, the technique was validated in different food matrices (pre-cooked products, liquids, meats, fishes, cereals, flours and dairy products) with Prolamin Working Group (PWG) as the standard reference material. Regarding the validation, parameters such as accuracy, recovery, correction, repeatability and reproducibility were studied. Finally, the uncertainty was calculated, and a hypothesis test was performed.

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