Poster

Determination of Added Sulfites and Total Sulfite in Foods

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ABSTRACT

Sulfites are widely employed food additives, able to inhibit the enzymatic and nonenzymatic browning, antimicrobial actions and antioxidant impact during processing, storage and distribution [1]. However, sulphites can have negative effects on human health such as asthma, allergic reactions and neurotoxicity [2]. For this reason, sulfites concentration in products intended for consumption is highly regulated by Codex Alimentarius and at amounts greater than 10 ppm it is considered an allergen. In such cases, the concentrarion of sulfites should be explicitely labelled in the product container[3], and thus makes it necessary to develop methods that allow a correct, quick and simple detection.

In order to develop simple and practical method for sulfite determination in food, a general-purpose commercial kit was used to measure the level of sulphites by iodometric titration. This implies the design of methodologies specific for the targeted food. This includes pre-treatment of the samples , which aims at extracting the analyte from the matrix bodies, thus, to allow a correct titration. The sample is aliquoted, subjected to a hydrothermal procedure to preform the extraction, which may vary according to the type of sample, and finally the supernatant are filtered.

Preliminary results show that the kit works properly, as the calibration curve was successfully performed. We have found that the treatment of the samples generates a bottleneck, as there is a great variety of food matrices (meat, fish, nutritional complements, biscuits...), having each one its own peculiarities. We need to establish specific protocols for each matrix, and testing the results against those provided by certified laboratory incidcated that there are good results in some matrices such as meat, fish and jam, but unsatisfactory results in rest.

The kit has another limitation, when we work with samples without sulphite content (less than 10 ppm) should turn colour quickly, using very little titrant. However, due to the way the kit works and the fact that the solution is introduced into the kit in a diluted form, false positives can occur when extrapolation is carried out.

Due to the two aforementioned limitations, it is necessary to continue applying different protocols in order to establish working guidelines that allow the precise detection of the amount of sulfites.

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