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## Use of on-line solid phase extraction and a multi-reflection flow cell coupled with a LED for the spectrophotometric determination of zinc: application to plant digests

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In this work, a flow injection methodology for the determination of total content of zinc in plants is described. An on-line solid phase extraction (SPE) using Nitrilotriacetic Acid Superflow resin (NTA) was the strategy chosen for the zinc pre-concentration and removal of some interferences. NTA is a simple aminocarboxylic acid which in the fully deprotonated form acts as a general chelating agent for all metal ions and this tendency is related with the solution pH value.

In a second step, the colorimetric determination of zinc was performed using Zincon as chromogenic reagent. In this last step, a multi-reflection flow cell coupled with a light emitting diode (MRC-LED) was used as detection system. The use of this flow cell proved to be an efficient system due to its physical characteristics, since it contributes to improve the limit of detection and minimize any refractive index gradients produced in the confluence of the nitric acid and the boric acid buffer. To implement these two steps, an injector commutator was used. The developed FIA system has a limit of detection of 0.04 mg L<sup>-1</sup> and a limit of quantification of 0.12 mg L<sup>-1</sup>. When applied to plant digests, the results obtained were in agreement with those obtained with reference procedure (atomic absorption spectrometry). The developed system is a simple and reliable methodology for the determination of the total zinc content in plants.

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