Title: **Voltammetric determination of Ti(IV) in natural media**

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TiO_2 is widely used in a lot of ambits in daily life such as cosmetics, paints, food additives... It has high photostability and it is practically considered as an inert and safe material. However, with the development of nanotechnologies TiO_2-nanoparticles (NPs) are increasingly manufactured and used. Toxicological studies show that TiO_2-NPs cause several adverse effects under influence of radiation UV on human keratinocyte cells, microorganisms and plants. These titanium-based products reach natural media easily.

Before the development of nanotechnologies simply with the detection of titanium was enough, but nowadays it is important to distinguish between titanium and titanium in NPs form, this is accomplished with x-ray diffraction, dynamic light scattering, or sedimentation techniques. Nowadays, the most widely used technique to determine titanium per se, is the inductively coupled plasma spectroscopy (ICP) that has the ability to do determinations at trace level, but it is a too expensive technique and it is not convenient to make routine and in situ determinations. Other option would be to consider voltammetric techniques that are cheaper. Although mercury electrodes have been considered the most common devices in voltammetric determinations, nowadays their use has been limited due to its negative environmental issues. Hence, studies considering other eletrodic devices are of great interest. Regardless of the technique used to determine titanium a previous step of sample pre-treatment consisting in filtering and disaggregation must be carried out.

Thence, the aims of this work will be, firstly, to do a bibliographic research of the existing voltammetric methods for titanium determination to know the state of the art, and to select the most appropriate methods to be adapted to the use of screen-printed electrodes (SPE). Once the selection has been done, an experimental analysis of these methods will be done.

Keywords: titanium, titanium dioxide, differential-pulse voltammetry, adsorptive stripping voltammetry, screen-printed electrode.