

ABSTRACT

Nowadays Food Industry has become in one of the most important around the world, but not only due to the contribution to the development of the economy and the international markets or the work place generation, but also because is the industry which manages a first necessity product for the human being.

The development of new technologies, publishing of new findings, implementation of new methods at the food industry, demands faster processes, more accurate methods and techniques, versatile and if possible with no need to be operated by qualified personnel, which can be employed in more important tasks.

Is for this reason that even fields of science which are not related to the nature of our area of knowledge are employed, allowing to us a synergic work, in this sense, at the present Doctoral Thesis, It has been proposed as a general objective to study the application of voltammetric electronic language in the characterization of foods in a liquid state.

It was developed in four chapters; a beginning where the influence of the potential amplitude on a pulse sequence was evaluated, applied to the measurement of the total antioxidant capacity of aliso extracts. A second where the capacity of the voltammetric electronic tongue to distinguish between four basic flavours was evaluated, besides coffee and fruit samples.

A third study where the capacity of the electronic tongue was tested as a tool to pre characterize different coffee samples coming from Colombia, and compared with physic chemical and organoleptic analysis, and a last study where the electronic tongues were employed to analyze alteration on orange juices at early states, produced by sporulated bacteria.

All the essays were done through an equipment designed and developed by the IDM of the Polytechnic University of Valencia and which includes a software, a potentiostat, and a 3 electrode configuration (a reference electrode, a counter electrode and a working electrode that could be of Ir, Rh, Pt, Au, Ag, Co, Cu o Ni depending of the configuration of the equipment), The pulse setting configuration employed was different in some cases according to the data which was looked for

The results obtained have been satisfactory allowing us to apply the voltammetric electronic tongue equipment in the characterization of liquid foods. Thus, the antioxidant capacity of aliso samples was evaluated. Fruit samples such as camu camu and kiwi and coffee samples were characterized based on their main sensory attributes. It was also applied in the characterization

of samples of coffee from Colombia and the equipment was able to detect the development of bacteria sporulated in pasteurized juices.