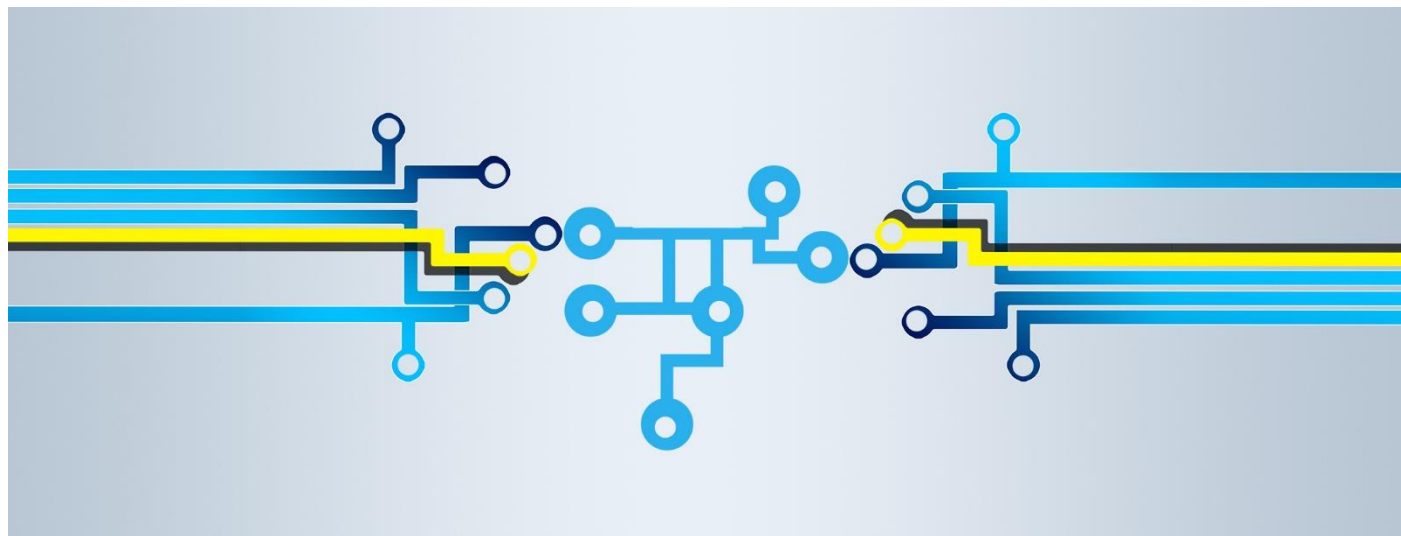


ELECTROCHEMICAL BIOSENSOR FOR DETECTION AND QUANTIFICATION OF ALKYLPHENOLS



TECHNOLOGY SUMMARY

Fast, efficient and accurate method for the quantification of alkylphenols (APs). These sensors are based on a network of single-walled carbon nanotubes functionalized with a highly specific anti-AP antibody, which is at the core of the AP quantification reaction. This quantification is determined as a function of the changes in the electrical current, which varied according not only to the presence of absence of these compounds, but also in proportion to their concentration.

BENEFITS

REDUCED SAMPLE VOLUME: less than 1ml.

NO SAMPLE PREPARATION REQUIREMENTS

IN SITU ANALYSIS: potentially, there is no need of laboratorial analysis.

MUCH FASTER: the analysis takes only a few minutes.

IMPROVED OR EQUAL DETECTION/QUANTIFICATION LIMITS: compared to the current techniques.

REDUCED COST

ADAPTABLE TO OTHER COMPOUNDS

CONTEXT

Alkylphenols are used in plastics production and in the synthesis of non-ionic surfactants widely used as components of detergents, paints, herbicides, humectant agents, cosmetics, pesticides and many other domestic, industrial and agricultural products. AP and their derivatives are known endocrine disruptors with estrogenic action, which associated to its ubiquity, entail constant analysis and monitoring.

In general, the techniques currently used for APs quantification are based in methods that require extensive sample preparation, are very expensive and utilize specific equipment (HPLC, LC-MS and GC-MS). The proposed sensors allow replacing those techniques, since they are fast, efficient and accurate and allow a much more widespread use since they are very low cost and easy to use.

APPLICATIONS

This technology has several applications:

ENVIRONMENTAL (alkylphenols monitoring)

INDUSTRIAL (quality control, e.g. liquid food products)

The technology may be adapted to other compounds as well, widening its applications into other sectors.

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IP RIGHTS

National patent pending.

DEVELOPMENT STAGE

TRL 4: tested at laboratorial level for detection and quantification of alkylphenols.

Available for presentation.

KEYWORDS

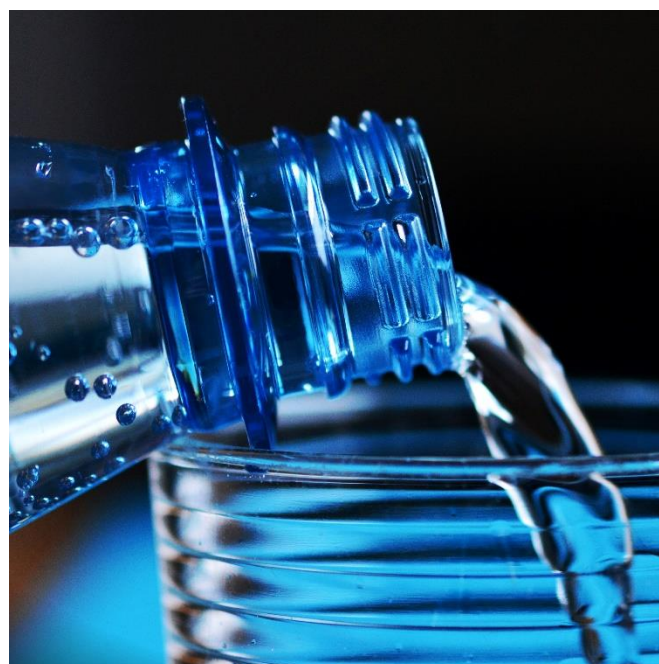
ALKYPHENOLS

WATER

BIOSENSOR

ENVIRONMENT

POLLUTION



DEVELOPED BY

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Technology #CI16007

BUSINESS OPPORTUNITY

Licensing agreement.

Development of new formulations and/or applications.

PARTNERSHIP

The University of Aveiro seeks partners in environmental and/or pharmaceutical sectors, as well as companies operating in the area of (bio)sensors.

Based on the biosensor's efficiency and sensitivity, it is of particular interest to partners working in the fields of food industry, but also for potential partners undertaking efforts in biology and environmental monitoring.