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Short Communication

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Paper-based biosensors: when paper becomes a huge resource in electrochemistry

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Abstract:

The paper-based colorimetric assays have been widely reported in literature being cost-effective, not requiring additional components (i.e. pump) for microfluidic handling of the solution, and avoiding the sample treatment thanks to the filtering property of the paper. In the last decade, the electroanalysis has discovered the utility of using paper as electrode-active support, converging the reported advantages of paper with the features of electroanalysis such the high sensitivity, selectivity, and the capability to work in complex matrices (e.g. coloured samples).

I will present the research activity carried out in the last 5 years at Nanobiosensing Lab and SENSE4MED at the Department of Chemical Science and Technologies of Tor Vergata University aimed to develop sustainable and cost-effective (bio)sensors for application in environmental, agrifood, security, and biomedical fields.

Biography

Fabiana Arduini is Associate Professor of Analytical Chemistry at Department of Chemical Science and Technologies of Tor Vergata University The research interests include the development of Bioassay and Biosensor systems, Electrochemical (bio)sensors, Electrochemical Mediators, Screen-Printed Electrodes (how to use, fabricate and modify them), Sensors and Biosensors modified with Nanomaterials (carbon black, carbon nanotubes, gold nanoparticles, etc.), Paper based (bio) sensors. Real applications in the field of clinical, food and environmental analytical chemistry. The research activity carried out was published in more than 100 papers in ISI peer-reviewed journals, among them with high impact factor in the analytical chemistry journal (e.g. Biosensor and Bioelectronics IF 10.257)..

Publication of speakers

1. Paper-based electrochemical peptide nucleic acid (PNA) biosensor for detection of miRNA-492: A pancreatic ductal adenocarcinoma biomarker, June 2020
2. Carbon black as an outstanding and affordable nanomaterial for electrochemical (bio)sensor design, January 2020
3. wearable origami-like paper-based electrochemical biosensor for sulfur mustard detection, March 2019

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