

CHEMISTRY AND EURO GREEN CHEMISTRY

May 22-23, 2019 | Rome, Italy

Gerardo González-Aguilar, J Ind Environ Chem 2019, Volume 3 | DOI: 10.4066/2591-7331-C2-011

E-EYES FOR PHOSPHATE DETECTION IN IRRIGATION AND POST-IRRIGATION WATERS

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Excess of nutrients in irrigation waters leads to eutrophication of the aquatic ecosystem. This process promotes changes in these systems as cyanobacteria grown are uncontrolled. These microorganisms growth at surface impeding the light to pass and consequently the photosynthesis below the surface; the concept of e-eyes designates the assembly of several not fully specific sensors or biosensors in order to obtain a better response to the presence and quantification of the target in this case, optical sensors. In this work, author was implemented an e-eye consisting of silicate and ethylene based polymers doped with nickel oxo-nitrate deposited on glass substrate sand A-ZnO modified glass substrates. The samples were characterized by UV-Vis, FTIR, X-Ray spectroscopies and SEM. The analysis of the results was made using PLS and LASSO techniques as implemented in the R-statistical suite of program.

BIOGRAPHY

Gerardo González-Aguilar completed his BSc Degree in Chemistry at UCLV, Cuba and his MSc Degree in Organic Chemistry at University of Havana, Cuba and his PhD in Materials Science and Engineering at University of Aveiro, Portugal. He has more than 30 publications, 30 participations in international congresses and has participated in three European research projects. He got three contracts with enterprises. In the last eight years, he has directed four MSc thesis. He has reviewed more than 20 publications in journals like *International Journal of Gastronomy and Food Science*, *Materials Letters*, *Applied Energy*, *Bio-electrochemistry*. His current area of interest is in the development of e-eyes, e-tongues and e-noses for food and environmental chemical and bacteriological contamination. He acts as external consultant of research projects at University of Burgos and external adviser for students at the same university.

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