María Belén Camarada, Chem Sci J 2016, 7:3(Suppl)
http://dx.doi.org/10.4172/2150-3494.C1.005

Chemical and electrochemical synthesis of graphene/conducting polymers nanocomposites

María Belén Camarada
Universidad Bernardo O´Higgins, Chile

Potentiometric, amperometric and conductometric electrochemical sensors have been widely developed as an inexpensive and simple method to sensitively detect a variety of analytes in the areas of environmental, industrial, and clinical analyses. Among new interfaces that have been tested for electrochemical sensors, carbon nanomaterials have been reported as advantageous because they increase the electro-active surface area, enhance electron transfer, and promote adsorption of molecules. Graphene, a two-dimensional single layer of graphite and one-atom-thick sheet material has received increasing attention due to its unique physicochemical properties such as large surface area, excellent conductivity and strong mechanical strength. Recently, Conducting Polymers (CP) have been applied as materials to modify the electrode surface and has been demonstrated that carbon materials can reinforce the stability of CP and provide more active nucleation sites in electrochemical sensors. In this work, different nanocomposites of graphene and CP: Poly(aniline), poly(pyrrole) and poly(thiophene), were synthesized through chemical synthesis using a salt as oxidant and also through *in situ* electrochemical polymerization in the presence of graphene oxide. Conductivity and stability of the new materials synthesized by both pathways were compared electrochemically, while morphologies and structure were analyzed by AFM, FT-IR and UV-Vis. Results provided relevant information about the best route of synthesis of nanocomposites applied in electrochemical sensors.

Biography

María Belén Camarada has completed her PhD from Pontificia Universidad Católica de Chile. She is a member of the research team of Laboratorio de Bionanotecnología, Universidad Bernardo O´Higgins, Chile, focusing on the development of electrochemical DNA sensors. She has participated in national and international conferences and has ISI publications in the area of Electrochemistry and Computational Simulations.

maria.camarada@ubo.cl

Notes: