

# European Chemistry Congress

June 16-18, 2016 Rome, Italy

## Direct voltammetric determination of redox-active iron in carbon nanotubes

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With the advances in nanotechnology over the past decade, consumer products are increasingly being incorporated with carbon nanotubes (CNTs). As the harmful effects of CNTs are suggested to be primarily due to the bioavailable amounts of metallic impurities, it is vital to detect and quantify these species using sensitive and facile methods. Therefore, in this study, we investigated the possibility of quantifying the amount of redox-available iron-containing impurities in CNTs with voltammetric techniques such as cyclic voltammetry. We examined the electrochemistry of Fe<sub>3</sub>O<sub>4</sub> nanoparticles in phosphate buffer solution and discovered that its electrochemical behavior could be affected by pH of the electrolyte. By utilizing the unique redox reaction between the iron and phosphate species, the redox available iron content in CNTs was determined successfully using voltammetry.

### Biography

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