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Niobium, Technetium, Ruthenium, Rhodium, Hafnium, Rhenium, Osmium and Iridium Ions Incorporation into the Nano Polymeric Matrix (NPM) by Immersion of the Nano Polymeric Modified Electrode (NPME) as Molecular Enzymes and Drug Targets for Human Cancer Cells, Tissues and Tumors Treatment under Synchrotron and Synchrocyclotron Radiations

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Editorial

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Editorial

In the current editorial, we study Niobium, Technetium, Ruthenium, Rhodium, Hafnium, Rhenium, Osmium and Iridium ions incorporation into the Nano Polymeric Matrix (NPM) by immersion of the Nano Polymeric Modified Electrode (NPME) as molecular enzymes and drug targets for human cancer cells, tissues and tumors treatment under synchrotron and synchrocyclotron radiations. In this regard, the development of Chemical Modified Electrodes (CEMs) is at present an area of great interest. CEMs can be divided broadly into two main categories; namely, surface modified and bulk modified electrodes. Methods of surface modification include adsorption, covalent bonding, attachment of polymer Nano films, etc. Polymer Nano film coated electrodes can be differentiated from other modification methods such as adsorption and covalent bonding in that they usually involve multilayer as opposed to monolayer frequently encountered for the latter methods. The thicker Nano films imply more active sites which lead to larger analytical signals. This advantage coupled with other, their versatility and wide applicability, makes polymer Nano film modified electrodes particularly suitable for analytical applications [1-27].

Electrochemical polymerization offers the advantage of reproducible deposition in terms of Nano film thickness and loading, making the immobilization procedure of a metal-based electrocatalyst very simple and reliable for Niobium, Technetium, Ruthenium, Rhodium, Hafnium, Rhenium, Osmium and Iridium ions incorporation into the Nano Polymeric Matrix (NPM) by immersion of the Nano Polymeric Modified Electrode (NPME) as molecular enzymes and drug targets for human cancer cells, tissues and tumors treatment under synchrotron and synchrocyclotron radiations. Also, it must be notice that the nature of working electrode substrate in

electropreparation of polymeric Nano film is very important, because properties of polymeric Nano films depend on the working electrode anti-cancer Nano materials. The ease and fast preparation and of obtaining a new reproducible surface, the low residual current, porous surface and low cost of Multi-Walled Carbon Nanotubes (MWCNTs) paste are some advantages of Carbon Paste Electrode (CPE) over all other solid electrodes [28-92].

On the other hand, it has been shown that, macrocyclic complexes of Niobium, Technetium, Ruthenium, Rhodium, Hafnium, Rhenium, Osmium and Iridium are interest as modifying agents because in basic media Niobium, Technetium, Ruthenium, Rhodium, Hafnium, Rhenium, Osmium and Iridium redox centers show high catalytic activity towards the oxidation of small organic anti-cancer Nano compounds. The high-valence species of Niobium, Technetium, Ruthenium, Rhodium, Hafnium, Rhenium, Osmium and Iridium seem to act as strong oxidizing agents for low-electroactivity organic substrates. 1,2-Dioxetane (1,2-Dioxacyclobutane), 1,3- Dioxetane (1,3-Dioxacyclobutane), DMDM Hydantoin and Sulphobe as the anti-cancer organic intermediate products of methanol oxidation as well as formic acid, is important to investigate its electrochemical oxidation behavior in Niobium, Technetium, Ruthenium, Rhodium, Hafnium, Rhenium, Osmium and Iridium ions incorporation into the Nano Polymeric Matrix (NPM) by immersion of the Nano Polymeric Modified Electrode (NPME) as molecular enzymes and drug targets for human cancer cells, tissues and tumors treatment under synchrotron and synchrocyclotron radiations [93-110].

In this editorial, we decided to combine the above mentioned advantageous features for the aim of Niobium, Technetium, Ruthenium, Rhodium, Hafnium, Rhenium, Osmium and Iridium ions incorporation into the Nano Polymeric Matrix (NPM) by immersion of the Nano Polymeric Modified Electrode (NPME) as molecular enzymes and drug targets for human cancer cells, tissues and tumors treatment under synchrotron and synchrocyclotron radiations. Furthermore, in this editorial, we prepared poly Nano films by electropolymerization at the surface of Multi- Walled Carbon Nanotubes (MWCNTs) paste electrode. Then, Niobium, Technetium, Ruthenium, Rhodium, Hafnium, Rhenium, Osmium and Iridium ions were incorporated into the Nano Polymeric Matrix (NPM) by immersion of the Nano Polymeric Modified Electrode (NPME) in a solution. The modifier layer of Niobium, Technetium, Ruthenium, Rhodium, Hafnium, Rhenium, Osmium and Iridium ions at the electrode surface acts as a Nano catalyst for the treatment of human cancer cells, tissues and tumors under synchrotron and synchrocyclotron radiations. Suitability of this Niobium, Technetium, Ruthenium, Rhodium, Hafnium, Rhenium, Osmium and Iridium-modified polymeric Multi-Walled Carbon Nanotubes (MWCNTs) paste electrode toward the electrocatalytic treatment of human cancer cells, tissues and tumors under synchrotron and synchrocyclotron radiations in alkaline medium at ambient temperature was investigated [111-150].

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