

Nanosensors for continuous monitoring glucose in diabetes

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Most of the work done up to-date in the Republic of Macedonia concerning the nanostructures is carried out at the Faculty of Technology and Metallurgy, Ss. Cyril and Methodius University, Skopje. A research team at the Faculty has achieved notable results in the field of polymer-based composites and nanostructured materials. One of their recent researches was on the design and processing of organic multi nanocomposites for sensors aimed to detect low level of chemical agents (gases) in environmental monitoring. Since polymer nanocomposite films with functionalized MWCNTs exhibit a large surface-to-volume ratio and unique chemical, optical, and electrical properties; they are a very attractive class of materials for various applications. Furthermore, their functionalization offer new potentials associated with their specific interactions. Biocompatible polymer matrices poly (methyl methacrylate) (PMMA) and polycaprolactone (PCL) were used to provide good interfacial bonding between carbon nanotubes. One of the next challenges to be solved could be potential application of these sensors in medical diagnostics and treatment control. Diabetes is a major public health problem that is approaching epidemic proportions globally. To attain optimal control, patients must monitor continuously their blood glucose levels. Therefore, the aim of our future work would be to design, develop and process a nanocomposite (via appropriate modification of CNT and polymer matrix) intended for continuous monitoring of blood glucose. This sensor would improve the management of diabetes and increase the life quality of the patients.

Keywords:

Carbon Nanotube (CN); Polymer Nanocomposite; Biosensor, Blood glucose; Continuous Monitoring

References:

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