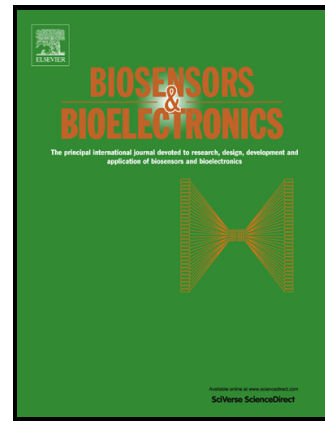


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Graphene, Carbon Nanotubes, Zinc oxide and Gold as Elite Nanomaterials for Fabrication of Biosensors for Healthcare

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Abstract

Technological advancements worldwide at rapid pace in the area of materials science and nanotechnology have made it possible to synthesize nanoparticles with desirable properties not exhibited by the bulk material. Among variety of available nanomaterials, graphene, carbon nanotubes, zinc oxide and gold nanoparticles proved to be elite and offered amazing electrochemical biosensing. This encourages us to write a review which highlights the recent achievements in the construction of genosensor, immunosensor and enzymatic biosensor based on the above nanomaterials. Carbon based nanomaterials offers a direct electron transfer between the functionalized nanomaterials and active site of bioreceptor without involvement of any mediator which not only amplifies the signal but also provide label free sensing. Gold shows affinity towards immunological molecules and is most routinely used for immunological sensing. Zinc oxide can easily immobilise proteins and hence offers a large group of enzyme based biosensor. Modification of the working electrode by introduction of these nanomaterials or combination of two/three of above nanomaterials together and forming a nanocomposite reflected the best results with excellent stability,

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