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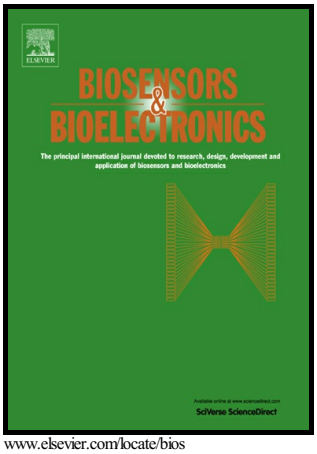

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Fabrication of nitrogen-doped carbon dots for screening the purine metabolic disorder in human fluids

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Abstract

Fabrication of nitrogen-doped carbon dots (N-CDs) electrode for the screening of purine metabolic disorder was described in this paper. Peroxynitrite is a short-lived oxidant species that is a potent inducer of cell death. Uric acid (UA) can scavenge the peroxynitrite to avoid the formation of nitrotyrosine, which is formed from the reaction between peroxynitrite and tyrosine. Scavenging the peroxynitrite avoids the inactivation of cellular enzymes and modification of the cytoskeleton. Reduced level of UA decreases the ability of the body from preventing the peroxynitrite toxicity. On the other hand, the abnormal level of UA leads to gout and hyperuricemia. Allopurinol (AP) is administered in UA lowering therapy. Thus, the simultaneous determination of UA, tyrosine (Tyr) and AP using N-CDs modified glassy carbon (GC) electrode was demonstrated for the first time. Initially, N-CDs were prepared from L-asparagine by pyrolysis and characterized by different spectroscopic and microscopic