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Nano based advancement in oxidative stress management

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Nano-particles play a pivotal role in the field of biomedicine. Nano-particles possess the capability of significantly improving drug delivery by targeting those areas where macromolecules fail to reach. Several reports have exhibited the importance of metals in glucose metabolism and their deficiency has been found to be associated with diabetes. Diabetes is a global burden due to a number of complications associated with it. One of the major complications is oxidative stress as severe hyperglycemia during diabetic conditions enhances the generation of free radicals, particularly reactive oxygen species. Nano-particles pose a novel approach of antioxidant therapy to avoid and treat diabetes induced oxidative stress. *Moringa oleifera* has been reported to possess anti-diabetic as well as antioxidant activities by our research group. Hence, this plant was selected for phyto-fabrication of silver nano-particles (Ag-NP) in order to explore their antioxidant potential in the management of diabetes induced oxidative stress. Different antioxidant assays such as DPPH, hydroxyl, superoxide, nitrous oxide radicals and metal chelating activities were carried out of original extract as well as extract with nano-particles. The results reveal that their scavenging potential increase by 11.1, 7, 5.5, 7.5 and 15.3% respectively due to plant derived Ag-NP. Therefore we can conclusively state that plant derived Ag-NP add values to the antioxidant activity of original extract of *M. oleifera* and so it can be explored as a therapeutic agent for managing diabetes induced oxidative stress and oxidative stress as such.

Biography

Anamika Mubayi is currently a Research Associate and has done PhD under the supervision of Dr. Watal in the Department of Chemistry, Allahabad University, India. She has done her M S from the University of Iowa, USA. She worked as a Senior Research Associate at IIT Kanpur, India and Research Assistant at University of Iowa, USA. She has several publications in national/international journals and also received poster award in J F J Graduate Conference, University of Iowa, USA. She has been to Lausanne, Switzerland for attending a nano-technology-based training program.

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