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Biomedical Applications of Zinc Oxide Nanoflowers- An Overview †

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Abstract: Nanotechnology is a boon in the field of science, which has captured a versatile area in medical applications, pharmaceutical products, targeted drug delivery, biosensing, cosmetic products, imaging technology, and so on. Bionanotechnology includes applying different types of nanostructures in the field of biological analysis, theranostics, etc. Metal and metal oxide nanoparticles are used for many such applications in which zinc oxide (ZnO) is one of the metal oxides which can be synthesized in different shapes and morphology. Among the various nanostructures, nanoflowers of ZnO exhibit special characteristics due to its ultrasmall size, the huge surface area offered by the flower structure's petals, and the bandgap energy is similar to a semiconductor, which enables it to possess specific photophysical properties. It is well known that ZnO nanoparticles are used in cosmetics as well as in paints for their photocatalytic activity in scavenging the UV radiation from sunlight. This review paper describes zinc oxide nanoflower and its various applications such as catalytic agent, disease diagnosis, biosensing ability, and therapeutic processes.

Keywords: metal oxide nanoparticles; zinc oxide nanoflower; biosensors; photocatalysis; bionanotechnology.

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Conflicts of Interest

The authors declare no conflict of interest.