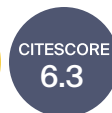




*catalysts*



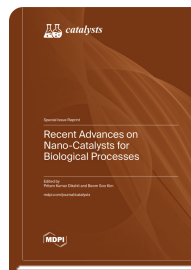
*Special Issue Reprint*

## **Recent Advances on Nano-Catalysts for Biological Processes**

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Nanomaterials have gained significant importance in various sectors, such as biomedical science, energy conversion, and sensor technology, due to their versatile applications. Nanoparticles, particularly those with a size of 100 nm or less, have been researched extensively due to their unique properties and high surface-to-volume ratio. Different methods like physical, chemical, biological, and hybrid methods are used to synthesize these nanoparticles. However, it is crucial to use reliable, non-toxic, and eco-friendly technologies to make these nanoparticles safe and expand their biological applications. These nanoparticles are used for different biological applications such as carbohydrate hydrolysis, biofuel production, enzyme immobilization, biotransformation, gene and drug delivery, and the detection of pathogens and proteins. Nanocarriers have also been used recently to produce nanobiocatalysts (NBCs), which further enhance enzyme performance by immobilizing different enzymes. From these backgrounds, wide ranges of topics on application of nanomaterials in biological processes are covered in this Special Issue to provide up-to-date summaries of the current understanding.



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