Journal of Bioremediation & Biodegradation
ISSN: 2155-6199

Engineering Magnetic Nanobiocatalytic Systems Functionalities for Biocatalysis, Applications of Biotechnology and Bioprocess

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Abstract

Enzymes are powerful natural biological catalysts with numerous uses in the culinary, medicinal, agricultural, and environmental industries. However, the most difficult obstacles preventing biocatalytic systems from being used in industry are their ineffective recovery, reusability, and expensive soluble form of enzymes. Immobilization looks to be a great method for improving the stability and catalytic effectiveness of enzymes, as well as permitting their separation and reusability in continuous reaction batches, in order to address these deficiencies. Due to their significant surface area, higher surface-to-volume ratio, modifable surface, and adjustable surface particle size, stability, and high mass transferring ability, magnetic nanomaterials have attracted the most attention among other nanostructures as support matrices for immobilising biomolecules and enzymes. They can also be rapidly healed from and the synthesis of artifcial benzylisoquinoline alkaloid, butanol production, lignocellulosic biomass hydrolysis, glucose monitoring, fruit juice extraction and clarifying, and so on are thoroughly examined with illustrative examples. Finally, the summary and potential directions in this developing feld are also addressed.

Keywords:

Introduction

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Received: 02-Dec-2022, Manuscript No. Jbrbd-22-82313; **Editor assigned:** 06-Dec-2022, PreQC No. Jbrbd-22-82313 (PQ); **Reviewed:** 20-Dec-2022, QC No. Jbrbd-22-82313; **Revised:** 23-Dec-2022, Manuscript No. Jbrbd-22-82313(R); **Published:** 30-Dec-2022, DOI: 10.4172/2155-6199.1000543

Citation: Dai S (2022) Engineering Magnetic Nanobiocatalytic Systems Functionalities for Biocatalysis, Applications of Biotechnology and Bioprocess. J Bioremediat Biodegrad, 13: 543.

Conclusion

Acknowledgement

Conflict of Interest

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