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Special Issue Reprint

Air Pollution and Plant Ecosystems

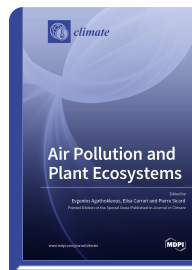
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Biotransformation has accompanied mankind since the Neolithic community, when people settled down and began to engage in agriculture. Modern biocatalysis started in the mid-1850s with the pioneer works of Pasteur. Today, biotransformations have become an indispensable part of our lives, similar to other hi-tech products. Now, in 2019, biocatalysis “received” the Nobel Prize in Chemistry due to prof. Frances H. Arnold’s achievements in the area of the directed evolution of enzymes. This book deals with some major topics of biotransformation, such as the application of enzymatic methods in glycobiology, including the synthesis of hyaluronan, complex glycoconjugates of N-acetylmuramic acid, and the enzymatic deglycosylation of rutin. Enzymatic redox reactions were exemplified by the enzymatic synthesis of indigo from indole, oxidations of β -ketoesters and the engineering of a horse radish peroxidase. The enzymatic reactions were elegantly employed in biosensors, such as glucose oxidase, in the case of electrochemical glucose sensors. Nitrilases are important enzymes for nitrile metabolism in plants and microorganisms have already found broad application in industry—here, these enzymes were for the first time described in Basidiomyceta. This book nicely describes molecular biocatalysis as a pluripotent methodology—“A jack of all trades...”—which strongly contributes to the high quality and sustainability of our daily lives.



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