Review

Recent advancements in bioremediation of dye: Current status and challenges

Kumar Vikrant, Balendu Shekhar Giri, Nadeem Raza, Kangkan Roy, Ki-Hyun Kim, Birendra Nath Rai, Ram Sharan Singh

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Kumar Vikrant[a1], Balendu Shekhar Giri[a1], Nadeem Raza[b, c1], Kangkan Roy[a], Ki-Hyun Kim[d*], Birendra Nath Rai[a], Ram Sharan Singh[a]

[a] Department of Chemical Engineering and Technology, Centre of Advanced Study, Indian Institute of Technology, Banaras Hindu University, Varanasi 221005, India

[b] Government Emerson College affiliated with Bahauddin Zakariya University, Multan 60800, Pakistan

[c] Department of Materials Science and Metallurgy, University of Cambridge, CB3 0FS, United Kingdom

[d] Department of Civil and Environmental Engineering, Hanyang University, 222 Wangsimni-Ro, Seoul 04763, Republic of Korea

Abstract

The rampant industrialization and unchecked growth of modern textile production facilities coupled with the lack of proper treatment facilities have proliferated the discharge of effluents enriched with toxic, baleful, and carcinogenic pollutants including dyes, heavy metals, volatile organic compounds, odorants, and other hazardous materials. Therefore, the development of cost-effective and efficient control measures against such pollution is imperative to safeguard ecosystems and natural resources. In this regard, recent advances in biotechnology and microbiology have propelled bioremediation as a prospective alternative to traditional treatment methods. This review was organized to address bioremediation as a practical option for the treatment of dyes by evaluating its performance and typical attributes. It further highlights the current hurdles and future prospects for the abatement of dyes *via* biotechnology-based remediation techniques.

***Keywords*:** bioremediation, dye, biodegradation, textile effluents, decolorization, bioreactor

***Corresponding Author: kkim61@hanyang.ac.kr (K.H. Kim)**

[1]These authors are considered as co-first authors because they contributed equally to this work.