

Preface

Unlike natural dyes which are derived from plants, vegetables, and some minerals, synthetic dyes are manufactured by chemical processes and are commonly used for dyeing and printing in a wide range of industries. They are originally derived from coal tar derivatives, but are now synthesized from benzene and its derivatives. Synthetic dyes are usually named after the chemical structure of their particular chromophore group. The first synthetic dye, mauve, was discovered way back in 1956 by W.H. Perkin when he attempted to synthesize quinine.

Now, different synthetic dyes are produced, such as acid dyes, azoic dyes, basic dyes, chrome dyes, diazo dyes, direct dyes, disperse dyes, reactive dyes, sulfur dyes, and vat dyes. These dyes are widely used in different industries for dyeing cloth, paper, food, wood, etc. Among these chemical dyes, azo dyes are the most commonly used in dyeing units. There are more than 10,000 dyes as of now and their production has already exceeded 735 metric tons globally. Since synthetic dyes are cheaper, brighter, faster, and easier to apply to the fabric, they have changed the entire scenario worldwide.

On the other hand, dyeing industries discharge an enormous amount of synthetic dyes in wastewaters which are very toxic to both animals and plants. In order to remove synthetic dyes from wastewaters, adsorption on various sorbents and chemical decomposition by oxidation and photo-degradation are widely used. However, microbial degradation or decolorization, employing activated sludge, pure cultures and microbial consortia, degradative enzymes, etc., has been found self-driven, cost-effective, and also eco-friendly.

Therefore, I endeavored to compile the latest state-of-art on the microbial degradation of synthetic dyes in wastewaters coming from dyeing units in an edited volume which will serve as a ready reckoner to scientists, environmentalists, policy makers, teachers, students, industrialists, NGOs, and others concerned.

In this attempt, I would like to profusely thank all the contributors for their prompt response and active participation by contributing review articles on different aspects of microbial degradation of synthetic dyes. Besides, I also acknowledge the research scholars associated with me, Ms. Shweta Mishra, Ms. Nitanshi Jauhari, Mrs. Babita Kumari, and Ms. Divyata Maurya (trainee) for their academic and

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S.N. Singh

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