



Use of Tungsten Doped Bismuth Vanadate as Photocatalyst for Degradation of Azure B

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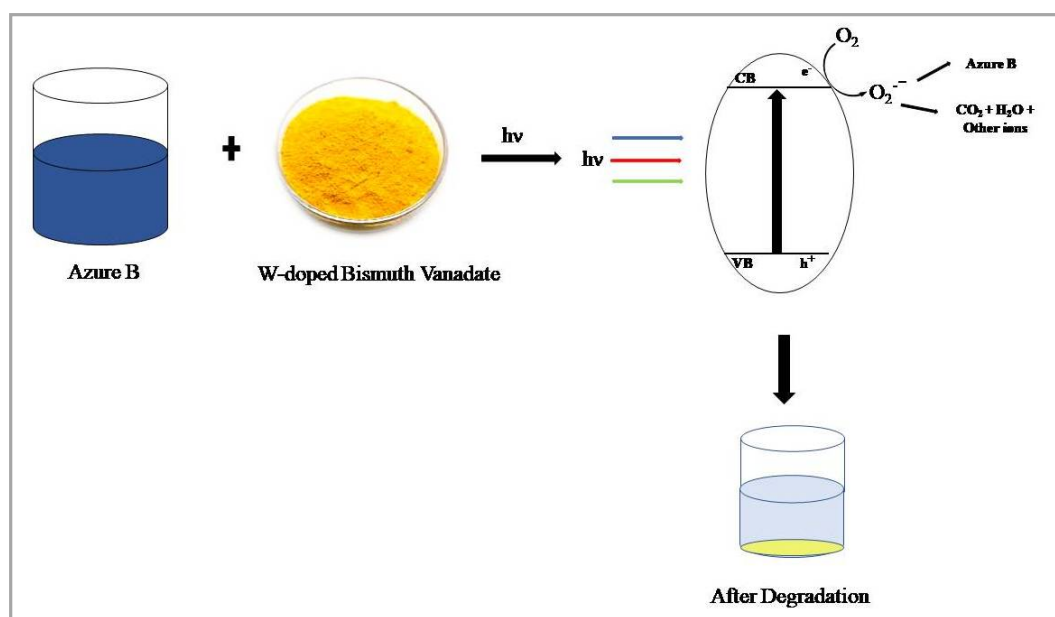
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ABSTRACT

Dye wastes are major pollutants of water. Advanced oxidation process (AOP) such as photocatalysis has been used as an alternative and effective option for treatment of industrial wastewater, especially in case of non-biodegradable compounds. The degradation of azure B can be catalysed in presence of light. Bismuth vanadate has photocatalytic activity, which can be enhanced by metal doping such as tungsten. Effect of different operational parameters like pH, concentration, amount of bismuth vanadate, dosage of dopants, light intensity, etc. was studied on the rate of degradation and conditions were optimized as: pH (8.5), concentration of dye (2.0×10^{-5} M), amount of photocatalyst (0.10 g), and light intensity (70.0 mWcm^{-2}). On the basis of observations, a suitable mechanism for the photocatalytic degradation of Azure B dye has been proposed involving oxygen anion radical as an active oxidizing species.

Graphical Abstract:



Keywords: Bismuth vanadate, Photocatalytic, Tungsten, Doped, Azure B.