

**SYNTHESIS OF MOLYBDENUM DISULFIDE DOPED
POLYPYRROLE HYBRID NANOCOMPOSITE FOR
PHOTOCATALYTIC DEGRADATION OF
2-CHLOROPHENOL FROM
AQUEOUS SOLUTION**

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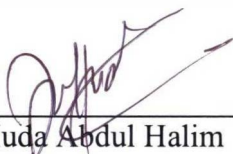
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ABSTRACT

SYNTHESIS OF MOLYBDENUM DISULFIDE DOPED POLYPYRROLE HYBRID NANOCOMPOSITE FOR PHOTOCATALYTIC DEGRADATION OF 2-CHLOROPHENOL FROM AQUEOUS SOLUTION

This investigation was focused on the photocatalytic degradation of toxic compound in waste water by using nanocomposite. In this study, molybdenum disulfide was doped with conducting polypyrrole via oxidation in-situ polymerization method using FeCl_3 as oxidation agent to form nanocomposite. The synthesized MoS_2/PPy nanocomposites were comprehensively characterized using X-ray diffraction (XRD) and Fourier transform infrared spectroscopy (FTIR). The photodegradation of 2-chlorophenol was performed under direct sunlight for 3 hours and using different parameter such as initial concentration, contact time with initial concentration and also different pH. The results indicated that MoS_2/PPy nanocomposite was the most efficient in photocatalytic activity compared to pure polypyrrole and pure boron nitride. The best pH shows at pH 5 while the best initial concentration was at 50 mg/L and for exposure contact time the best was at 180 minutes. Thus, MoS_2/PPy nanocomposite was optimum in 50 mg/L at pH 5 within 3 hours' exposure time towards sunlight which show 79.59% degradation of 2-chlorophenol.