

Effect of Different Parameters on Photocatalytic Degradation to Remove Pesticides Intermediates and Synthetic Dyes in Water



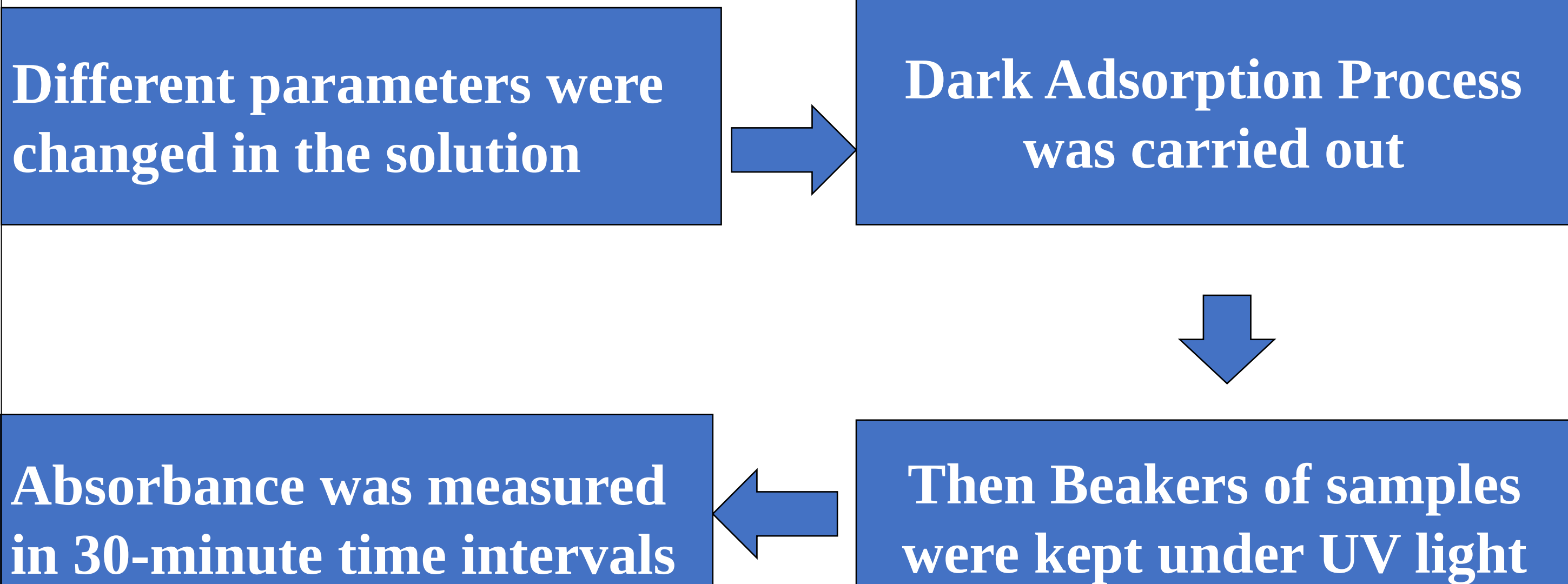
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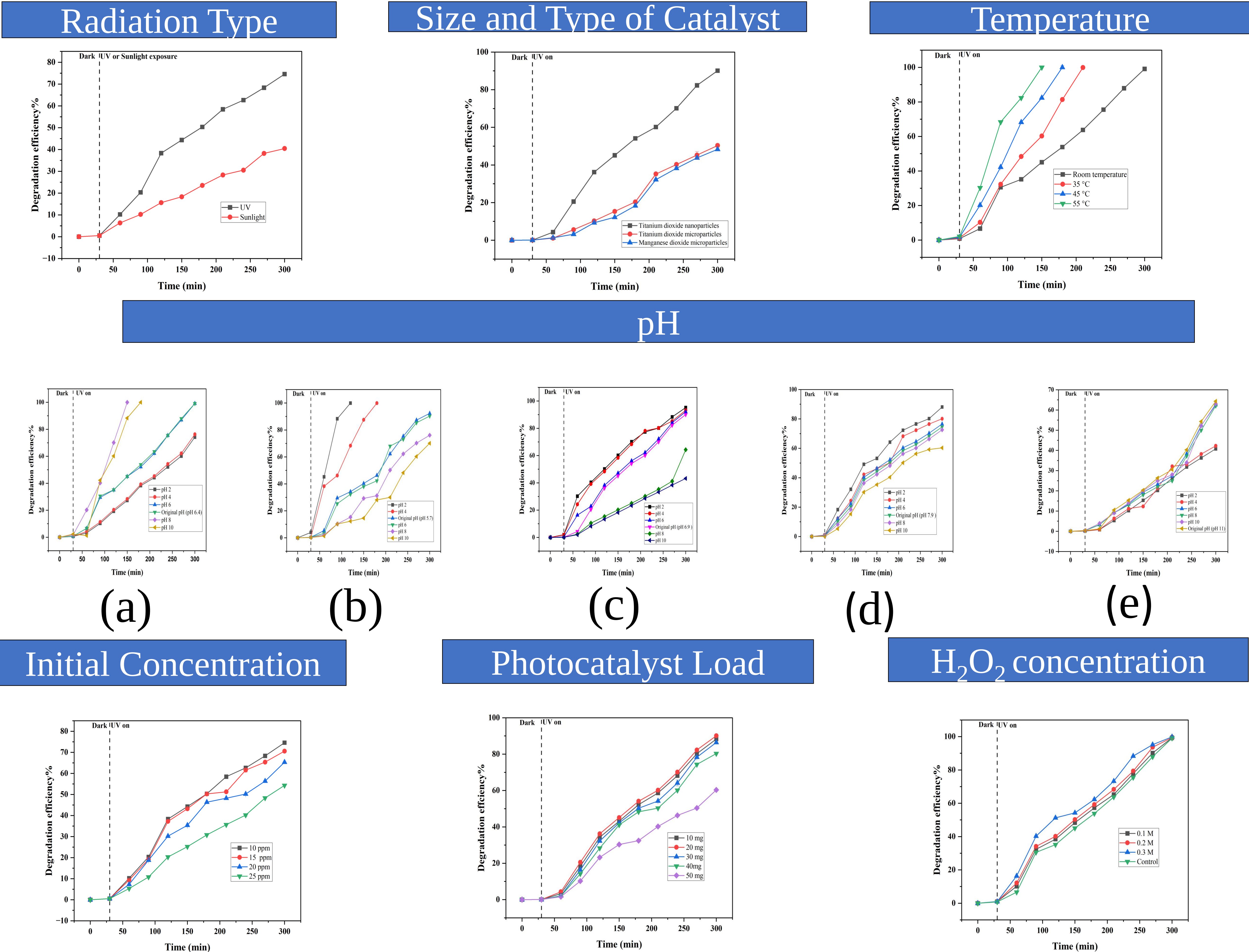
Introduction

- water pollution due to pesticides and organic pollutants is a serious environmental problem that can harm the ecosystem and human health.
- photocatalytic degradation is a promising technology for the removal of pesticides and organic pollutants as it is effective, environmentally friendly, and cost-effective.
- photocatalytic degradation depends on such as radiation type, pH of the solution, type of photocatalyst, particle size, Initial concentration of dyes and pesticide precursors, amount of H₂O₂ concentration, reaction temperature, and photocatalyst load.

Methodology



Results



Discussion

- UV Showed higher degradation efficiency compared to sunlight.
- TiO₂ Nanoparticles showed higher degradation efficiency as a photocatalyst.
- At Higher Temperature photodegradation efficiency was increased.
- At pH 8 (a) Methylene blue, pH 2 (b) Methyl Orange (c) Acid Red 1, (d) p-nitrophenol, and pH 11 (e) p- -nitroaniline showed the highest degradation.
- All the chemicals showed higher photodegradation efficiency at lower initial concentrations.
- All chemicals showed higher degradation efficiency when the photocatalyst load was 20 mg.
- The photodegradation efficiency of compounds was higher at higher H₂O₂ concentrations (0.3 M).

Conclusion

- The Photocatalytic Degradation Method is a good method to remove dyes and pesticides in Water.

References

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