

Seminar Title	: Life Cycle Assessment of Oxygen-doped g-C ₃ N ₄ Photocatalyst for Methylene Blue Decolorization
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Abstract	: Visible-light driven photocatalysis is a promising approach toward cleaner production and environmental impact reduction. While several studies have developed photocatalysts for dye degradation, there is still a research gap in demonstrating the associated techno-economic, environmental, and potential impacts. Advanced treatment processes have been investigated to remove contaminants from wastewaters and the assessment of the potential impacts of some of these processes throughout their life cycle. In this study, the life cycle assessment (LCA) has been done for the oxygen-doped g-C ₃ N ₄ (OCN) photocatalysis for decolorization methylene blue (MB) in lab-scale by mid-point and end-point analysis by considering the system boundaries (the synthesis and application of OCN photocatalysis in 1kg of MB removal). From the analysis, it was found that the urea used and electricity consumption generates higher environmental impacts. This two are the major factors contributing to the major environmental impacts, which can be minimized by optimizing the usage of urea, and finding the alternative base material for catalyst preparation also the use of electricity can be reduced by more efficient and transitioning to cleaner energy sources.