ABSTRACT

Graphitic Carbon Nitride (g-C_3N_4) is a polymeric material with a tri-s-triazine ring structure that has attracted the attention of researchers due to its wide applications, especially as a photocatalyst in the synthesis of organic compounds. Despite its good stability, g-C_3N_4 suffers from the problem of rapid recombination between electrons and holes, which can be overcome by adding metal oxide cocatalysts such as CuO and NiO to enhance its photocatalytic effectiveness. This study aims to evaluate the photocatalytic activity of g-C_3N_4, g-C_3N_4/CuO, and g-C_3N_4/NiO in the reactions of Schiff base synthesis and 2-aminophenol coupling oxidation. The methodology includes the synthesis of g-C_3N_4 from melamine, followed by the synthesis of the mixture using the precipitation method, as well as the characterization of the material through FTIR, XRD, SEM-EDX, and UV-DRS. The results showed that melamine was successfully converted into g-C_3N_4 with a yield of 53%, and the addition of metal oxide decreased the band gap value. Photocatalytic tests showed that g-C_3N_4/CuO had the best activity in Schiff base synthesis (94.2%) and coupling oxidation (23.02%), followed by g-C_3N_4/NiO and g-C_3N_4. KLT and NMR analysis confirmed the purity of the products, indicating that the addition of CuO and NiO significantly enhanced the photocatalytic activity in the synthesis of certain organic compounds.

***Keywords**: g-C_3N_4, Cocatalyst, CuO, NiO, photocatalyst.*