

A Research on Synthesis of Azo Derivatives of Some Primary Amines and Phenols

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Abstract: *The synthesis of Azo derivatives from primary amines and phenols plays a crucial role in the development of dyes, pigments, and biologically active compounds. In this study, we explore the synthesis of various azo compounds through the diazotization of primary amines followed by coupling with phenolic compounds. The reaction conditions, including temperature, pH, and solvent choice, are systematically varied to optimize yields and selectivity of the azo products. Additionally, the potential applications of these compounds in dyeing processes, as well as their biological activity, are also evaluated. The results indicate that the synthesized azo derivatives exhibit promising properties, including stability, color intensity, and antimicrobial activity, opening avenues for their use in textile and pharmaceutical industries. The synthesis of primary amines and phenols is a crucial aspect of organic chemistry, with significant applications in pharmaceuticals, agrochemicals, and material sciences. This research focuses on the development and optimization of synthetic routes for selected primary amines and phenols using cost-effective and environmentally friendly methodologies. Various synthetic strategies, including reductive amination, nucleophilic substitution, and catalytic hydrogenation, were explored for amine synthesis. For phenols, electrophilic substitution and hydroxylation techniques were employed to achieve high yields and purity. The study also examined the impact of reaction parameters such as temperature, catalysts, and solvents on the efficiency of the synthesis..*

Keywords: Primary amines, Organic synthesis, Chemical transformations, Functional group interconversion, Green Chemistry, Yield Optimization, Catalysis & Phenols, etc

