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Solvent-Free Microwave Synthesis of Octahydroquinazolinone Derivatives Catalyzed by Ammonium Metavanadate

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Abstract: *This review paper provides an overview of the solvent-free microwave synthesis of octahydroquinazolinone derivatives catalyzed by ammonium metavanadate. The methodology offers a sustainable and efficient alternative to traditional synthetic approaches, addressing environmental concerns associated with the use of organic solvents and harsh reaction conditions. The review discusses the reaction mechanism, optimization parameters, and scope of this synthetic strategy, highlighting its advantages and applications in organic synthesis. Optimization of reaction conditions, including temperature, reaction time, catalyst loading, and stoichiometry, is crucial for achieving high yields and minimizing side reactions. The broad substrate scope and functional group tolerance of this methodology enable the rapid assembly of diverse molecular scaffolds with potential biological activities. Examples of applications in organic synthesis and drug discovery illustrate the versatility and utility of this synthetic approach. Recent advancements in reaction optimization and substrate diversification have expanded the scope and synthetic utility of this methodology, paving the way for further developments in sustainable synthetic chemistry.*

Keywords: Solvent-free synthesis, Microwave-assisted synthesis, Octahydroquinazolinone derivatives, Ammonium metavanadate, Sustainable chemistry & Organic synthesis

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