Green Synthesis of Octahydroquinazolinones via Microwave-Assisted One-Pot Reaction with Ammonium Metavanadate

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Abstract: *Microwave-assisted organic synthesis has revolutionized the field of green chemistry by enabling rapid, efficient, and environmentally benign synthetic routes. This review focuses on the green synthesis of octahydroquinazolinones via a one-pot reaction under microwave irradiation, utilizing ammonium metavanadate as a catalyst. Octahydroquinazolinones, renowned for their diverse pharmacological properties, are synthesized through the condensation of an amine, aldehyde, and urea or its derivatives. The catalytic role of ammonium metavanadate facilitates the formation of these heterocyclic compounds under mild reaction conditions, offering advantages such as reduced reaction times, high yields, and operational simplicity. The mechanism of the reaction involves the intermediacy of key species formed through the catalytic action of ammonium metavanadate. Recent advancements in this field, including modifications to the synthetic methodology and applications in medicinal chemistry, are discussed. Overall, the microwave-assisted green synthesis of octahydroquinazolinones with ammonium metavanadate represents a promising strategy for the sustainable production of biologically active heterocycles, aligning with the principles of green chemistry.*

Keywords: Microwave-assisted synthesis, Green chemistry, Octahydroquinazolinones, Ammonium metavanadate & One-pot reaction