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Microwave-Assisted and Sonicator-Assisted Organic Reactions: A Comprehensive Review

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Abstract: *Green chemistry has revolutionized the field of organic synthesis by promoting environmentally friendly and energy-efficient techniques. Among these, microwave-assisted and sonicator-assisted organic reactions have gained prominence for their ability to enhance reaction rates, yield, and selectivity. This review explores the fundamental principles, mechanisms, applications, and advantages of these techniques over conventional methods. A comparative analysis of microwave and ultrasound-assisted synthesis, along with their recent advancements and future prospects, is also discussed*

Keywords: Microwave-assisted organic synthesis, Sonicator-assisted organic reactions, Green chemistry, Ultrasound, Sustainable synthesis

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