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FAST AND REPEATABLE GRIGNARD REACTIONS UNDER ULTRASOUND AND MICROWAVE IRRADIATION

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Abstract

The Grignard reaction is one of the most common synthetic pathways in organic chemistry and has widely been used in the preparation of fine chemicals and pharmaceutical intermediates.¹ The reaction's repeatability can be affected by several factors (metal purity, degree of association in solution, Schlenk equilibrium) and its activation with chemical, mechanical, sonochemical or electromagnetic treatments is practically essential.² In this study we demonstrate that ultrasound- (US) and microwave- (MW) assisted Grignard reactions are safe, efficient and repeatable. The equipments used were a 300kHz sonochemical reactor (cup horn) and a new microwave reactor that works under inert atmosphere (Ar or N₂ up to 200 bar). An efficient one-pot protocol with poorly-reactive aryl halides and the subsequent quenching with a hindered ketone are reported.

References

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