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Original and Innovative Advances in the Synthetic Schemes of Coumarin-Based Derivatives: A Review

ABSTRACT

Coumarin, a chemical nucleus, is award gifted from nature. This description is due to the versatile of its derivatives and the wide variety of their biological activities. Although many coumarins have been originally isolated from natural origins, there is a mounting interest in the past decades to synthesize the coumarins in the laboratory. Many synthetic routes have been documented named Perkin, Wittig, Pechmann, Claisen, Reformatsky, and Knoevenagel pathways. To maximize the yield, reduce the reaction period, minimize the side products, and make these reactions environmentally friend, several innovative approaches have been developed. These include the use of ultrasound, microwave, and solvent-free conditions to satisfy these goals. This review was focused on the traditional synthetic routes of coumarins and their innovative improvements as well as the benefits arising from the use of each of them.