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Data Article

A greener and microwave-mediated synthesis and spectral studies of β-aminomethylhydroxylcoumarins

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ABSTRACT

A series of warfarin analogs, β-aminomethylhydroxylcoumarins, was obtained in good yields from the Mannich reaction of 4-hydroxycoumarin, aromatic aldehydes and secondary amines in water under microwave irradiation at 100 °C. The salient features of the synthesis are: catalyst-free protocol, green solvent (water), complete avoidance of organic solvents in the synthesis, facile workup and high yields.

Specification Table

Subject area	Organic Chemistry
Compounds	Warfarin analogs, β-aminomethylhydroxylcoumarins
Data category	Spectral data, Microwave mediated synthesis
Data acquisition format	NMR (1D and 2D) spectroscopy, CHN analyzer
Data type	Analyzed data
Procedure	The compound was synthesized and characterized by spectral analysis
Data accessibility	Within this article

1. Rationale

One important facet of green chemistry pertains to the complete elimination of hazardous solvents or their replacement by environmentally benign reaction media in chemical transformations. Water, which can be considered as nature's gift as a reaction medium, is a non-flammable, non-toxic and inexpensive solvent, besides having the advantage of being a non-exhaustible and an almost freely available resource [1,2]. It is generally accepted that these properties enable water close to being the ideal green solvent [3], despite some limitations advanced [4]. Further, use of water as reaction medium often enhances the rate and selectivities of many organic transformations, besides often rendering facile separation of the reaction products. Further, many types of reactions of water-insoluble organic compounds ("on-water" processes) occur more rapidly in heterogenous phase in water than in homogeneous phase in organic solvents [5,6].

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