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18. PPST Covod-19 Situation in a Facile Approach for the Synthesis and Spectral Characterization of Coumarinederivatives

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Abstract

An effective approach was recognized using lanthanum chloride as catalyst to obtainedCoumarine derivatives under ambient temperature condition. The synthesis of Coumarinehas been achieved via onepot reaction of Resorcinol, EAA using lanthanum chloride as catalyst in solvent ethanol. All the synthesized derivatives were characterized by H^1NMR, IR.

Keywords-β- Coumarine, Schiff's base, EAA.

Introduction

Azomethine Group (-C=N-) ContainingCompound typically known as skip basis have been synthesized by the condensation of primary amine with active carbonyl. Skip basis has the significant class of compound in medicinal and pharmaceutical industry with several biological application that include antibacterial and antitumor activity they have been studied extensively as a class of ligand and are known to co-ordinate with metal ion through the azomethine nitrogen atom.

Similarly Coumarine derivative has been a great interest because of their role in natural and synthetic organic chemistry in many products which contain Coumarine subunit exhibit biological activity such as molluscicides[1-4], anthelmintic, hypnitic, insecticidal[5] activities and some are serving as anticoagulant agent[3] and fluorescent brightness. Coumarine containing a skip base are expected to have enhanced antitumor and biological activities. It is well established that the biological activity associated with the hydrogen compound attributed to the presence of active pharmacophore.

Experimental

All solvents were laboring as commercial anhydrous mark without further Refining. The column chromatography was carried out over silica gel (100120 esh). Melting points determinedby open capillary tube. ^1H NMR spectra were recorded on a Bruker 300 MHz spectrometer in DCl3solvent.

General Procedure for the Synthesis of Coumarin

The Mixture of resorcinol (0.01 mole) and EAA (0.01 mole)and 0.2 gm of $ZnCl_2$ was added in 20 ml of ethyl alcohol in round bottom flask the reaction mixture was stir for 45 min.The reaction mixture was coolwith stirring. The formation of product was monitor on thin layer chromatography. The isolated crude product Coumarin is further purified by the washing in acetone.

General Procedure for the One Pot Synthesis of Schiff's Base Coumarin Derivatives

The Coumarin and Chloroacetyl chloride taken in round bottom flask congaing 15 ml ethyl alcohol, along with hydrazine and aromatic amine, the reaction mixture was stir for 60 min. the purity of product was monitor on TLC, the solid finalproduct was isolated and recrystallize using ethyl alcohol.

General Scheme

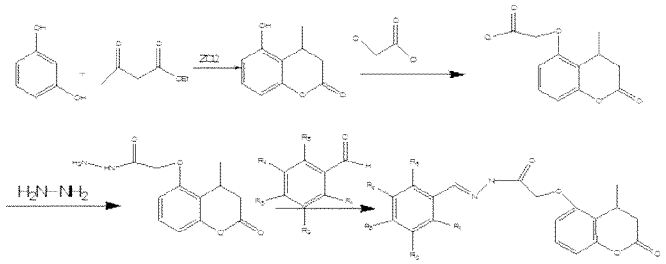

Table - Synthesis of 1a to 5f derivatives in terms of M. P. and Yield

Sr. No.	R_1	R_2	R_3	R_4	R_5	M.P. ^0C	% Yield
1a.	H	H	NO_2	H	H	276	65
2b.	OCH_3	H	NO_2	H	H	280	60
3c.	Cl	H	Cl	H	H	296	55
4d.	H	NO_2	H	H	OH	258	60
5f.	NO_2	H	NO_2	H	H	266	80

1. **1a :-M.P.276^{0}C**

FT-IR770 cm^{-1}for aromatic C-C stretching, 1190 cm^{-1}1for–$NO_2$for stretching 1630 cm^{-1}forC=Ostretching , 1090 cm-1 for C-N stretching, 2350cm^{-1} for CN stretching,

NMR : δ3.2,d for 2H, δ5.9 s for 1H,δ2.1 t for 2H,1.9 d for 3H,δ 6.6to 8.0 m for 7H.

2. **2b :-M.P.280 ^{0}C.**

FT-IR754 $cm^{-1}$for aromatic C-C stretching, 1120 cm^{-1} for C-O-Cstretching, 1160 $cm^{-1}$for C-N stretching ,1230$cm^{-1}$for–$NO_2$for stretching, 1690 cm^{-1} for C=O stretching, 1610 cm^{-1} for C=O amide stretching,

NMR δ 3.8 t, for 3H,δ3.9d for 2H,δ 2.1m for 1H,δ 4.5 s for 2H, δ 5.3 s for 1H δ 7.6to 8.4 m for 6H.

3. **3CM.P.296 ^{0}C**

FT-IR: 770 cm-1for aromatic C-C stretching, 890 cm^{-1} for C-Cl stretching,1150 for C-O-C stretching, 1650 cm^{-1}forC=Ostretching , 1140 cm^{-1} for C-N stretching, 1590 cm^{-1} for C=O Amide stretching.

NMR: δ3.2,d for 2H,δ3.9t for 1H,δ 5.1 s for 1H δ 6.9to 8.5 m for 6H.

4. **4dM.P.258 ^{0}C.**

FT-IR 746 $cm^{-1}$for aromatic C-C stretching, 1260 $cm^{-1}$for–NO2for stretching, 1710$cm^{-1}$for C=O stretching ,1610 cm^{-1} for C=O Amide stretching,1160 cm-1for C-N stretching.

NMRδ 3.8d, for 1H,δ 2.5m for 3H, δ 2.1 d for 3H,δ 5.6 s for 1H, δ 6.6to 8.4 m for 6H.

5. **5f M.P.266^{0}C.**

FT-IR 660 $cm^{-1}$for aromatic C-C stretching, 1190 $cm^{-1}$for–NO2for stretching, 1730$cm^{-1}$for C=O stretching ,1570 cm^{-1} for C=O Amide stretching,1780 for -NO_2double bond stretch, 1160 cm-1for C-N stretching.

6. NMR δ 3.8 d, for 1H,δ 2.7m for 3H, δ 2.6 d for 3H,δ 5.9 s for 1H, δ 7.6to 8.9 m for 6H.

Result and Discussion

Herein an effective approach was developed for the synthesis of o-substituted Schiff's Base Coumarin derivatives in simple method with good yield, by using a simple and non-hazardous solvent ethyl alcohol at room temperature. The H^1NMR an IR Spectra of the intact five derivatives show above is good with respect to the structure. The synthesized derivatives may be implicated as an informative resource for pharmaceutical industry, Agriculture Field and poultry Science.

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