Recent Research in Science and Technology 2012, 4(8): 47-48
ISSN: 2076-5061
Available Online: http://recent-science.com/

Synthesis of 3-(2-hydroxy–3,4-benzophenyl-5-methoxy)-5-(4-methoxy-phenyl)–1-substituted Pyrazolines

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Abstract
1-(2-hydroxy-3,4-benzophenyl-5-methoxy)-3aryl-prop-2-ene-1-one & semicarbazide / thiosemicarbazide / phenylhydrazine /isonicotinic acid hydrazide were added to DMF and the mixture was refluxed for about 2 hours . The reaction mixture was cooled and diluted with water. The semisolid so obtained was triturated with ethanol to get a solid which was recrystallised from ethanol–acetic acid mixture to obtain titled pyrazolines

Keywords: Synthesis ,Pyrazolines.

INTRODUCTION

Pyrazoline Derivatives having five membered heterocyclic compounds are known to be biologically active and are important constituents of many pharmaceutical and agrochemical products. Pyrazolines and isoxazoles have been found to be established that introduction of thiophenyl group associated with diverse biological activities and numerous reports have appeared in the literature which highlighted their chemistry and use. Pyrazole derivatives were known to possess many biological derivatives including antibacterial[1] antifungal[2] antiinflammatory anti-depressant[4] anti-tumor[5] musclerelaxant[6] anti-arthritic[7] analgesic[8] and anticonvulsant[9] properties Also, varied medicinal activities such as anti-inflammatory[10] antibacterial [11] Anticonvulsan[12], antibiotic[13] anti-tubercular[14] antiungal[15] and anxiolytic activity[16]

Heterocyclic compounds containing nitrogen are widely distributed in nature and play an important role in the metabolism of all living cells. Present work deals with the synthesis of 3-(2-hydroxy–3,4-benzophenyl-5-methoxy)-5-aryl–1-substituted Pyrazolines and their characterization by elemental analysis, IR, 1H NMR analysis.

EXPERIMENTAL

All the melting points were taken in silicon oil bath with open capillary tubes and are uncorrected. IR spectra were recorded on a Nicolet-Impact 400 FT-IR spectrometer . ^{1}H NMR spectra were recorded on a Brucker AC300 FNMR spectrometer (300 MHz), using TMS as an internal standard. Microanalysis of nitrogen was obtained on Colman 29-N analyzer. Thin Layer Chromatography on silica gel-G, was used to check the purity of the compounds.

Synthesis of 2-Acetyl- 4 methoxy-1-naphthol

2-Acetyl- 4 methoxy-1-naphthol was prepared by refluxing 4-methoxy -1-naphthol with glacial acetic acid in presence of fused $ZnCl_2$.

Synthesis of 1-(2-Hydroxy-3,4-benzophenyl-5-methoxy)-3-aryl-prop-2-ene-1-one

1 - (2 -Hydroxy -3 ,4 -benzophenyl-5 -methoxy) -3-aryl –prop -2-ene -1-one were synthesized from 2-acetyl-4-methoxy-1-naphthol by condensing it with aromatic aldehydes.

Synthesis of 3-(2-hydroxy–3,4-benzophenyl-5-methoxy)-5-(4-methoxy phenyl)–1-substituted Pyrazolines.

1-(2-hydroxy-3,4-benzophenyl-5-methoxy)-3aryl-prop-2-ene-1-one & semicarbazide / thiosemicarbazide phenylhydrazine /isonicotinic acid hydrazide were added to DMF and the mixture was refluxed for about 2 hours . The reaction mixture was cooled and diluted with water. The semisolid so obtained was triturated with ethanol to get a solid which was recrystallised from ethanol–acetic acid mixture to obtain titled pyrazolines

Spectral interpretation of (4a)

IR (ν_{max}) (cm^{-1}): 3418(-OH str.) 1320 (C-O-C) , 1570 (C=N str),

NMR (δ ppm): 3.85 (s, 3H, OCH_3), 3.82 (S, 3H, OCH_3), 11.71 (s, 1H, OH), 5.15 (d, 1H, - CH , J= 12Hz), 6.09 (d, 1H, - CH , J= 12Hz) 6.52-8.3 (m , 14 H, Ar-H)

Spectral interpretation of (4b)

IR (ν_{max}) (cm^{-1}): 3430(-OH str.) 1650 (C=O str), 3218 (NH_2 str.), 1325(C-O-C) , 1572 (C=N str)

NMR (δ ppm): 3.80 (s, 3H, OCH_3), 3.83 (3H, OCH_3), 6.66-7.44 (m, 9 H, Ar-H) , 7.64 (s, 2H, $-NH_2$), 11.75 (s, 1H, OH) 5.15 (d, 1H, CH , J= 12Hz), 6.09 (d, 1H, CH , J= 12Hz)

Spectral interpretation of (4c)

IR (ν_{max}) (cm^{-1}): 3345 (OH str), 1322(C-O-C) , 1565 (C=N str), 3212 (NH_2 str.)
NMR (δ ppm): 3.80 (s, 3H, OCH_3), 3.83 (3H, OCH_3), 7.69 (s, 2H, -NH_2), 11.78 (s, 1H, OH)
5.15 (d, 1H, CH , J= 12Hz), 6.09 (d, 1H,CH, J= 12Hz) , 6.52-8.3 (m ,9 H, Ar-H)

Spectral interpretation of (4d)

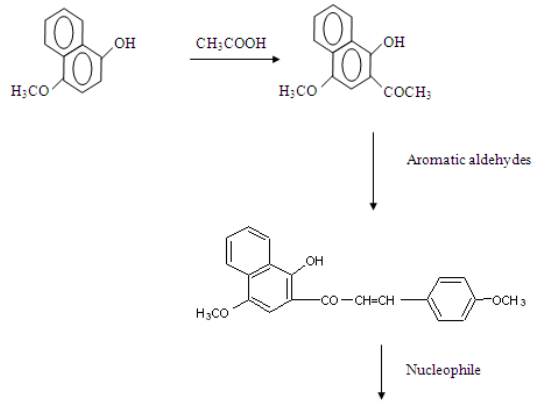
IR (ν_{max}) (cm^{-1}): 3390 (OH str), 1636 (C=O str) 1572, (C=N str), 1330 (C-O-C)

NMR (δ ppm): 3.80 (s, 3H, OCH_3), 3.83 (3H, OCH_3), 5.13 (d, 1H, - CH, J= 12Hz), 6.10 (d, 1H, - CH, J= 12Hz), 7.41-7.88 (m , 14H, Ar-H), 12.47(s, 1H, OH)

Table 1. Physical data of synthesized compounds.

Sr. No.	Compound	R	Melting Point ^0C	% Yield	% Nitrogen		R.F. Value
					Found	Calculated	
1	1	--	98^0C	68%	--	--	--
2	2	--	128^0C	64%	--	--	--
3	3	--	149^0C	58%	--	--	--
4	4a	C_6H_5	198^0C	43%	6.59	6.60	0.62
5	4b	$CONH_2$	213^0C	45%	10.73	10.74	0.71
6	4c	$CSNH_2$	267^0C	39%	10.30	10.32	0.55
7	4d	C_5H_4NCO	188^0C	42%	9.26	9.27	0.58

SCHEME I



ACKNOWLEDGEMENT

The authors are thankful to RSIC Punjab University Chandigarh for providing spectral data.

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