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RESEARCH ARTICLE

SYNTHESIS OF NEWER APPROACH FOR AMIDE CONSISTING DIHYDRO FURAN DERIVATIVES

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Abstract

Dihydro furan derivatives are potentially bioactive hence we started working on it prepared them from 2-(4-nitrophenyl)-2-oxoethyl 2-phenylacetate, reducing it and adding substituted carboxylic acids with EDCI, HOBt leads to the titled compounds.

Introduction:-

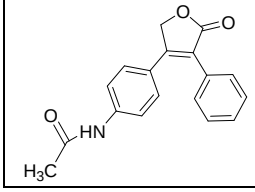
[3 + 2] cycloaddition reaction with metal catalyst gives novel 2, 5-dihydrofuran series by MTT method tested the anti cancer activity[1].

Ring opening of 2,3-dihydrofuran process at the C(4)–C(5) bond has been developed. NBS and DABCO used as the halogenating source and the catalyst, respectively. Mechanism indicates that moisture in the solvent might contribute to the reaction. [2]

Experimental procedure:
Substituted phenacyl bromides reaction with phenylacetic acid in methyl cyanide presence of diisopropyl ethylamine for one hour to produce 2-(4-nitrophenyl)-2-oxoethyl 2-phenylacetate, reacting it with sodium hydride in dimethyl sulphoxide to gives 4-(4-nitrophenyl)-3-phenylfuran-2(5H)-one, reduce it with zinc /acetic acid produces 4-(4-aminophenyl)-3-phenylfuran-2(5H)-one, reacting it with EDCI, HOBt leads to the titled compounds.

Results And Discussions:-

Titled compounds are formed with good to excellent yields, electron withdrawing groups leads less yield compare with electron donating groups.

Compound	IUPAC	Mol.Wt	./. of Yield
	*N*-(4-(2,5-dihydro-5-oxo-4-phenylfuran-3-yl)phenyl)acetamide	293.3	90

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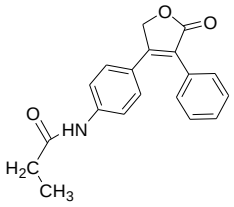
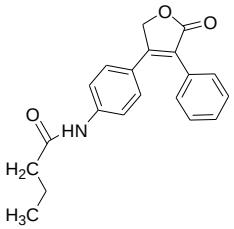
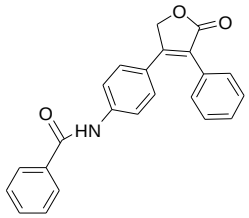
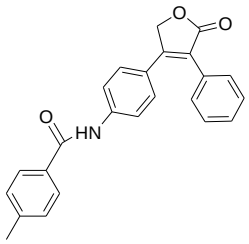
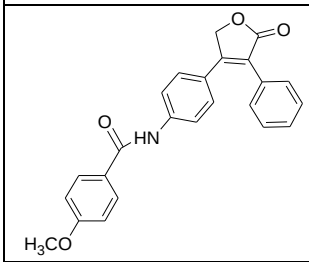
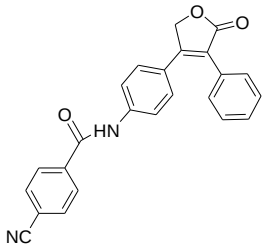
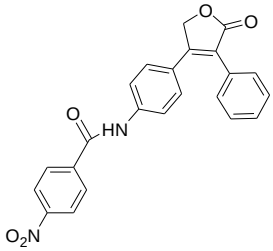
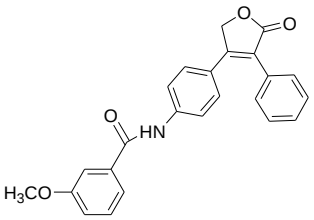
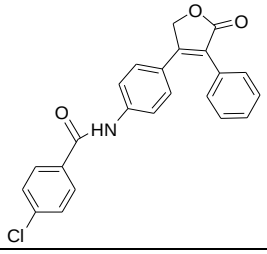
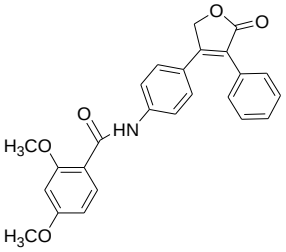
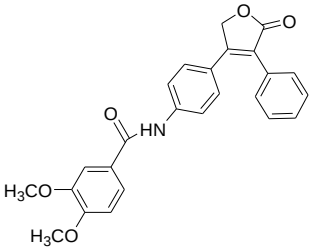
	*N*-(4-(2,5-dihydro-5-oxo-4-phenylfuran-3-yl)phenyl)propionamide	307.3	89
	*N*-(4-(2,5-dihydro-5-oxo-4-phenylfuran-3-yl)phenyl)butyramide	321.4	87
	*N*-(4-(2,5-dihydro-5-oxo-4-phenylfuran-3-yl)phenyl)benzamide	155.4	87
	*N*-(4-(2,5-dihydro-5-oxo-4-phenylfuran-3-yl)phenyl)-4-methylbenzam	169.4	86
	*N*-(4-(2,5-dihydro-5-oxo-4-phenylfuran-3-yl)phenyl)-4-methoxybenza	385.4	88
	4-cyano-*N*-(4-(2,5-dihydro-5-oxo-4-phenylfuran-3-yl)phenyl)benzami	380.1	85
	*N*-(4-(2,5-dihydro-5-oxo-4-phenylfuran-3-yl)phenyl)-4-nitrobenzamid	400.3	84

	*N*-(4-(2,5-dihydro-5-oxo-4-phenylfuran-3-yl)phenyl)-3-methoxybenza	385.4	90
	4-chloro-*N*-(4-(2,5-dihydro-5-oxo-4-phenylfuran-3-yl)phenyl)benzam	389.8	89
	*N*-(4-(2,5-dihydro-5-oxo-4-phenylfuran-3-yl)phenyl)-2,4-dimethoxybe	315.1	91
	*N*-(4-(2,5-dihydro-5-oxo-4-phenylfuran-3-yl)phenyl)-3,4-dimethoxybe	315.4	92

Conclusion:-

Dihydro furan derivatives have been synthesized with biologically active substrates. In future, we are planning for invivo anticancer studies.

References:-

1. Synthesis of novel 2, 5-dihydrofuran derivatives and evaluation of their anticancer activity. Zhang Y, Zhong H, Wang T, Geng D, Zhang M, Li K. Eur J Med Chem. 2012 Feb;48:69-80. doi:10.1016/j.ejmech.2011.11.036. Epub 2011 Dec 1. PMID: 22182926.

2. An Unexpected 2,3-Dihydrofuran Derivative Ring Opening Initiated by Electrophilic Bromination: Scope and Mechanistic Study. Zhao, YiWong, Ying-Chieh, Yeung, Ying-Yeung, J. Org. Chem, 80, 1, 453 - 459, doi.org/10.1021/jo502453f.