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Research Paper

SYNTHESIS, CHARACTERIZATION AND PHARMACOLOGICAL EVALUTION OF SOME NOVAL CHALCONE DERIVATIVE

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The present work, which had undertaken were bonafied, and novel for the synthesis of Chalcone derivatives. In this view we had made an attempt in reviewing the literature on substituted Chalcone derivatives for their medicinal significance with help of chemical abstract, journals and internet sites. All synthesized compounds were tested for the preliminary tests, physical constants and TLC. All structures of final compound were confirmed by IR, and ^{1}HNMR spectra as well as mass spectra All the synthesized compounds were evaluated for pharmacological activity.

Key Words: novel Chalcone derivatives, medicinal significance, physical constants, preliminary tests.

INTRODUCTION

Medicinal or pharmaceutical chemistry is a discipline at the intersection of chemistry and pharmacology involved with designing, synthesizing and developing pharmaceuticaldrugs. Medicinal chemistry involves the identification, synthesis and development of new chemical entities suitable for therapeutic use. It also includes the study of existing drugs, their biological properties and their quantitative structure-activity relationships (QSAR). Pharmaceutical chemistry is focused on quality aspects of medicines and aim to assure fitness for the purpose of medicinal products.

Compounds used as medicines are overwhelmingly organic products. However, metal-containing compounds have been found to be useful as drugs. For example, the cis-platin series of platinium-containing complexes have found use as anti-cancer agents. These types of compounds are known as metal-based drugs.

Aim And Objective :

The objective of present work was **Synthesis, Characterization and Pharmacological Evaluation of Some Noval Chalcone Derivative**. These derivatives were characterized by physico-chemical properties such as TLC, melting point & spectral studies (I.R., N.M.R. and Mass spectroscopy) and finally the synthesized compounds were subjected to pharmacological evaluation.

The project work was comprised of following steps:-

1. Synthesis, Characterization and Pharmacological Evaluation of Some Novalchalcone derivative
2. Physicochemical characterization of synthesized compounds (I.R., N.M.R. and Mass Spectroscopy)
3. Evaluation of pharmacological activities (Anti-inflammatory and Anti- Convulsant derivatives) of Synthesized compounds.

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Synthesized compounds:

Physical and Spectral Characteristics of methyl 2-phenylacetate

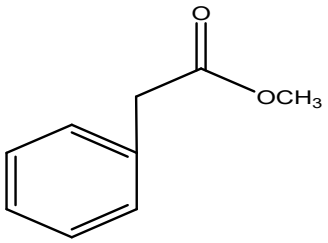

Table 1: Physical Characteristics

Molecular formula	% yield	Melting point Range (°C)	Rf value
$C_9H_{16}O_2$	78.78	70-71	0.82

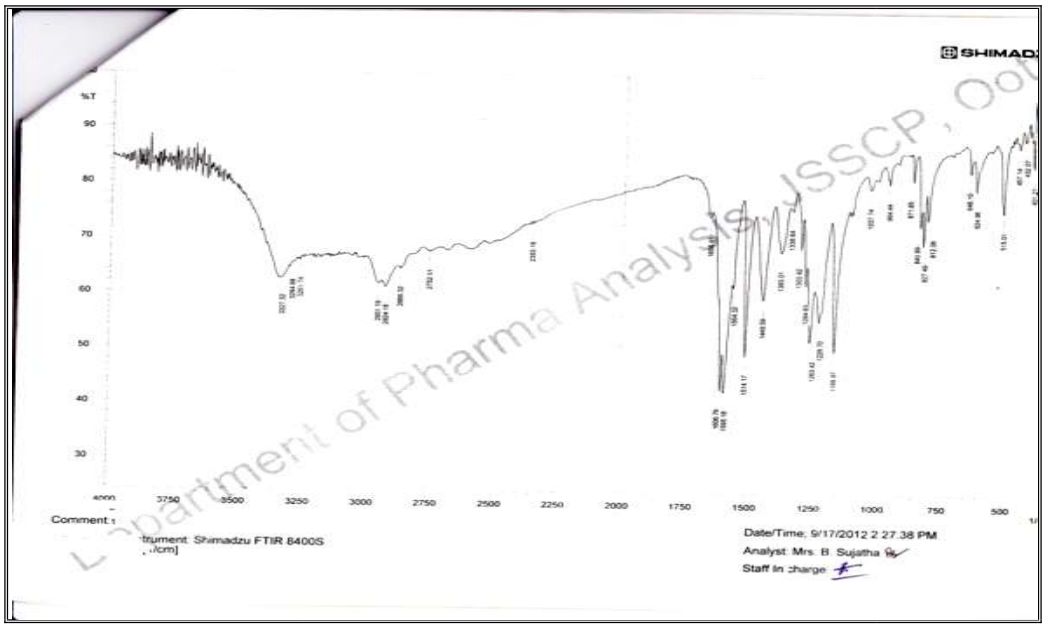

Fig. 1: IR Spectra of compound 1

Table 2: Spectral Characteristics

Compound code	IR (cm^{-1})
Comp-1	2951.19(Ar-CH), 1702.47 (C=O), 1595.18(C=C),

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Physical and Spectral Characteristics of 2-phenylacetohydrazide

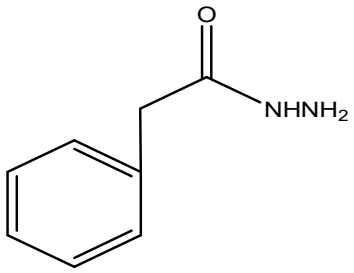

Table 3: Physical Characteristics

Molecular formula	% yield	Melting point Range (°C)	Rf value
$C_8H_{16}ON_2$	85.39	74-75	0.70

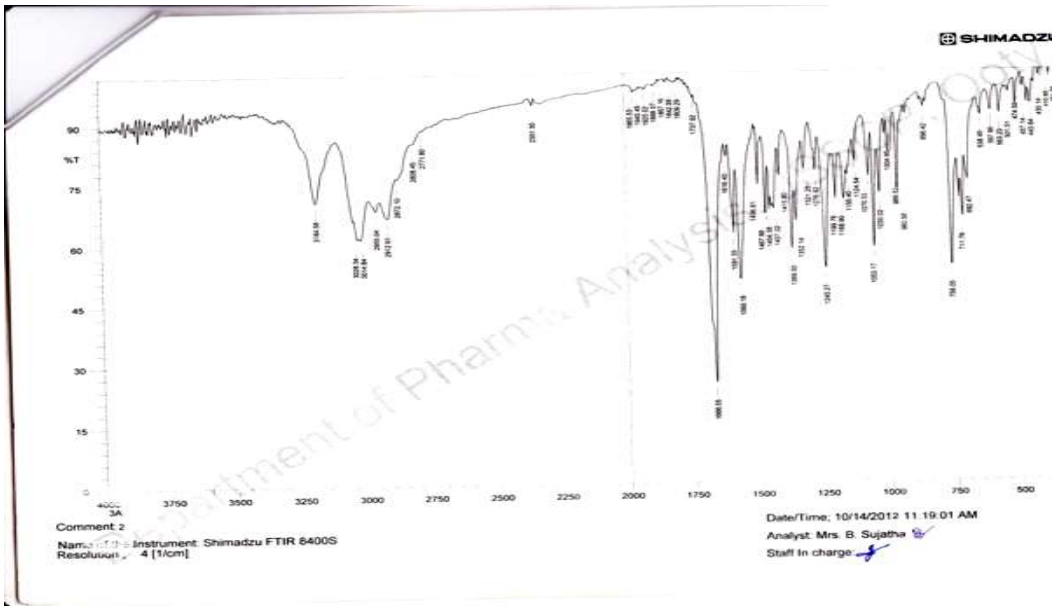

Fig. 2: IR Spectra of compound 2

Table 4: Spectral Characteristics

Compound code	IR (cm^{-1})
Comp-2	3385.18(NH), 3319.60(NH), 2951.19(Ar-CH), 1697.41(C=O),

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Physical and Spectral Characteristics of N'-(4-hydroxybenzylidene)-2-phenylacetohydrazide (3a)

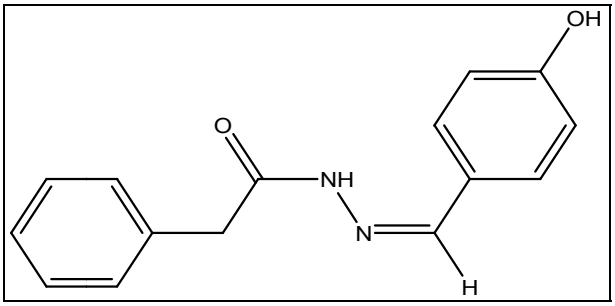

Table 5: Physical Characteristics

Molecular formula	% yield	Melting point Range (°C)	Rf value
$C_{15}H_{13}N_2O_2$	46.06	133-134	0.77

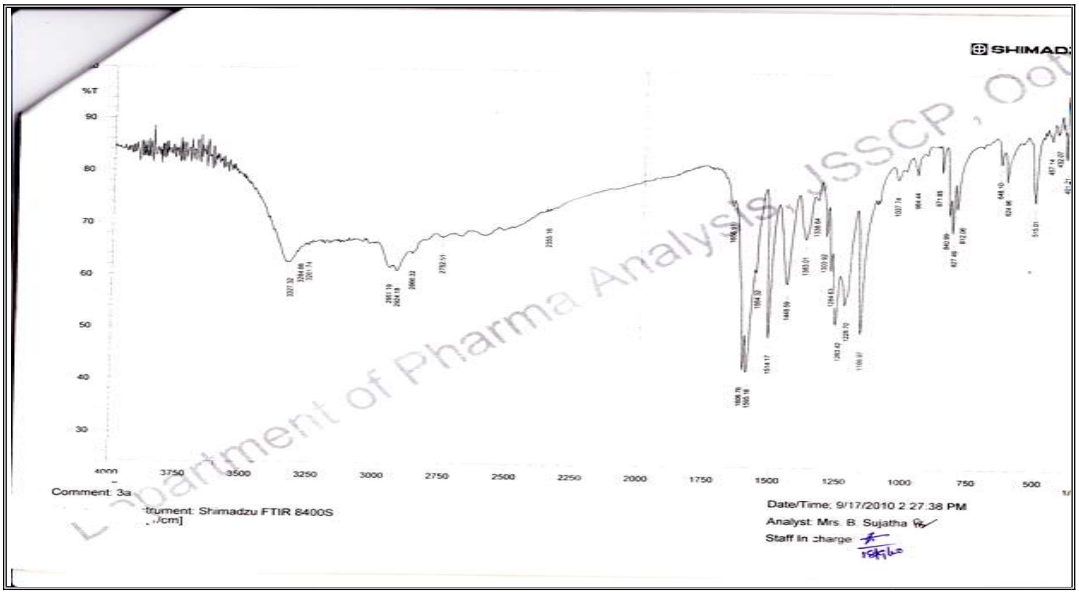

Fig. 3: IR Spectra of compound 3a

Screening of anti-microbial activity:

Table 6: Result of Zone of inhibition of Synthesized Compounds

S. N.	compound	Concentration µg/ml	*E. coli*	*S. Aureus*
1	Comp-3a	50	9	10
		100	11	10

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Zone of inhibition of synthesized compounds:

* 6-8 mm poor activity, 9-11 mm moderate activity, 12-15 above good. Anti-microbial activity against gram positive bacteria *Staphylococcus aureus*, gram negative bacteria *Escherichia coli.*All the three compounds **3f, 3g, 3k** showed near to significant antibacterial activity as compared to standard drug amoxicilline.

Screening of anti-fungal activity:

Table 7: Result of Anti-fungal activity of synthesized compounds

S.N.	Compound	Concentration µg/ml	*Candida albicans*
1	Comp-3[a]	250	-
		500	-

* (-) No growth, (+) Growth, (Keto) Ketoconazole.

Anti-fungal activity was performed against *Candida albicans.*Compound **3a,** showed near to significant antifungal activity as compared to standard drug ketaconazole.

SUMMARY AND CONCLUSION

The present work, which had undertaken were bonafied, and novel for the synthesis of Chalcone derivatives. In this view we had made an attempt in reviewing the literature on substituted Chalcone derivatives for their medicinal significance with help of chemical abstract, journals and internet sites. All synthesized compounds were tested for the preliminary tests, physical constants and TLC. All structures of final compound were confirmed by IR, and ^{1}HNMR spectra as well as mass spectra.

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