

**UNIVERSITY GRANTS COMMISSION
BAHADUR SHAH ZAFAR MARG
NEW DELHI – 110 002**

FINAL REPORT OF THE WORK DONE ON THE MINOR RESEARCH PROJECT

1. Project reference No. : Final Report
2. UGC Reference No.F. : 1492-MRP/14-15/KAMY013/UGC-SWRO
3. Period of report : From March 2015 to March 2017
4. Title of the Project : **Design and Synthesis of Substituted Pyrimidine Analogues A Novel Approach to Enhance the Bio-efficacy.**
5. a. Name of the Principal Investigator : **Dr. Mallikarjunaswamy C**
 b. Department : Postgraduate Department of Chemistry
 c. College where work has progressed : JSS College of Arts, Commerce and Science, Ooty Road, Mysuru-570 025.
6. Effective date of starting of the project : 16th February 2015
7. Grant Approved and expenditure incurred during the period of the report :
 - a. Total amount approved : Rs. 4,50,000/-
 - b. Total expenditure : Rs. 4,49,303/-
 - c. Report of the work done : Report copy enclosed.
 - i. Brief objective of the project : To Promote the development of research in the synthesis of pyrimidine analoges in the field of reducing inflammation in India with a view to manufacture and encourage such products in developing countries at affordable costs.

To cultivate and promote standardized practices and research in the field of

inflammatory diseases in India.

To foster studies on the basic mechanisms of anti-inflammatory activity of heterocyclic compounds.

To contribute and mutually exchange knowledge and appreciation amongst members of the society.

To promote continuing education in the field of inflammation, organizing, special lectures and publishing journals on academic matters pertaining to the society

To do every act and anti-inflammatory activity to achieve the above objectives and carry out all actions necessary for harmonious and cogent execution of the above objectives.

- ii. Work done so far and results achieved and publications : Work done with results has given in detail in the report copy enclosed and two Research articles have been communicated in International Journals.
- iii. Has progress been according to original plan of work and towards achieving the objective : Yes, work done has fulfilled the objective.
- iv. Please enclose a summary of the findings of the study : Report copy enclosed.
- v. Any other information : Nil

Signature of Principal Investigator

Principal

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FINAL REPORT OF THE WORK DONE ON THE PROJECT

1.	Title of the Project	:	Design and Synthesis of Substituted Pyrimidine Analogues: A Novel Approach to Enhance the Bio-efficacy.
2.	Name and Address of the Principal Investigator	:	Dr. Mallikarjunaswamy C Asst. Professor, PG Department of Chemistry JSS College of Arts, Commerce and Science, Ooty Road, Mysuru-25.
3.	Name and Address of The Institution	:	JSS College of Arts, Commerce and Science, Ooty Road, Mysuru-25
4.	UGC Approval Letter No. and Date	:	1492-MRP/14-15/KAMY013/UGC-SWRO, Dated: 4 th February 2015.
5.	Date of Implementation	:	16 th February 2015
6.	Tenure of the Project	:	Two years
7.	Total Grant Allocated	:	4,50,000/-
8.	Total Grant Received	:	4,25,297/-
9.	Final Expenditure	:	4,49,303/-
10.	Title of the Project	:	Design and Synthesis of Substituted Pyrimidine Analogues: A Novel Approach to Enhance the Bio-efficacy.
11.	Objectives of the Project	:	To synthesize new Pyrimidine derivatives. Characterization of synthesized new compounds using elemental analyses and modern spectroscopic methods like FT-IR, ¹ H NMR and LCMS. All the Synthesized compounds will be tested for their significant biological activities.
12.	Whether Objectives were Achieved	:	Yes, all synthesized compounds showed good biological activity

13.	Achievements from the project	:	From this project I had synthesized many pyrimidine derivatives and checked their biological activities. The work was also extended to evaluate <i>invitro</i> antioxidant activities for newly synthesized compounds.
14.	Summary of The Findings	:	A new class of (<i>E</i>)- <i>N</i> -benzylidene-5-bromo-2-chloropyrimidin-4-amine derivatives were prepared from simple starting material and substituted aldehydes in good yields and studied for their antioxidant activity, anti-inflammatory and antimicrobial activity. It was observed that the compounds having hydroxyl group exhibited greater antioxidant activity and halogenated compounds shows good antimicrobial and anti-inflammatory activity. The investigation of antioxidant screening data reveals that among the twelve compounds screened, compounds 6h , 6i and 6j showed excellent, almost equivalent to that of standards the remaining compounds showed moderate to mild inhibition activity. The presence of the electron donating substituent on ring enhances the activity and electron withdrawing groups like Nitro decrease. Many research models have been established in chemical and/or biological systems for studying the mechanisms of action of antioxidants and for identifying new antioxidants. Ten substituted Schiff bases were synthesized and bio-evaluated for their antioxidant, antimicrobial and anti-inflammatory activities in pursuit of the more active compound.
15.	Contribution To The Society	:	Microbes are unique creatures that adapt to varying lifestyles and environment resistance in extreme or adverse conditions. The genetic architecture of microbe may bear a significant signature not only in the sequences position, but also in the lifestyle to which it is adapted. It becomes a challenge for the society to find new chemical entities which can treat microbial infections. The present review aims to focus on account of important chemical moiety, that is, pyrimidine and its various derivatives as antimicrobial agents. In the current studies we represent more than 10 pyrimidines as antimicrobial agents

			with different mono-, di-, tri-, and tetra substituted classes along with in vitro antimicrobial activities of pyrimidines derivatives which can facilitate the development of more potent and effective antimicrobial agents.
16.	Whether Any Ph.D. Enrolled/Produced Out of The Project	:	No
17.	No. of Publications Out Of The Project	:	Two Research articles were communicated in International Journals

(PRINCIPAL INVESTIGATOR)

(PRINCIPAL)