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Details of the Collaborative Activity

2018-19

Name of the Collaborating Institute: P.A. College of Engineering, Mangalore

Name of Collaborating Department from YDU: Yenepoya Research Center

Activities:

Research Internship: Undergraduate students from Dept of Biotechnology from P.A. College of Engineering, Mangalore undertaken research internship training program at YRC

1. Fathima Kazreena,

- Havva Farisha
- Mariyam
- Khadeejath S Begum
- Abdullah A
- Mohammed Zanhal GK
- Muhammed Sabad
- Abhishek SK

Research Facility Utilization:
Undergraduate students from PA College of Engineering, utilized the Probe Sonicator facility and other facilities available at YRC for the research project.

Joint Research Publication:

1. Priya ESP, Nayak RP, Saldanha P. Raj CGD, Shashidhara KS. Anti-inflammatory and toxicity studies of substituted hydrazine pyrozolone derivatives. *International Journal of Pharmaceutical Research*. 2021: 13(1): 198.

2. Priya ESP, Nayak RP, Saldanha P, BJ Mohan, Prabhu A. Neuroprotective Activity of Pyrazolone Derivatives Against Paraquat-induced Oxidative Stress and Locomotor Impairment in Drosophila. *International Journal of Current Research and Review*, 2020; 12(23), p.68.

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Dr.Gangadhara Somayaji K.S.
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P.A. COLLEGE OF ENGINEERING
Approved by AICTE I Affiliated to VTU I Recognized by Govt. of Karnataka I ISO 9001-2008

Ref PAET/PACE/PRN/2017-18

Date 14.06.20118

To,

The Director,
Yenepoya Research Centre,
Mangalore.

Sir,

Sub: Internship training for Biotechnology Students– Reg.

As a part of B.E. degree course in Biotechnology, the following 8 students of VI semester desires to do their internship at your esteemed college as part of their studies. So we request you to permit the students to undergo visit in the month of August and extend all possible help.

1. Mariyam - 4PA15BT009
2. Havva Farisha - 4PA15BT006
3. Fathima Kazreena - 4PA15BT005
4. Kadheejath Shahanoor - 4PA15BT007
5. Abdullah Aamer - 4PA15BT001
6. Muhammed Zanhal G.K. - 4PA15BT011
7. Muhammed ~~Sbad~~ Sabad - 4PA15BT010
8. Abhishek S.K. - 4PA15BT002
9. Anjali K. V. - 4PA15BT003

Thanking you,

Yours faithfully,

ATTESTED

Dr.Gangadhara Somayaji K.S.
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Yenepoya (Deemed to be University)
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PRINCIPAL

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05.12.2018

CERTIFICATE

This is to certify that, Ms. Fathima Kazreena, Bachelor of Engineering in Biotechnology, Dept. of Biotechnology, P.A College of Engineering, Mangalore, has successfully completed her internship as a Research Intern in Yenepoya Research Centre, Yenepoya (Deemed to be University) under the guidance of Dr. Keshav Prasad, Deputy Director and Professor, CSBMM, Yenepoya Research Centre & Dr. Pratigya Subba, Assistant Professor, CSBMM, Yenepoya Research Centre, Yenepoya (Deemed to be University) Deralakatte, Mangalore from 6th Aug 2018 to 15th Sep 2018 in the field of "Proteomic Analysis".

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5/12/2018
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Yenepoya (Deemed to be University)
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Dr. Rekha PD

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This is to certify that, Ms. Havva Farisha, Bachelor of Engineering in Biotechnology, Dept. of Biotechnology, P.A College of Engineering, Mangalore, has successfully completed her internship as a Research Intern in Yenepoya Research Centre, Yenepoya (Deemed to be University) under the guidance of Dr. Keshav Prasad, Deputy Director and Professor, CSBMM, Yenepoya Research Centre & Mr. Arun Patil, Assistant Professor, CSBMM, Yenepoya Research Centre, Yenepoya (Deemed to be University) Deralakatte, Mangalore from 6th Aug 2018 to 15th Sep 2018 in the field of "Proteogenomic Analysis".

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This is to certify that, Ms. Mariyam, Bachelor of Engineering in Biotechnology, Dept. of Biotechnology, P.A College of Engineering, Mangalore, has successfully completed her internship as a Research Intern in Yenepoya Research Centre, Yenepoya (Deemed to be University) under the guidance of Dr. Keshav Prasad, Deputy Director and Professor, CSBMM, Yenepoya Research Centre & Dr. Pratigya Subba, Assistant Professor, CSBMM, Yenepoya Research Centre, Yenepoya (Deemed to be University) Deralakatte, Mangalore from 6th Aug 2018 to 15th Sep 2018 in the field of "Proteomic Analysis".

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This is to certify that, Ms. Kadheejath Shahanoor Begum KK, Bachelor of Engineering in Biotechnology, Dept. of Biotechnology, P.A College of Engineering, Mangalore, has successfully completed her internship in Yenepoya Research Centre, Yenepoya (Deemed to be University) under the guidance of Dr. Keshav Prasad, Deputy Director and Professor, CSBMM, Yenepoya Research Centre & Mr. Arun Patil, Assistant Professor, CSBMM, Yenepoya Research Centre, Yenepoya (Deemed to be University) Deralakatte, Mangalore from 6th Aug 2018 to 15th Sep 2018 in the field of "Proteogenomic Analysis".

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Research Article

Anti-Inflammatory And Toxicity Studies Of Substituted Hydrazine Pyrazolone Derivatives

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ABSTRACT

Objectives: Substituted hydrazine pyrazolone derivatives were evaluated for the anti-inflammatory effect, acute toxicity, and genotoxicity in this study.

Materials and methods: The pyrazolone derivatives (C1-C4) were screened for in vitro albumin denaturation assay, in vitro Cyclo Oxygenase inhibition studies and in silico molecular docking studies. Compounds C3 and C4 were selected for in vivo anti-inflammatory activity assessment by carrageenan-induced paw edema model in albino rats. Compounds C3 and C4 were screened for acute toxicity studies by assessing the liver and renal function tests. Genotoxicity of C3 and C4 was determined through DNA fragmentation assay.

Results and Discussion: Among the tested compounds, C3 and C4 were effective against the denaturation of egg albumin. Compounds C3 and C4 were found to be potent molecules towards significant inhibition of COX-2 but insignificant towards COX-1 inhibition. Carrageenan-induced paw edema test revealed C3 as a more potent compound than the standard drug. The result of in silico molecular docking studies of compounds with COX-1 and COX-2 enzymes correlates with the in vivo and in vitro anti-inflammatory studies. Compounds C3 and C4 were found to be nontoxic at tested dose which was evidenced by acute toxicity and DNA fragmentation studies.

Conclusion: Among the tested compounds C3 has emerged as an effective non-steroidal anti-inflammatory scaffold. The potency of a compound might be attributed due to trifluoromethyl substitution.

Keywords: Pyrazolone, anti-inflammatory activity, COX inhibition, molecular docking

INTRODUCTION

Inflammation is a multistage process and comprehensive body defense response to noxious stimuli and connected with certain physiological, biochemical and cellular modifications. Inflammation is significantly observed in lung diseases such as asthma, chronic obstructive pulmonary disorder and other diseases including allergic rhinitis, rheumatoid arthritis, osteoarthritis, inflammatory bowel diseases and psoriasis. Over the last few years despite intensive global research, cures for pain and inflammation with no toxicity have still not been found [1]. Nonsteroidal anti-inflammatory drugs (NSAIDs) are commonly used to treat pain and inflammation [2]. NSAIDs exhibit their drug action by inhibiting cyclooxygenase (COX) enzymes, which catalyzes the conversion of arachidonic acid to prostaglandins, prostacyclins, and thromboxanes [3]. Enzyme COX exists as COX-1 and COX-2 isoforms. They are assumed to play an energetic role in producing pathological and physiological prostaglandins respectively [4]. Currently used NSAIDs employ their anti-

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