

New Syllabus (CBCS) From 2022-23

B.Sc. Part - I, Semester - I
Paper - I (DSC - I)

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As Per Sant Gadge Baba Amravati University's New Syllabus
(CBCS) From 2022-23

A Text Book of
Algebra and Trigonometry

B.Sc. Part I, Semester I
Paper I (DSC - I)



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PUBLICATION

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Algebra and Trigonometry

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Published by the **DnyanPath Publication (INDIA)**

The first edition published in 8th August, 2022

ISBN 13 : 978-93-94661-12-7

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Publication
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ISO 9001 : 2015



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Printed at Shri Gurudeo Printers, Amravati.

Mahatma Fule Sankul, Shegaon Naka,
V.M.V. Road, Amravati - 444603 (Maharashtra)

₹ : 250/-

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A Text Book of
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B.Sc. Part - I, Semester - I
Paper - II (DSC - II)

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Published by the **DnyanPath Publication (INDIA)**

The first edition published in 8th August, 2022

ISBN 13 : 978-93-94661-13-4

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Printed at Shri Gurudeo Printers, Amravati.

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₹ : 210/-

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Dr. A. N. Rangari

In Recognition of her Professional Excellence, Spirit and Dedication in Writing the Chapter in

**Book on
New Generalized Integral Transforms**

ISBN 13 : 978-93-94661-01-1

Edition : First, 3rd July 2022

Sachin D. Sukalkar

Publisher

DnyanPath Publications, Amravati (INDIA)

Sushil M. Sukalkar

Editor - In - Chief

DnyanPath Publications, Amravati (INDIA)

Book on New Generalized Integral Transforms Editor : Dr. V. D. Sharma



Book on New Generalized Integral Transforms

Editor
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DnyanPath®
Publication
ISO 9001 : 2015

A Leading National Books Publishing House In India

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Published by the **DnyanPath Publication (INDIA)**

The first edition published in 5th July, 2022

ISBN 13 : 978-93-94661-01-1



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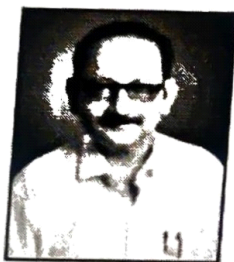
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ISBN : 978-93-93973-51-1



₹ 290/-



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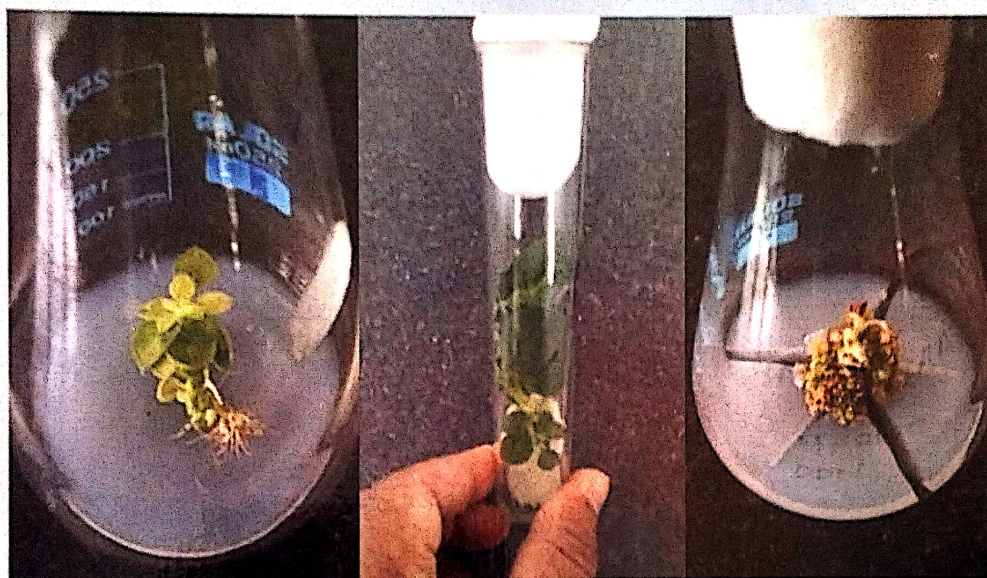
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**M.Sc.II Semester III Practical V
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As per Syllabus by Sant Gadge Baba Amravati University, Amravati



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My Rays Book Publication Centre powered by
International Journal of Microbial Science (ISSN:2582-967X)



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M.Sc. II Semester-III Practical-V (Applied Microbiology)

Practical Handbook

As per the syllabus of Sant Gadge Baba Amaravati, University, Amaravati

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ISBN: 978-81-954818-6-6

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Publisher Address: My Rays Book Publication Center, Powered by International Journal of Microbial Science, Sr.no.66, Near Sai Baba Temple, Satav Nagar, Handewadi Road, Hadapsar, Pune-411028, Maharashtra, India.

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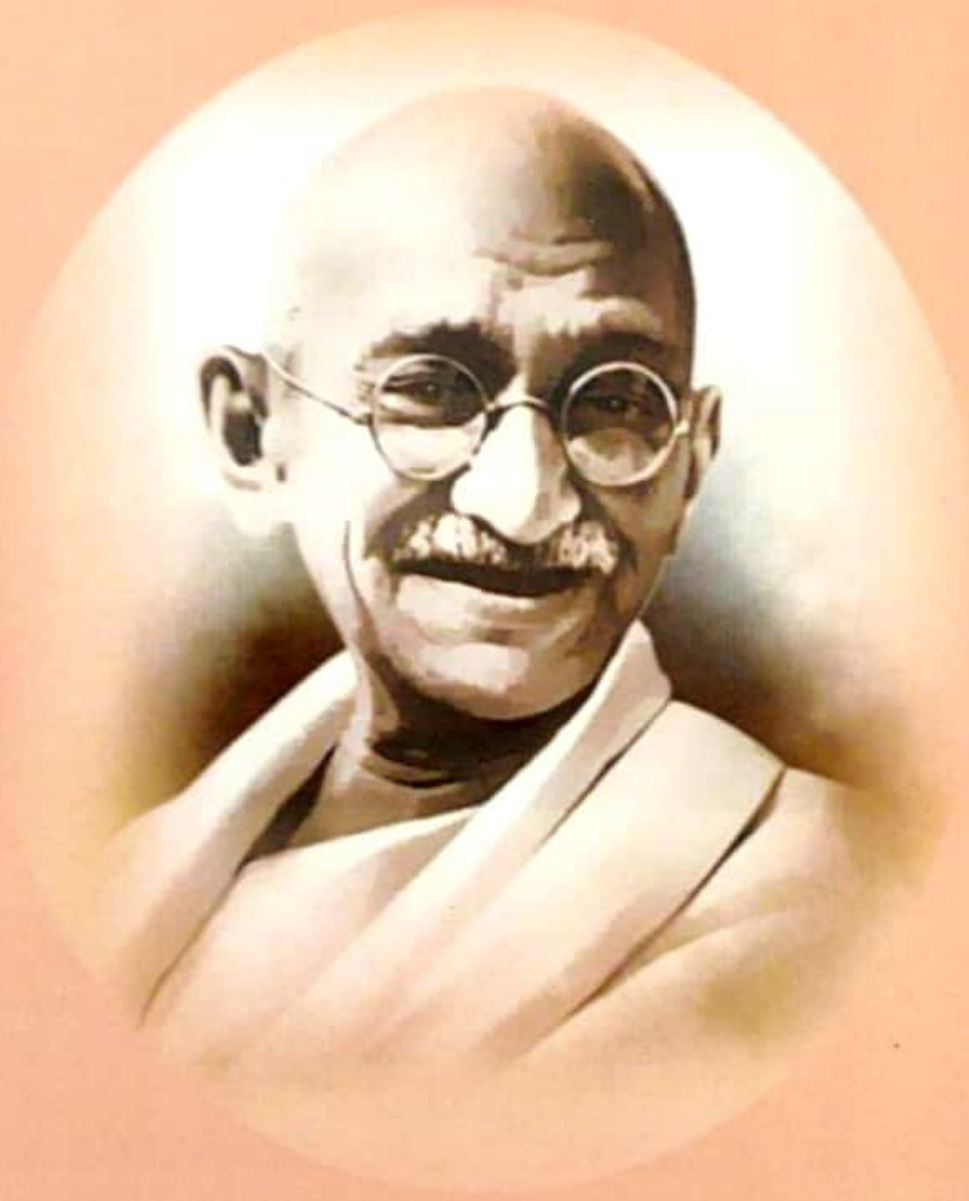
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Volume-I



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 धामणगाव रेल्वे, जि. अमरावती

सारांश :

राज्य ही राज्यशास्त्रातील मध्यवर्ती कल्पना आहे. त्यामुळे राज्य या संकल्पनेविषयी अनेक विचारवंतांनी वेगवेगळे विचार मांडले आहेत. परंतु महात्मा गांधी हे अराज्यवादी विचारवंत होते. त्यांच्या मते राज्य जोपर्यंत व्यक्तीच्या नैतिक आणि आध्यात्मिक विकासासाठी सहाय्यक ठरते तोपर्यंत त्याचे समर्थन करता येते. परंतु, राज्याच्या कार्यक्षेत्रात झालेली वाढ व्यक्तीस्वातंत्र्यासाठी घातक असते. त्यामुळे राज्यविरहीत समाजरचना त्यांना आदर्श वाटते. परंतु राज्यविरहीत समाजरचनेमधील मानवी स्वभावामध्ये काही दुर्गुण व उणिवा असल्यामुळे त्यावर नियंत्रण ठेवण्यासाठी महात्मा गांधींनी मर्यादीत राज्यसत्तेचे समर्थन केले आहे. या मर्यादीत राज्यसत्तेला महात्मा गांधींचे रामराज्य किंवा आदर्श राज्य असे संबोधले जाते. हे राज्य पूर्णतः सत्य व अहिंसेवर आधारित असेल आणि त्यामध्ये व्यक्ती स्वतः स्वतःची शासक असेल. अशाप्रकारे महात्मा गांधीजींनी ज्या राज्यामध्ये जनतेचे सार्वभौमत्व, समता, स्वातंत्र्य स्वावलंबन आणि सर्व क्षेत्रामध्ये आत्मनिर्भरता असेल अशा राज्याला रामराज्य म्हणता येईल असे स्पष्ट केले.

प्रस्तावना :

राज्यशास्त्रामध्ये अनेक राजकीय विचारवंतांनी राज्य या संकल्पनेविषयी आपले विचार मांडले आहेत. त्याचप्रकारे महात्मा गांधीजींनी सुद्धा राज्याविषयी आपले विचार प्रकट केले आहेत. मुळतः महात्मा गांधी हे अराज्यवादी होते. त्यांची आदर्श राज्याची कल्पना राज्यविहीन अहिंसक समाजव्यवस्थेवर आधारित आहे. त्यांनी राज्याचे अस्तित्व हे व्यक्तीच्या नैतिक व आध्यात्मिक विकासाकरिता सहाय्यक

ठरेल तोपर्यंत त्याचे समर्थन केले आहे. राज्याच्या सत्तेत होणारी वाढ ही व्यक्तीस्वातंत्र्यासाठी घातक आहे. त्यामुळे त्यांनी राज्यविरहीत समाजरचनेचे समर्थन केले आहे. परंतु मानवी स्वभावामध्ये काही दुर्गुन व उणिवा असतात. या मानवी स्वभावातील उणिवांवर नियंत्रण ठेवण्यासाठी त्यांनी मर्यादीत राज्यसत्तेचे समर्थन केलेले आहे व या मर्यादीत राज्यसत्तेलाच महात्मा गांधीचे आदर्श राज्याची संकल्पना असे म्हणतात. या राज्यामध्ये प्रत्येक व्यक्ती अशाप्रकारे कार्य करेल की इतरांच्या कार्यात कोणत्याही प्रकारची बाधा येणार नाही. प्रत्येक व्यक्ती स्वतंत्र, समान आणि स्वाभिमानी असेल असे राज्य पूर्णतः सत्य व अहिंसेवर आधारित असेल आणि त्यात व्यक्ती स्वतःच स्वतःची शासक असेल अशा वैशिष्ट्यपूर्ण रामराज्याची संकल्पना आपल्याला खालीलप्रमाणे स्पष्ट करता येईल.

१) स्वयंपूर्ण खेडे :

महात्मा गांधीजींच्या रामराज्यातील सर्वात महत्वाचा आधारभूत घटक म्हणजे स्वयंपूर्ण खेडे किंवा ग्राम त्यांच्या मते, “भारताचे दर्शन मूठभर शहरांमध्ये नव्हे तर त्याच्या सात लाख खेड्यांमध्ये घडते.” त्यांच्यामध्ये प्रत्येक खेडे हे आर्थिक बाबतीत स्वयंपूर्ण व राजकीय बाबतीत स्वयंशासित बनले पाहिजे. प्रत्येक खेड्यामध्ये ग्रामपंचायत असेल आणि गावातील कार्यकारी, कायदेशीर व न्यायविषयक कारभार पाहण्याची जबाबदारी ही ग्रामपंचायतीकडे असेल. गावातील जनतेच्या गरजा, आपआपसातील वाद सोडविण्याची जबाबदारी ही ग्रामपंचायतीची असेल. अशाप्रकारे प्रत्येक गाव हे स्वयंशासित झाले पाहिजे.

त्याचप्रकारे प्रत्येक खेडे हे आर्थिक बाबतीत स्वयंपूर्ण झाले पाहिजे. त्या खेड्यातील शेती, उद्योग, व्यवसाय व उत्पादनांची साधने हे जनतेच्या मालकीची असतील. तसेच संपूर्ण जनसहभागातून लघूउद्योग, कुटीरउद्योग याचा विकास करण्यात येईल. गावामध्ये कोणीही बेकार राहणार नाही. प्रत्येकाला काम मिळेल व कामानुसार त्याला मोबदला मिळेल अशाप्रकारे प्रत्येक खेडे हे स्वयंपूर्ण बनेल.

२) सामाजिक समता प्रस्थापित करण्यासाठी विश्वस्तवृत्ती :

भारतीय समाजामध्ये अनेक दोष दिसून येतात. त्यामधील सर्वात महत्वाचा दोष म्हणजे विषमता. विषमतेमुळे समाजामध्ये दुही निर्माण होते. त्यामुळे महात्मा गांधीजींनी समाज एकसंध राहीला पाहीजे आणि कोणावरही अन्याय, अत्याचार होवू नये या उद्देशाने सामाजिक समता निर्माण करण्यासाठी विश्वस्तवृत्तीची आवश्यकता प्रतिपादन केली आहे. प्रत्येक व्यक्तीने आपल्या आवश्यक गरजा पूर्ण होईपर्यंत संपत्तीचा वापर करायचा आणि शिल्लक असलेली संपत्ती ही समाजपयोगी कार्यासाठी आणि इतरांच्या आवश्यक गरजा पूर्ण करण्यासाठी मदत म्हणून दयावी. आपल्या उपभोगापेक्षा अधिक असलेली संपत्ती ही समाजाच्या मालकीची आहे. म्हणून तिचा वापर गरिब, दुर्बल, शेतमजूर इत्यादींचे विश्वस्त म्हणून कार्य करावे.

अशाप्रकारे समाजामधील गरीब, श्रीमंत अशी जी काही विषमता आहे ती नष्ट होवून सामाजिक समता प्रस्थापित होईल.

३) जीवनामध्ये श्रमाला महत्व :

महात्मा गांधीजींनी आपली राजराज्याची संकल्पना स्पष्ट करतांना श्रमाला विशेष महत्व दिले आहे. रामराज्यामध्ये प्रत्येक व्यक्तीने श्रम करणे आवश्यक आहे. प्रत्येक व्यक्तीने आपला उदरनिर्वाह करण्यासाठी श्रम करावे. जो श्रम करणार नाही त्याला जेवन मिळणार नाही तसेच त्याला मतदानाचा अधिकारसुद्धा असणार नाही. तसेच श्रम करणाऱ्या व्यक्तीला त्याचा योग्य मोबदला मिळेल व श्रम केल्यामुळे शारीरिक आरोग्य सुद्धा चांगले राहते. अशाप्रकारे महात्मा गांधीजींनी श्रमप्रतिष्ठेला विशेष महत्व दिले आहे.

४) मुक्त वर्णव्यवस्था :

महात्मा गांधीजींची रामराज्य संकल्पनेतील समाजव्यवस्था ही वर्णव्यवस्थेवर आधारलेली आहे. परंतु ही वर्णव्यवस्था जातीवर आधारित नसून कार्यावर आधारित आहे. त्यांच्यामते रामराज्यामध्ये ब्राम्हण, क्षत्रिय, वैश्य व शुद्र असे चार वर्ण व्यक्तीमधील गूण कार्यावर अवलंबून असतील व त्यामध्ये मुक्त प्रवेशाची व्यवस्था असेल. व्यक्तीच्या

जन्मावरून वर्ण न ठरविता ते व्यक्तीच्या गुण कार्यावरून ठरविता येतील आणि कोणत्याही व्यक्तीला कोणत्याही वर्गामध्ये जाता येईल व कोणताही व्यवसाय करता येईल. अशाप्रकारे महात्मा गांधीजींनी वर्णव्यवस्थेद्वारे सामाजिक एकता प्रस्थापित करण्याचा प्रयत्न केला आहे.

५) संरक्षण, तुरुंग व्यवस्था व न्यायव्यवस्था :

रामराज्यामध्ये प्रत्येकच व्यक्ती सदगुणी, सदाचारी, अहिंसक असेल असे नाही आणि म्हणून समाजामध्ये व्यक्तींचे संरक्षण व्हावे या उद्देशाने तुरुंगव्यवस्था, न्यायव्यवस्था यांची आवश्यकता महात्मा गांधीजींनी सांगितलेली आहे. पोलिसव्यवस्थेने समाजहित लक्षात घेऊन समाजकार्य केले पाहिजे. समाजातील स्वार्थी, दृष्ट, गुन्हेगार, आरोग्यी, गुंडप्रवृत्तीच्या लोकांचे हृदय परिवर्तन करण्यावर भर दिला पाहिजे. अशा वाईट प्रवृत्तीच्या लोकांचे हृदयपरिवर्तन करून सुधारगृहात त्यांना योग्य मार्गदर्शन करून व्यावसायिक शिक्षण दिल्या गेले पाहिजे जेणे करून ते आपले भावी आयुष्य योग्य मार्गाने स्वकष्टाने स्वावलंबी जीवन जगू शकतील. त्याचप्रकारे समाजातील प्रत्येक व्यक्तीला कमी वेळाने व कमी दरात न्याय मिळेल अशी न्यायव्यवस्था अस्तीत्वात असेल.

६) राज्याला अहिंसात्मक मार्गाने विरोध करण्याचा अधिकार :

महात्मा गांधीजींच्या राजराज्य संकल्पनेमध्ये राज्याचे कार्यक्षेत्र हे मर्यादीत आहे. राज्याने प्रतिबंधात्मक कृती करण्याऐवजी निवारणात्मक कृती करावी. व्यक्ती विकासाच्या मार्गातील अडथडे दूर करण्याचे काम राज्याने करावे. राज्य अमर्याद, अन्यायी कार्य करीत असेल तर राज्याला अहिंसात्मक मार्गाने विरोध करण्याचा अधिकार प्रत्येक व्यक्तीला आहे. अशाप्रकारे रामराज्याचे आधारभूत घटक स्पष्ट करता येईल.

मुल्यमापन :

अशाप्रकारे राजकीय विचारांमध्ये राज्य या संकल्पनेला विरोध असे महत्वपूर्ण स्थान आहे व त्याविषयी महात्मा गांधीजींनी रामराज्य ही संकल्पना मांडलेली आहे. रामराज्य म्हणजे केवळ स्वप्नाळू वृत्तीचे राज्य नाही तर हे राज्य आपण अस्तीत्वात आणू शकतो. त्याला संपूर्ण समाजाच्या मानसिक परिवर्तनाची आवश्यकता आहे. संपूर्ण समाजाची

मानसिकता ही सदाचारी, सद्‌वर्तनी, स्वाभिमानी, न्याय, विश्वास, अहिंसा या गोष्टींवर अवलंबून असेल तर रामराज्य अस्तीत्वात येऊ शकेल व म्हणून रामराज्य या संकल्पनेला राजकीय विचारामध्ये महत्त्वपूर्ण स्थान आहे.

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www.himpub.com

ISBN: 978-93-5495-247-0



ISBN: 978-93-5495-247-0

PAB 0234

₹ 250/-

RETHINKING POSTMODERNISM IN INDIAN WRITINGS IN ENGLISH

Edited by
Dr. D. Manoharan
Ms. Kusuma M.



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UPANAYAN PUBLICATIONS
Delhi (India)

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First Edition 2021

ISBN: 978-93-91467-32-6

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Published by

UPANAYAN PUBLICATIONS

772, Street No 6, B Block, Baba Colony,

Burari, Delhi, 110084 (INDIA)

Contact: +91- 7827665077

E-mail: upanayanpublications@gmail.com

authorspublication@gmail.com

Typesetting by :

G. R. Sharma

Printed by

Thomson Press India Ltd.

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CHAPTER-7

Re-thinking of Identity Crisis in the Novels of Rohinton Mistry

*Dr. Furquan Ahemad Khan Chandkhan Pathan**

Abstract: The theme of identity is often expressed in novels, so that the reader can relate to the characters and their emotions. It is useful in helping reader's understand that a person's state of mind is full of difficult thoughts about who they are and what they want to be. People can try to modify their identity as much as they want, but that can never change. Therefore, cultures mixing changed in manners, which tremendous implications for the identity and self of individuals who are moving across a variety of different cultural setup. The reflection of society and culture demands a new conception of individual identity. The notion of identity is still dominant, highly dynamic and contested circumstances in which individuals find themselves. Identities have multiplied and therefore, tend to shift in meaning according to context, as a result of which some have suggested the concept of identity should be replaced by the notion of identification, pointing to the nature of contemporary identities. Others have suggested that the analytical value of the concept of identity is insufficient to do justice to the vibrant character of the lives of multicultural individuals. His novels are written in the backdrop of India-Pakistan Second War and the period of Emergency declared during the time when Indira Gandhi was Prime Minister of India. The research paper tries to throw light on Rohinton's perception of the Indian Parsi society Identity Crisis.

Keywords: Culture, Crises, Emergency, Identity, Parsi.

Introduction

Rohinton Mistry is the novelist with the most sustain achievement and one of the shining stars in the galaxy of Indian English fiction. Santwana Haldar writes about Rohinton Mistry:

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A glowing star in the galaxy that contains luminaries such as V. S. Naipaul, Salman Rushdie, Amitav Ghosh, Shashi Tharoor, Vikram Seth and Bharati Mukherjee, to mention few, Rohinton Mistry has drawn the attention of the world as an absorbing writer of human experiences.¹

Rohinton Mistry is a prolific writer whose literary works speak volumes of his life and experiences. Being an immigrant and living away from his motherland, he has faced double displacements as being Parsis. The Parsis, for the first time they migrated to India from their motherland Persia due to the Arab victory over the last ruler of Sassanid dynasty around 640 A.D to avoid forcible conversion to Islam. They migrated to India one thousand years ago and first landed in Diu where they were provided shelter in Sanjan (Gujarat) by Jadav Rana, the local Hindu ruler; gradually they acquired the ways of living of Gujaratis and from there they moved to other cities in India. The Parsi experience is about dilemmas that most minority communities face; questions about religion and race, survival and extinction, assimilation and identity, tradition and the modern world. The second displacement was out of choice; that is -they migrated to other countries in search of greener pastures.

Identity crisis has received an impetus in the Post-Colonial literature that deals at length with the problems arising due to multiculturalism and intercultural interactions. — "In many cases, not only the novelists but also the characters in their novels face what psychologists call identity crises."² Rohinton Mistry's novels reflect the themes of plight, fretfulness, loss of the characters in an alien land or in the present surrounding which causes a peril to their self-identity. The characters consider the present surrounding situation more difficult, obnoxious as well as complicated due to which they take out themselves from the external reality to their inner world. They enter into an alien land and find themselves among people whose culture and tradition are different and sometimes unpleasant to their own. They experience cultural anxiety, feel insecure and experience identity crisis. In *Such a Long Journey* (1991) Dinshawji, friend of Gustad Noble, cries on the vanishing Parsis' identity after the independence and blames Indira Gandhi, the then Prime Minister, for the nationalization of bank in 1969 which affected the Parsi community as the employment opportunity of the minority Parsi community got a serious hold up and they also lost their hold and role on the economy of the nation. Dinshawji speaks: — "What days

those were, Yaar. What fun we used to have. Parsis were the kings of banking in those days. Such respect we used to get. Now the whole atmosphere only has spoiled. Ever since that Indira nationalized the banks." (SALJ- 38)

Nationalization of the banks was at that time inevitable in the larger interest of the downtrodden masses of India. Mrs. Indira Gandhi's decision would have displeased the Parsis who were the owners of private banks....³

Dinshawji also laments over the changing names of the places and roads when Gustad Noble, the protagonist, asks, —What is in a name? " he replies, Names are so important. I grew up on Lamington Road. But it has disappeared; in its place is Dadasaheb Bhadkhamkar Marg. My school was on Carnac Road, now suddenly it's on Lokmanya Tilak Marg. I live at Sleator Road. Soon that will disappear. My whole life I have come to work at Flora Fountain. And one fine day the name changes, so what happens to the life I have lived?

Was I living the wrong life, with all the wrong names? Will I get a second chance to live it all again, with these new names? Tell me what happens to my life. Rubbed out, just like that? (SALJ-74)

Dinshawji who belongs to the Parsi community is too much worried about the future of Parsis community in the post- Independence days as he thinks that the changes in the name of the roads destroy the old identity of the city; there may be a possibility of loss of his past. But they had enjoyed the privileges of social status along with power in the pre-independence period. Not only Dinshawji but also Gustad Noble is worried about the future of Parsis in the post colonial India. Gustad Noble frets about the future of his son Sohrab when he denies joining I. I.T.: —No future for minorities, with all these fascist Shiv Sena politics and Marathi language..... (SALJ-55). But Sohrab refuses to join I.I.T. even after he gets selected in the admission test as he has no interest in it. Gustad becomes nervous and worries about the future of his son as he knows that the future of the Parsi community in the post-independence period is not good; along with his son's refusal to join I.I.T. damages the hope and dream of Gustad Noble to regain the lost identity. This hurts badly Gustad Noble and he becomes offensive to his son as he denies joining I.I.T. Gustad Noble not only warns but also whips his son with his leather belt so that his son respects his decision. Gustad Noble becomes too much disturbed and expresses grief on the violation of tradition and its values from the life of his son who does not respect the elders. —He will have to

come to me, when he learns respect. Till then, he is not my son. My son is dead.....But that's what a father is for. And if he cannot show respect at least, I can kick him again. Out of my house, out of my life." (SALJ-52). Gustad Noble is a middle class Parsi who knows very well that through education only one can come out of poverty and fulfill his desires and needs and it is through the higher education of his son Sohrab; Gustad Noble can get his lost identity as well as he can overcome from his poverty.

Gustad Noble also laments over the loss of his social identity in the present circumstances and recalls his cheerful childhood which was prosperous and sound because during the tenure of his grandfather his family enjoyed good status in the society. They could meet the expense of vacation in resorts during those days like Matheran. He recalls: "that picture of my mother-locked away forever in my mind: My mother through the white, diaphanous mosquito net, saying good night-God bless you smiling soft and evanescent, floating before my sleepy eyes, floating, forever her eyes so gentle and kind." (SALJ-242)

Rohinton Mistry's *A Fine Balance* (1995) represents the identity crises of its four central characters; their search for identities are woven together in the fabric of the novel. The first Dina Dalal, a middle class Parsi widow in her forties whose character shows the changing value in the life of middle class society. The second Maneck Kohlah, a young Parsi from the Himalayan foothill symbolizes another queer world and the remaining two the tanners-turned-tailors Ishwar Darji and his nephew Omprakash reflect social set up in rural India. Dina Dalal like Gustad Noble mourns on her lost cheerful childhood. She enjoyed her childhood very much as being the only daughter to her parents but unfortunately she lost her father at the age of twelve as her father, Dr. Shroff was dead of snakebite when he was at his voluntary mission to the rural area for anticholera campaign. And after one year she lost her mother too. Then the whole responsibility of Dina was shouldered by her patriarchal as well as materialist brother who made the life of Dina boring by giving her the burden of household work which deprived her of all the girlish activities from her life and due to this she did not get enough time for her school education which resulted in untimely end. So she always laments over her dream for higher education along with love and care which she got by her parents only. She manages a little time to visit libraries and free recital concerts in the city from her boring scheduled life where there is no choice and freedom. By this way she tries to make herself fresh

and most of the time she gets transported to her cheerful memories of her past when she listens to the familiar music of her childhood in the library. —When the familiar music (of her childhood home) filled her head, the past was conquered for a brief while and she felt herself ache with the ecstasy of completion, as though a missing limb had been recovered." (AFB-30). It is only through this visit she gets a chance to rebuild her childhood as well as make herself free for a short period of time from the tyrant clutches of her brother and that became the reason that she decides to marry Rustom whom she meets and becomes friend at the concerts. And this is the first time after the death of her parents she married to a person of her choice but very soon her happy married life gets shattered down as her husband dies only after three years of their marriage on the anniversary day of marriage leaving her alone to the world of sorrows and worries. Unfortunately, her happy married life with Rustom comes to a tragic end when Rustom is killed in a cycle accident on the day of their wedding anniversary. Despite her brother's genuine offer to help her, she decides to live by herself. For Dina, the memories of her married life with Rustom are so precious that she cannot ever think of marrying again, something that Nusswan constantly attempts to coax her onto agreeing, much to her annoyance. Once again she becomes alienated and her brother tries to make her ready for a new life; for that he asks her for remarriage but this time she decides to live alone in her flat and does not listen to her brother. In order to meet with the daily needs and expenditure she tries her luck in tailoring with the help of Omprakash and his uncle and again she lives in the shadow of her happy past memories. The uncle and aunt of Rustom provide their sincere love and affection to Dina Dalal to replace the love of her long lost parents but they also leave Dina Dalal as her parents had left her forever. — "she also felt very alone, as though she had lost a second set of parents" (AFB-57) And again she becomes alienated and likes to remain in the past memories. Fredoon, her friend, gradually becomes her lover, five years after Rustom's death, but this time her past memories and traditional values create obstacles as Dina has problems with intimacy. But when they ventured into the private garden of intimacy, it was a trouble relationship. There were certain things she could not bring herself to do. The bed -any bed- was out of bounds, scared and reserved for married couples only. So they used a chair. Then one day, as she swung a leg over to straddle Fredoon, her action suddenly resurrected the image of Rustom flinging his leg

over his bicycle. Now the chair, like the bed, was no longer possible. (AFB-59) Maneck Kohlah, another main character, also laments on the loss for his native place, the foothill Himalayan town as his parents send him to boarding school. Though he is away from his beloved birthplace, he always enjoys the mountain through his past memories. The decision of his parents to send him to boarding school hurts him as he loves his parents sincerely and also likes to help them in their ancestral provision store.

Rohinton Mistry's *Family Matters* (2002) reflects his experience of double displacement through the character of Yezad. If Yezad's character is autobiographical, Mistry also experiences alienation like all emigrant Indians. Through the character of Yezad, Mistry expresses his wish to come back to India. At the same time Yezad's wish for emigrating is symbolical of his quest for prosperity, which also indicates the thirst of Parsi community to achieve economic status for ensuring security in life. Yezad is the son-in-law of Nariman Vakeel, the central character. Nariman, the retired professor of English, is a widower and badly suffering from the Parkinson's disease. Nariman feels alienated in the company of his stepchildren- Coomy and her brother Jal like to remain in the past memories. The situation becomes worse when Nariman's ankle breaks and his stepchildren send him to his daughter's house. Now the whole responsibility of Nariman is on the shoulder of his daughter, Roxana and her husband, Yezad. The middle-class Yezad has to manage the whole affair of day to day life within the limited income. He wishes to go to Canada in order to earn money and to live a life in a neat and clean environment. His wish to migrate to Canada shows Rohinton Mistry's emigration to Canada. Yezad is fed up with the dusty atmosphere of Bombay and desires for Canada. His dream for an end to this ape-man commute had led him to apply for immigration to Canada. He wanted clean cities, clean air, plenty of water, trains with seats for everyone, where people stood in line at bus stops and said please, after you, thank you. Not just the land of milk and honey, also the land of deodorant and toiletry. (FM-131). But Nariman has another view; he considers migration as —emigration is an enormous mistake. The biggest any one can make in their life. The loss of home leaves a hole that never fills" (FM-246).

Conclusion

Rohinton Mistry's writings reflect his own experience of double displacement as a recurrent theme in his literary works. He successfully

evokes a sense of loss of identity in the migrant's experience and the alienation of Parsis in India. Being the member of Parsi community he is more conscious about the loss of values and tradition in the post-independent India. He also shows how the young generation of the same community is not giving importance to the traditional values which make their parents sad and worried about their future in the post independent India. His works are steadily concerned with the loss identity and anxiety to survive in an alien land.

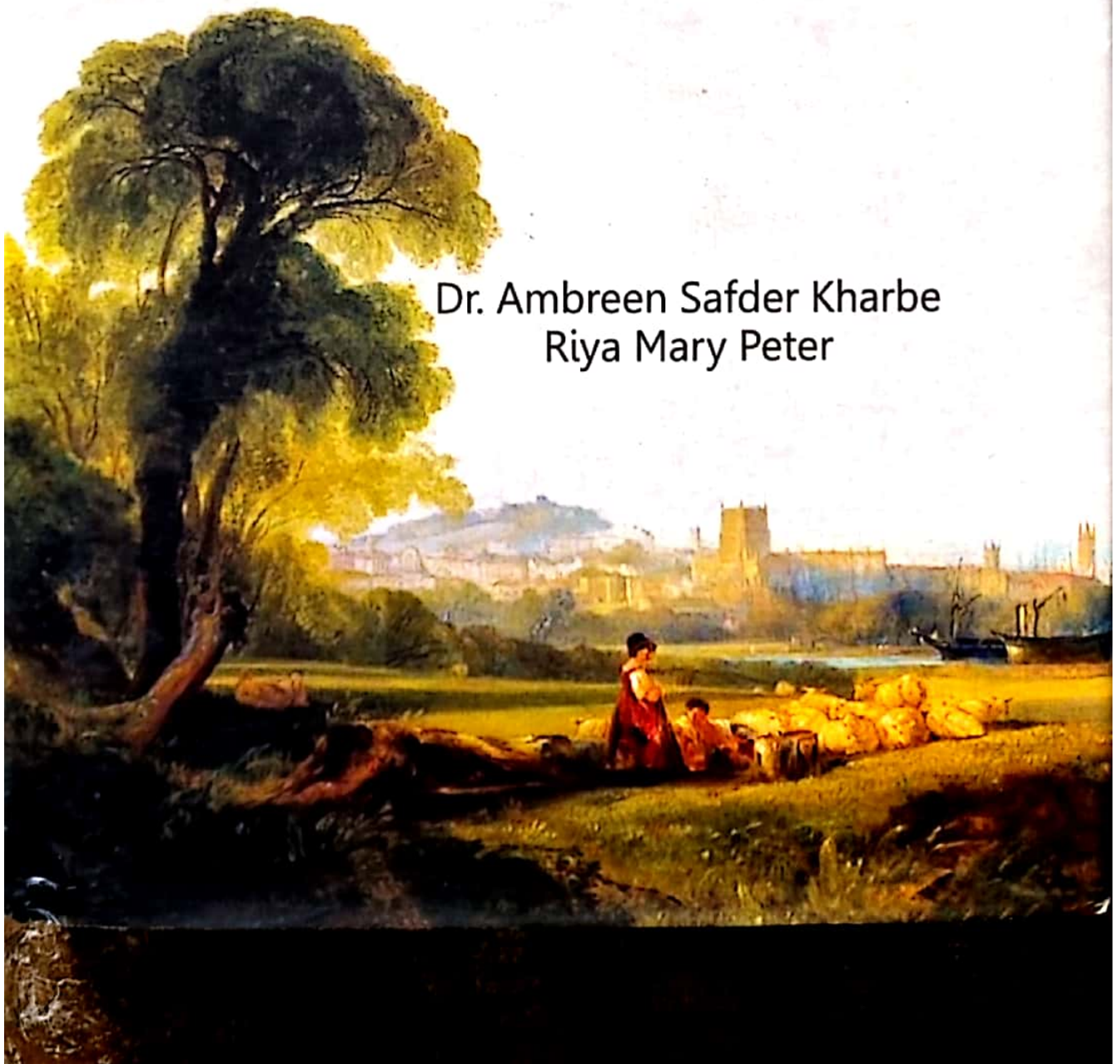
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Dr. Ambreen Safder Kharbe
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Editors

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AUTHORS P R E S S

**Worldwide Circulation through Authorspress Global Network
First Published in 2021**

by

Authorspress

Q-2A Hauz Khas Enclave, New Delhi-110 016 (India)

Phone: (0) 9818049852

E-mail: authorspressgroup@gmail.com

Website: www.authorspressbooks.com

Romantic Literature: A Literary Innovation

ISBN 978-93-5529-034-2

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Printed in India at Thomson Press (India) Limited

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CHAPTER 22

Gothic Element in the Poetry of S T Coleridge

Barulkar Jeetendrasingh

The present chapter attempts to examine the influence of Gothic element or Gothic literature in the poetry of romantic age – particularly the poetry of Coleridge. The term Gothic is derived from certain tribes which invaded Europe in pre mediaeval times. The term later on gained its currency in the fields of art and architecture. In the context of literature, the term Gothic is applied mostly to the fiction written in the second half of the eighteenth century. Prominent practitioners of this genre were Horace Walpole, Mary Shelley, William Bedford etc. Set mostly in the Middle Ages, Gothic writings represent the ruins, haunted castles, gloomy-abandoned monasteries and many supernatural elements.

The beginning of 19th century was marked by the revival of romantic literature. Romanticism can be primarily seen as a reaction to the age of neoclassicism where art had degenerated into artifice. With the excessive and artificial use of classical elements people started losing their interest in neo-classicism. Gradually there was a shift from technique to emotions from artificiality to subtle expression, from Dryden and Pope to Wordsworth and Coleridge. The poets and the authors of this age had eagerness for something new, something strange and something beyond natural. This could also be regarded as an age of enquiry and the age of exploration.

The writers of Gothic fiction played a great role in influencing the Romantic Movement. Most of the romantics tried to escape from reality of the contemporary times. This led to the attraction of mediaeval themes and during this period gothic and romantic started to mingle with each other. Romantic literature, under the influence of the Gothic became darker, stranger and dominantly supernatural. Gothic and romantic styles of writing started to freely interchange

the qualities of each other. Death of legends and the lifestyle of mediaeval times had also fascinated most of the romantic poets.

Coleridge, with his power of imagination creates, such a world which leads to the 'willing suspension of disbelief'. With the art of composing, he makes the supernatural look natural. In his writing, one can find the imaginative treatment which creates a proper atmosphere for the emergence of the marvellous. Commonplace and natural objects are described in such a way that they begin to appear unnatural and wonderful. First, he evokes the hidden mystery of the things, and then makes the mysterious look natural and acceptable.

In the present chapter, we are going to find out the influence of Gothic elements in the poetry of Samuel Taylor Coleridge. The chapter prominently covers two of his major poems namely – 'The Rime of the Ancient Mariner' and 'Christabel'. The major portion of Coleridge's literary output is the indicator of his fascination for the supernatural and the Gothic. These two poems are often regarded as the mystery poems. These poems have the elements of supernaturalism and the sublime referring to the Gothic literature of the contemporary times.

'The Rime of the Ancient Mariner'

'The Rime of the Ancient Mariner' was modelled after a dream of one of his friends in which a person is suffering from a dire curse for the commission of some crime. In 'Biographia Literaria', Coleridge has revealed the plan to write the poem. He explains how he along with Wordsworth had planned to give the touch of the supernatural to the poem. The poem 'The Rime of the Ancient Mariner' can undoubtedly be regarded as a masterpiece of Coleridge in the genre of supernatural poetry. The terrifying atmosphere, the supernatural weirdness and various other aspects of mediaeval times can easily be found in the poem. Right from the beginning of the poem the references to holy mother, mermaids and the guardians are clearly the elements of medievalism. In composing the poem 'The Rime of the Ancient Mariner', Coleridge goes beyond the places of common interest. The world of Coleridge in the poem is full of unexplored lands, uncommon places and thrills of horror. In the poem Coleridge depicts a world which is a boundless sea with pitiless sun and terrifying nights.

The poem sings of an exiled man and the man's sin against the nature. Though the poem begins with the normal tone, it gradually

takes the readers into the world full of suspense, shadows and fear. Coleridge writes –

With sloping masts and dipping prow,
As who pursued with yell and blow
Still trades the shadow of his foe,
And forward bends his head
The ship drove fast, loud roared the blast,
And southward aye we fled.

(I. 45-50)

When the shape is struck in a place surrounded by ice everywhere, there was no sign of life and out of nowhere comes a great seabird the albatross.

At length did cross and Albatross
Through the fog it came
As if it had been a Christian soul
We held it in the God's name.

(I. 63-66)

The shooting of the albatross by the Mariner brings the element of terror and supernatural into the play. The crew of the ship are afraid and they hang the dead albatross around the Mariner's neck. The people on the ship start blaming the Mariner.

Ah! Well a day!
What evil looks
Had I from old and young!
Instead of the cross the Albatross
About my neck was hung.

(II. 139-142)

The arrival of the bird was taken as a good omen, but the death of the bird was thought to be a bad omen. And after the death of Albatross the whole environment changes – it becomes gloomy, terrifying and evil.

One after another all the seamen die and the life in death begins to play its role on the ship. The Marina instead of praying for help, ask God to take him away as well...

The many men so beautiful
And they all dead did lie
And a thousand slimming things
Lived on and so did I!

(IV. 212-215)

Various elements like – the appearance of the skeleton ship, agony of the mariner, falling of the dead-body of Albatross, the vastness of the sea underlining the loneliness of the mariner,

awakening of the dead crew of the ship are some of the elements that add to the terrifying effect of the story. As the poem progresses, the man who endured seven days and nights of torture begins to realise the beauty of life. The ship seems to come out of the curse and starts moving led by the angelic spirits. But to the mariner's surprise, the curse was still there. His ship sinks but he is saved and the poem ends with the Mariner travelling from land to land.

Christabel

Christabel is the poem where Coleridge deals with Gothic setting and it is full of supernatural and mysterious elements. The features of Gothic writings are clearly evident in the poem. The poem begins as—

It is the middle of night by the castle clock
And the owls have awakened the growing cock
(1-2)

In this way the poem right from the beginning sets the tone of the poem. Chilly air, dark clouds and full moon the negative signs that create gothic environment. Coleridge presents the characters exploring the human psyche while dealing with the evil. The characters of Geraldine and Christabel are the embodiments of the evil and innocence.

Coleridge very appropriately utilises the contrast between the two characters of Geraldine and Christabel. The readers are taken by the contrast of the characters. The poem later on reveals that Geraldine is not what she appears to be. She is revealed as the dark element as contrary to Christabel.

Coleridge depicts evil in a fascinating manner which is mysterious and terrifying. He skilfully blends gothic into romantic and reveals the propinquity of fear of the encounter between the evil and the innocent. The poet appears to be the master of the art of creating suspense when Christabel makes her way through the jungle and prays for her lover. The fear in her mind is revealed as —

She had dreams all yester night
Of her own betrothed knight
(14-18)

Christabel hears noises at night and left in suspense. Various noises and the description of the setting create uneasiness among the readers. The position of Christabel is described by Coleridge as —

Hush, beating heart of Christabell
Jesu, Maria shield her well!
(53-54)

Coleridge borrowed his inspiration mostly from the folklores and superstitions. There are certain elements of gothic literature like 'extreme threat or isolation' depicted through the relationship between Geraldine and Christabel. Coleridge portrays obsession, voyeurism and sexual violence which are typically the features of gothic romance. In one of the scenes of the poem, Geraldine requests Christabel to go to bed and she offers some secret prayers. When Christabel notices her praying:

Beneath the lamp the lady bowed,
And slowly rolled her eyes around
...
A sight to dream of, not to tell!
O shield her! Shield sweet Christabel!
(245-46...253-54)

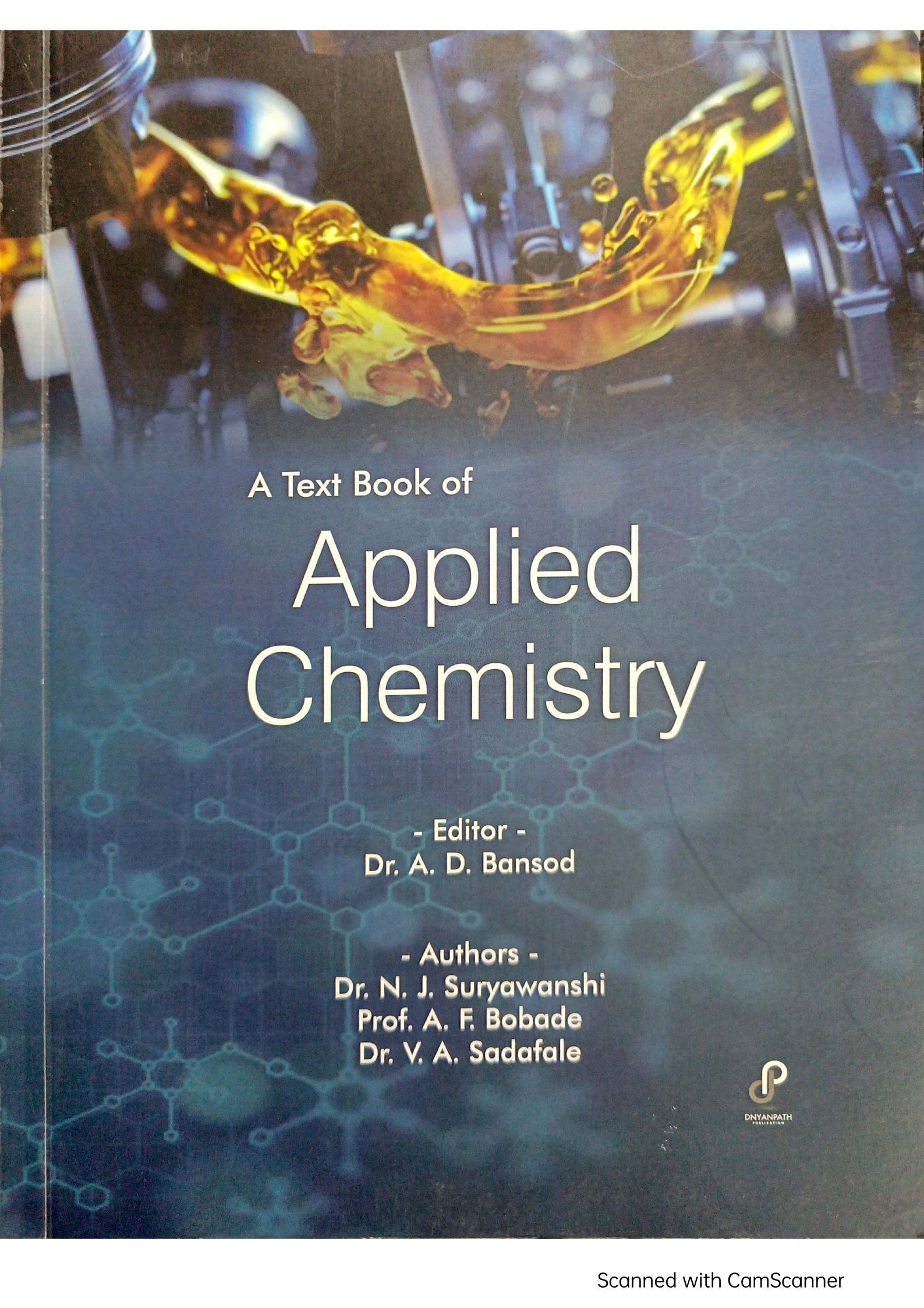
Christabel is under some spell. She struggles to sleep and there is some presence of supernatural power. She fails to speak the truth. But in the later part of the poem when she realises the influence of Geraldine, she requests her father to send Geraldine away.

Though the poem is unfinished one, there is a lot that is supernatural and gothic about the poem. The whole poem is based on the element of supernatural. The two central characters are true embodiment of the evil and the good. This poem indeed has gothic nature as it portrays darkness, fear, mystery and suspense.

These observations bring us to the conclusion that there is a heavy influence of gothic elements in the poetry of S T Coleridge. Unlike other leading Gothic writers, Coleridge make subtle use of gothic in his poems.

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Published by the **DnyanPath Publication (INDIA)**

The first edition published in 10th May, 2022

ISBN 13 : 978-93-91331-18-4

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Printed at Shri Gurudeo Printers, Amravati.

Mahatma Fule Sankul, Shegaon Naka,

V.M.V. Road, Amravati - 444603 (Maharashtra)

Price : ₹ 200/-



Elements of Algebra and Trigonometry

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SONU NILU

Elements of Algebra and Trigonometry

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Published by **Sonu Nilu**

5, Bandu Soni Layout, Gayatri Road, Parsodi, Nagpur.

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T M Karade, Maya S Bendre, V G Mete, R S Wadbudhe, S N Bayaskar, P P Khade
Elements of Algebra and Trigonometry

First Edition July 2002

Second Edition July 2003

Third Edition September 2004

Fourth Edition June 2005

Fifth Edition June 2009

Sixth Edition June 2011

Seventh Edition July 2012

Eighth Edition June 2013

Ninth Edition July 2014

Tenth Edition June 2015

Eleventh Edition June 2016

Twelfth Edition June 2017

Thirteenth Edition July 2019

Fourteenth Edition July 2022

ISBN 978-81-88763-20-7

Price Rs 150

Printed and bound in India
Taj Press, New Delhi 64



Synthesis and Characterization of Schiff Bases, N-(4-(5-bromothiophen-2-yl)-6-(4-methoxyphenyl)pyrimidin-2-yl)-1-(aryl) methanimine from 4-(5-bromothiophene-2-yl)-6-(4-methoxyphenyl) pyrimidin-2-amine.

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Abstract-

In the present study a series of new Schiff bases were synthesized by the condensation of 4-(5-bromothiophen-2-yl)-6-(4-methoxyphenyl) pyrimidin-2-amine with various aromatic aldehydes in presence of glacial acetic acid in ethanol. The 4-(5-bromothiophen-2-yl)-6-(4-methoxyphenyl) pyrimidin-2-amine was prepared by refluxing 1-(5-bromothiophen-2-yl)-3-(4-methoxyphenyl) prop-2-en-1-one, guanidine hydrochloride and alkali in ethanol. The 1-(5-bromothiophen-2-yl)-3-(4-methoxyphenyl) prop-2-en-1-one was prepared by reacting equimolar quantity of 4-methoxybenzaldehyde and 2-acetyl-5-bromothiophene in presence of alkali in ethanol. All newly synthesized compounds were characterized by spectroscopic data.

Key wards - Pyrimidine, Schiff Bases, Spectral analysis

I. INTRODUCTION

Antibacterial drugs prevent microbial growth and survival without seriously harming the host. Around the world, the number of infectious diseases that can be fatal and are brought on by germs that are resistant to many drugs is rising daily. The management of infectious diseases is now severely hampered by the rise of antibiotic resistance. However, resistance to at least one bacterial infection was identified for the majority of antibacterial drugs used in clinical practice. But during a 5-year period, their therapeutic relevance was drastically reduced from the market due to the organism's development of resistance to particular bacteria-antibiotic combinations [1]. To combat the issues caused by microbial resistance, it is vitally necessary to develop novel, efficient, and safe antimicrobial agents.

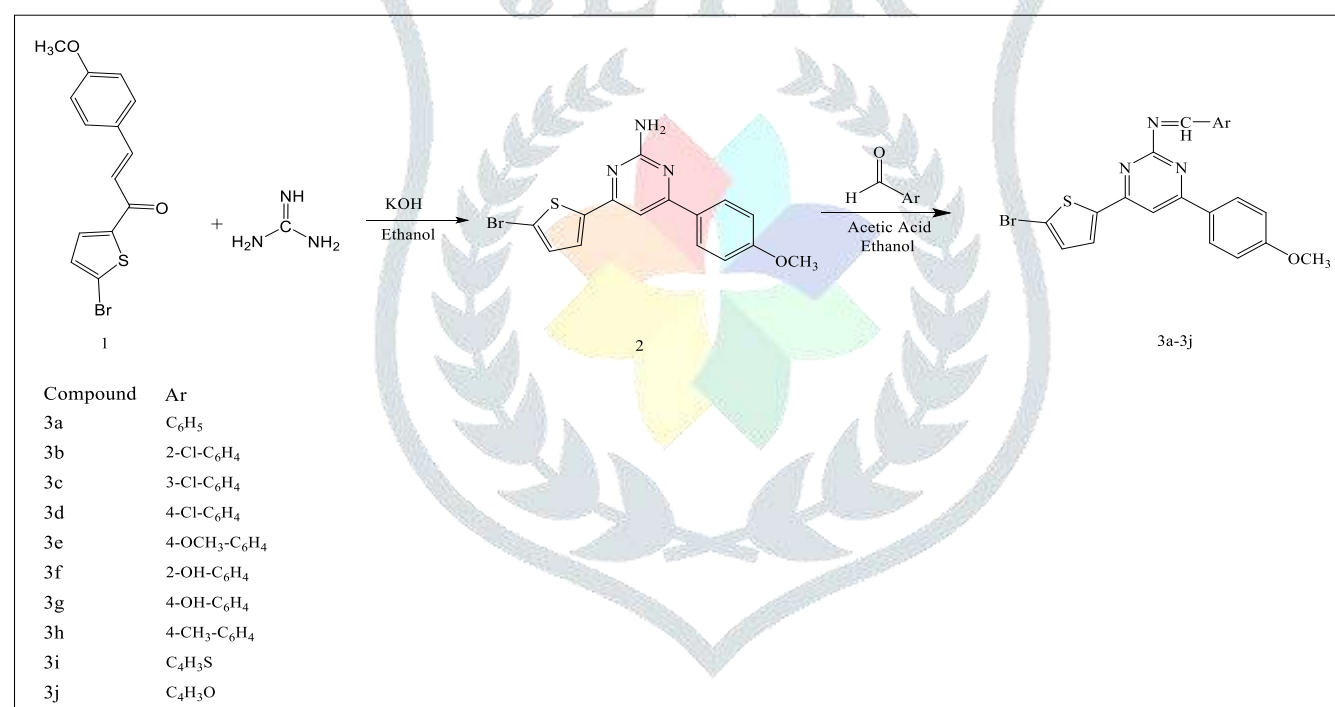
Pyrimidines are the important heterocyclic compounds containing two nitrogen atoms at positions 1 and 3 in the six-membered rings. Cytosine, thymine, and uracil, the pyrimidine bases have long been recognized as being crucial components of nucleic acid. Additionally, pyrimidine rings are also present in a

variety of organic compounds. Moreover Pyrimidine bearing heterocyclic compounds are associated with wide range of biological activities, such as antibacterial [2, 3], anticancer [4, 5, 6, 7], antiinflammatory [8], and antitubercular [9]. Schiff bases containing various heterocyclic scaffolds covers a wide range of biological activities such as antimicrobial [10, 11], antifungal [12, 13], antiinflammatory [14], anticancer [15], antioxidant [16] and antiviral [17]. Moreover Schiff bases have the potential to form stable complexes with metal ions, Schiff base ligands are crucial to the development of Schiff base complexes. Many Schiff base complexes exhibit excellent catalytic activity in a variety of reactions. Therefore it seems interesting to synthesize the Schiff bases containing pyrimidine moiety. In present work we describe the synthesis and characterization of Schiff bases derived from pyrimidine.

II. MATERIALS AND METHODS

All the chemicals were procured from Sigma Aldrich and SDFINE chemicals and used without further purification. Melting points were determined in open capillary tube and are uncorrected. The progress of the reactions as well as purity of the compounds was monitored by thin layer chromatography with F-252 silica gel pre-coated aluminium sheets using petroleum ether-ethyl acetate (9:1) as a developing solvent and spots were visualized with near UV light and Iodine. The IR spectra were recorded on SHIMADZU spectrophotometer using KBr pellets and expressed in cm^{-1} . The NMR spectra were recorded on BRUKER ADVANCE (400 FT-NMR) spectrophotometer in DMSO using tetramethylsilane as an internal standard. Chemical shift values are expressed in δ ppm.

Scheme



i) Synthesis of 4-(5-bromothiophen-2-yl)-6-(4-methoxyphenyl) pyrimidin-2-amine-

Compound 4-(5-bromothiophen-2-yl)-6-(4-methoxyphenyl) pyrimidin-2-amine was prepared from 1-(5-bromothiophen-2-yl)-3-(4-methoxyphenyl)prop-2-en-1-one by the reported method [18].

ii) Synthesis of Schiff bases (3a-3j)-

0.01 mol of 4-(5-bromothiophen-2-yl)-6-(4-methoxyphenyl)pyrimidin-2-amine (2) and 0.01 mol of aromatic aldehydes were dissolved in 20 ml of ethanol followed by addition of 2-3 drops of glacial acetic acid. The reaction mixture was refluxed for about 3-8 hours and then cooled at room temperature. The solid thus obtained separated by filtration, washed with ethanol, dried and purified by recrystallization from ethanol.

Table - Analytical data of the Schiff Bases (3a-3j)

Sr. No.	Compound	Ar	Molecular Formula	Colour	Melting Point in °C	% Yield
1	3a	C ₆ H ₅	C ₂₂ H ₁₆ BrN ₃ OS	Yellow brown	128	57
2	3b	2-Cl-C ₆ H ₄	C ₂₂ H ₁₅ BrClN ₃ OS	Brown	134	64
3	3c	3-Cl-C ₆ H ₄	C ₂₂ H ₁₅ BrClN ₃ OS	Brown	132	60
4	3d	4-Cl-C ₆ H ₄	C ₂₂ H ₁₅ BrClN ₃ OS	Pale brown	140	58
5	3e	4-OCH ₃ -C ₆ H ₄	C ₂₃ H ₁₈ BrN ₃ O ₂ S	Yellow	124	66
6	3f	2-OH-C ₆ H ₄	C ₂₂ H ₁₆ BrN ₃ O ₂ S	Yellow	142	50
7	3g	4-OH-C ₆ H ₄	C ₂₂ H ₁₆ BrN ₃ O ₂ S	Yellow	148	67
8	3h	4-CH ₃ -C ₆ H ₄	C ₂₃ H ₁₈ BrN ₃ OS	Yellow	136	65
9	3i	C ₄ H ₃ S	C ₂₀ H ₁₄ BrN ₃ OS ₂	Brown	129	68
10	3j	C ₄ H ₃ O	C ₂₀ H ₁₄ BrN ₃ O ₂ S	Brown	135	63

III. RESULTS AND DISCUSSION

The series of Schiff bases was prepared from 4-(5-bromothiophene-2-yl)-6-(4-methoxyphenyl) pyrimidin-2-amine (2) according to synthetic route as shown in the scheme. The compound 4-(5-bromothiophene-2-yl)-6-(4-methoxyphenyl) pyrimidin-2-amine (2) was prepared from the corresponding chalcone (1) by the reported method. Structures of all the newly prepared Schiff bases were confirmed by the presence of strong signal at around 1643 cm⁻¹ for HC=N group in the IR spectrum. And ¹H-NMR spectrum which, shows the sharp singlet's at δ 10 ppm for proton of HC=N group of Schiff bases, singlet at 4.2 ppm for -OCH₃ and multiples for aromatic protons were observed in the range of 6.7-7.9 ppm.

IV. CONCLUSION

A series of new Schiff bases (3a-3j) was prepared from the corresponding pyrimidines (2) in good yield. The newly synthesized compounds were characterized on the basis of IR and ¹H-NMR spectral data. This series of Schiff bases may be of great interest with respect to biological activity.

V. ACKNOWLEDGEMENT

I am thankful to SAIF, IISc, Bangalore for ¹H-NMR analysis and Shri Shivaji Science College, Amravati for IR analysis.

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Assessment of acid neutralizing capacity of commercially available antacids

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Abstract: Digestion in the stomach results from the action of gastric fluid, which includes secretions of digestive enzymes, mucous, and hydrochloric acid. The acidic environment of the stomach makes it possible for inactive forms of digestive enzymes to be converted into active forms (i.e. pepsinogen into pepsin), and acid is also needed to dissolve minerals and kill bacteria that may enter the stomach along with food. However, excessive acid production (hyperacidity) results in the unpleasant symptoms of heartburn and may contribute to ulcer formation in the stomach lining. An Antacid is any substance, generally a base or basic salt, which neutralizes stomach acidity. They are used to relieve acid indigestion, upset stomach, sour stomach, and heartburn. The present study aimed at assessing the acid neutralizing capacity of commercially available antacids. The acid neutralizing capacities were analyzed by back titration method. In this method the antacid is first made to react with excess hydrochloric acid (main constituent of gastric juice), which is titrated against standard sodium hydroxide and the ability of the antacid to neutralize the acid is noted, which is its antacid value. Digene showed good antacid property compared to others. However, taking into account the dangers of the overuse of these medications; one can think of traditional remedies as an alternate solution for mild symptoms.

Keywords: Antacid, Acid neutralizing capacity, Digene, Antacid, Gastric fluid.

INTRODUCTION

Antacids are bases used to neutralize the acid that causes heartburn. Despite the many commercial brand, almost all antacids act on excess stomach acid by neutralizing it with weak bases. The most common of these bases are hydroxides, carbonates, or bicarbonates. The following table contains a list of the active ingredients found in several common commercial antacids, and the reactions by which these antacids neutralize the HCl in stomach acid [1].

The mechanism of working of antacid depends on acid neutralizing acidity, increasing the pH or reversibly reducing or hindering the secretion of acid by the gastric cell to reduce acidity in the stomach [2]. They perform a neutralization reaction, i.e. buffer gastric acid, raising the pH to reduce acidity in the stomach. When gastric hydrochloric acid reaches the nerves in the gastrointestinal mucosa, they signal pain to the central nervous system. This happens when these nerves are exposed, as in peptic ulcers [3-4]. The gastric acid may also reach ulcers in the esophagus or the duodenum [5].

Antacids are taken by mouth to relieve heartburn, the major symptom of gastro esophageal reflux disease, or acid indigestion. Treatment with antacids alone is symptomatic and only justified for minor symptoms. Peptic ulcers may require H₂-receptor antagonists or proton pump inhibitors [6-7].

Commercial of antacids are now available for the relief of heartburn and peptic ulcer pain. It comes in two forms, either as liquids or as solid tablets. The main constituents of antacids are magnesium and aluminum as hydroxides alone or in combination [8]. Some contains salt of calcium, sodium, carbon or bismuth. The effectiveness of each antacid depends on its neutralizing capacity and the passage time in the stomach. Liquid preparations of antacids are more effective than the solid ones because the constituents are already in their form [9]. This research work is aiming to evaluate the acid neutralizing capacity of five different commercial antacid tablets using titrimetric method of analysis.

MATERIALS AND METHODS

Five different brands of commercial antacids tablet used in this research work were purchased from medical store in form of tablets.

PREPARATION OF SAMPLES AND REAGENTS

0.1 M Hydrochloric Acid Solution

0.1 M HCl was prepared by diluting 8.6 ml of 12 M HCl with deionized water in 1000 ml volumetric flask. After the addition of the acid the volume of the flask was made up to the mark adding deionized water.

0.05 M Sodium Hydroxide Solution

0.05 M NaOH was prepared by dissolving 2.0 g of NaOH with deionized water in 1000 ml volumetric flask. After the dissolution process, the volume was made up to the mark.

0.05 M Oxalic Acid Solution

3.15 g of hydrated oxalic acid was weighed and properly dissolved with deionized water in 100 ml volumetric flask. After the dissolution process, the volume was made up to the mark by adding deionized water.

Standardization of Sodium Hydroxide Solution

10 ml of 0.05 M oxalic acid was measured into a 150 ml conical flask followed by the addition of 3 drops of phenolphthalein indicator. The solution was titrated against 0.05 M sodium hydroxide solution until it turns pink which persisted for at least 30 seconds without fading. The volume of 0.05 M NaOH solution used was recorded. The titration procedure was repeated 3 more times, and the average titre value was recorded.

Standardization of Hydrochloric Acid Solution

10 ml of the 0.1 M HCl solution was measured into a 150 ml conical flask followed by the addition of 3 drops of phenolphthalein indicator. The solution was then titrated with 0.05 M NaOH until the solution turns pink which persisted for 30 seconds without fading. The volume of 0.05 M NaOH solution used was recorded. The titration procedure was repeated 3 times, and the average titre value was recorded.

Evaluation of the Neutralizing Capacity of Antacid Tablets

Sample of each antacid tablets was crushed using a mortar and pestle and weigh 1.0 g of each. Transfer this sample into 250ml glass beaker to this add 75ml of 0.1N HCl solution. Heat the solution for about 30 minutes and then cool it at room temperature. Transfer the solution in 100 ml volumetric flask and make up the volume up to the mark by adding deionized water. 10ml of this solution was measured into 150ml conical flask followed by the addition of 3 drops of phenolphthalein indicator. The solution was titrated against standardized NaOH solution until the solution turns pink which persisted for 30 seconds without fading. The titration procedure was repeated 3 times, and the average titre value was recorded. The same procedure was repeated on all the other brands of antacid tablets and the average titre value of the NaOH solution required to neutralize the excess acid (HCl) for each brand of the antacid was recorded.

RESULTS AND DISCUSSION

Analysis of Antacid Tablets Analysis of the different commercial antacids tablet was carried out to evaluate their acid neutralizing capacity and results was given in Table 1.

	Digene	Ranidom	Ranitidine	Histac 300	Omni
Total amount of HCl used (ml)	75	75	75	75	75
Volume of Sample (ml)	10	10	10	10	10
Volume of NaOH required (ml) (back titration)	9.6	10.8	11.5	12.3	13.1
Mass of Antacid used (g)	1.0	1.0	1.0	1.0	1.0
Acid neutralizing capacity (g)	0.072	0.049	0.036	0.021	0.005

The data shows that Digene neutralized the HCl the most. So this antacid is effective at neutralizing stomach acid and also found to be the most effective at neutralizing the acid. Digene is the largest selling antacid in the country and has been associated with various firsts in antacid therapy, viz.: antifatulent activity, coating protection, choice of delicious flavors to customers. It is available in three delicious flavors, mint, orange and mixed fruit along with an assorted flavors pack.

The total amount of HCl left by given weight of antacid can be calculated by using equation (1)

$$\text{The total amount of HCl left by given weight of antacid} = \frac{\text{Molarity of NaOH} \times \text{Volume of NaOH}}{\text{Molarity of HCl}} - - - (1)$$

Weight of acid neutralized by given weight of antacid can be calculated by using equation (2)

$$\text{Weight of acid neutralized by given weight of antacid} = \text{Molarity of HCl} \times \text{Equivalent weight of HCl} - - - (2)$$

The acid neutralizing capacity of antacid is calculated by using equation (3)

$$\text{Acid neutralizing capacity of antacid} = \frac{\text{Molarity of HCl} \times \text{Equivalent weight of HCl}}{\text{Weight of antacid}} \times \text{Volume of HCl neutralized by antacid} - - - (3)$$

CONCLUSION

On the basis results obtained it was clear that Digene tablet is more active, because it neutralized more amount of acid than the rest. It is recommended that further work should be carried out on other antacid drugs particularly on the different physiological aspects to fully ascertain their neutralizing capacity.

ACKNOWLEDGMENT

The authors are thankful to Principal, Adarsha Mahavidyalaya, Dhamangaon Rly., for providing necessary laboratory facilities.

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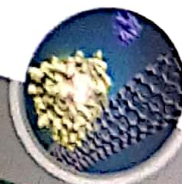
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Docking and Antiviral Studies of Novel S-Triazine Derivatives with Substituted Amines

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In the present research work the novel series of s-Triazine derivatives with substituted amines have been synthesized by using microwave assisted synthesis. The reaction of cynuaric chloride with 2-amino pyrazine in 1,4-dioxane using alkaline medium at 0-50°C was obtained compound in good yield. The interpretation of newly synthesized series of s-Triazine derivatives with various substituted amines have been carried out by using IR, UV, Mass spectrometry, NMR advanced spectroscopic techniques. To prove the novelty of new synthesized series of s-Triazine derivatives and its metal complexes following properties like molecular docking, Antimicrobial activity, Antifungal activity, Antifungal activity and Thermal properties were evaluated. Germination property of newly synthesized s-Triazine derivatives have been studied by using different seeds such as Soyabean (*Glycine max*) and Wheat (*Triticum aestivum*).

Synthesis, Spectral Characterization and Antibacterial Studies of Schiff Bases Derived from Sulpha Drugs

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Schiff bases synthesized by the condensation of dapson and sulphapyridine with salicylaldehyde, o-cresol, 2,4-dihydroxyacetophenone and 2,4-dihydroxybenzophenone, were characterized and investigated by physical and spectral techniques, namely, elemental analysis, melting point, ¹H NMR, IR, UV-Vis spectra, and mass spectrometry measurements. The Schiff bases were screened for antibacterial activity in vitro against Gram positive and Gram negative bacteria viz. *Escherichia coli*, *Staphylococcus aureus*, *Pseudomonas aeruginosa* and *Klebsiella pneumoniae* using standard Agar cup plate or well diffusion method. The ligand L1H and L2H are highly active against all bacterial strains whereas the ligand L3H2 and L5H2 highly active against *Escherichia coli*, *Staphylococcus* and *Klebsiella pneumoniae* and moderately active against *Pseudomonas aeruginosa*.



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In the present study *Achyranthes Aspera* Plant were taken as experimental plant in order to study effect of heavy metals and their complexes of (S)-2-(2-oxopyrrolidin-1-yl) butanamide Drug to improve the yield of economically important plant. *Achyranthes aspera* plant. (Family: Amaranthaceae) is well known plant widely distributed in India. Different parts of the plant (Leaves, seed, and root) are reputed for their medicinal value. The seeds were immersed in Zn(II), ions, ligand and its complexes to study the germination and growth pattern and certain physiological processes. Effect of ligand, metal ion and complex solution on growth, determination of % of nitrogen, proteins and chlorophyll in the leaves of plants were studied. The data harvested indicates increased germinations in all seed treatments. The changes in growth pattern of roots length and shoots length are observed in the experimental plants. However, chlorophyll content was found to be higher in plant species. The percentage of nitrogen and proteins were found affected in the leaves of Tarota plant treated with (S)-2-(2-oxopyrrolidin-1-yl) butanamide complex and metal Zn (II). Nitrogen and protein contents are found higher in the treated plants as compared to control.

Synthesis and Antibacterial Evaluation of 2-Azetidinones from Schiff Bases containing Pyrazole Moiety

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A new series of 2-azetidinones were synthesized from Schiff bases containing pyrazole and thiophene moiety. The structure of newly synthesized compounds was confirmed on the basis of ¹H-NMR, IR and Mass spectral data. These compounds are further evaluated for antibacterial activity against four organisms, *Escherichia coli*, *Staphylococcus aureus*, *Pseudomonas aeruginosa* and *Klebsiella pneumoniae* using Streptomycin as a standard drug. Newly synthesized compounds showed moderate to good activity against the four organisms. From the zone of inhibition it is clear that, all the compounds were significantly active against *Klebsiella pneumoniae*.

Synthesis of Novel Azo-Dipyran from Cyclic Imide by using PbO Nanoparticle Catalyst

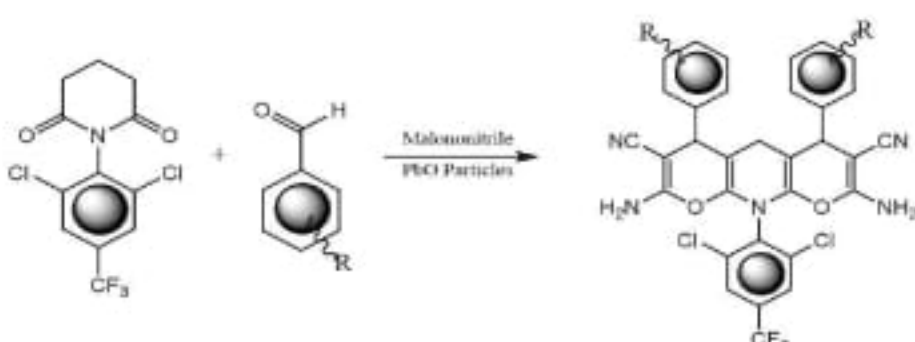
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A green route was preferred to the synthesis of azo-dipyran derivatives which was followed by the treatment of 1-(2-chloro-6-methyl-4-(trifluoromethyl)phenyl)piperidine-2,6-dione with substituted aromatic aldehydes and malononitrile under the solvent-free condition using PbO nanoparticles as catalyst. The beauty of the greener approach is that it helps to replace solvents such as ethanol and piperidine with enhanced product yield. All these newly designed compounds (4a-f) were characterized by spectroscopic techniques and screened for their antimicrobial properties however it was found that most of the compounds were exhibited potent antimicrobial effects against certain bacterial and fungal strains.





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ISSN - 2278 -9308

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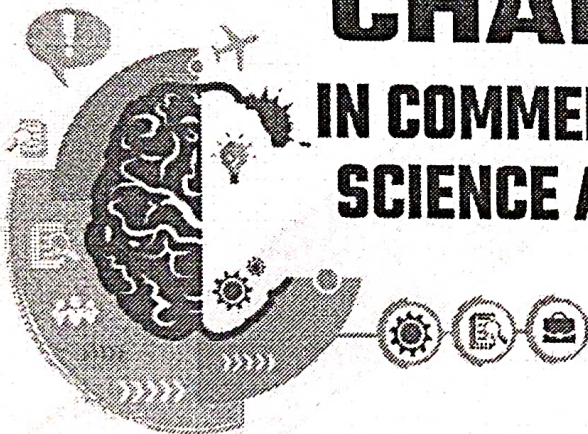
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Review Of Data Mining And Machine Learning Techniques In Heart Disease Prediction

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Abstract:

Heart disease is one of the top causes of life complications and, as a result, mortality. The diagnosis and treatment of heart disease is extremely difficult, especially in developing countries, due to the scarcity of effective diagnostic instruments and a scarcity of medical experts and other resources, all of which impair the appropriate prediction and treatment of heart disease. Inadequate preventive measures, as well as a scarcity of experienced or inexperienced medical personnel, are the main causes. The precautionary precautions are insufficient. Several clinical decision support systems on heart disease exist in today's digital environment. Predictions have been produced by several academics to make diagnosis easier and more efficient. This paper looks into the various clinical decision support systems for heart disease prediction proposed by various researchers using the state of the art. Techniques for data mining and machine learning The Nave Bayes (NB) and Decision Tree algorithms are two examples of classification algorithms (DT), Artificial Neural Networks (ANN) have been widely used to predict heart disorders, with varying degrees of accuracy acquired.

Keywords: Data Mining, Machine Learning, Heart Disease, Classification, Prediction

I. Introduction

Cardiovascular disease has become one of the most widespread diseases in the world at present. It is estimated to have caused around 17.9 million deaths in 2017 which constitutes about 15% of all natural deaths [1]. Cardiovascular disease is chronic heart disease and can be detected at the initial stages by measuring the levels of various health parameters like blood pressure, cholesterol level, heart rate, and glucose level [1]. The cardiovascular disease not only affects human health but also the economics and cost of the countries [2]. Nowadays, several data mining algorithms and machine learning algorithms are being developed under searched for predicting the different types of diseases [3]. Similarly, there are many research article which shows that numerous data mining, machine learning, and the hybrid algorithms are being studied, developed and investigated which can help detect the and predict the early stage of heart disease[4]. The heart disease diagnosis is the process of detecting or predicting heart disease from a patient's records. Doctors may not able to diagnose a patient properly in a short time, especially when the patients suffer from more than one disease [5]. The authors in [18] have surveyed numerous research papers from different years on the prediction of heart diseases and they concluded that data mining techniques are better at predicting heart diseases. Classification techniques are used widely in healthcare because of their capabilities of processing very large data sets. The commonly used techniques in healthcare are Naïve Bayesian, support vector machine, nearest neighbor, decision tree, Fuzzy logic, Fuzzy based neural network, Artificial neural network, and genetic algorithms [6].

II. Literature Review

Reference [7] presented a heart disease prediction framework using some supervised machine learning algorithms in R programming language. The algorithms used include Support Vector Machine (SVM), K-Nearest Neighbor (KNN), and Naïve Bayes (NB). The Cleveland datasets from the University



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Dr. Saurabh Ashok Ghogare
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Has been published in

GRADIVA REVIEW JOURNAL Volume 8, Issue 3, March 2022




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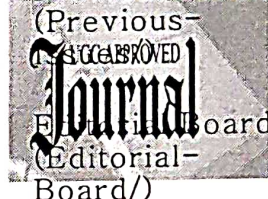
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ISSN NO : 0963-8057



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Introductory study on machine learning tool WEKA

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Abstract:

Data mining is the process of identifying or extracting new patterns from massive datasets or databases, and it is a powerful new branch of computer science with a lot of potential. It's widely utilized in marketing, surveillance, fraud detection, artificial intelligence, scientific research, and a variety of other industries. Today the size of data is increasing day-by-day. To analyze the dataset from different angles and Data mining techniques the WEKA software is used. This paper describes to understand the basic of WEKA. It also explains the basic techniques to use WEKA and how datasets are load into it. WEKA also Supports Varsity of Classifier that also explain in this paper.

Keywords: *Data mining, data preprocessing, classification, cluster analysis, JRip, Weka tool et.*

1. Introduction:

Today the rapid growth of data over the internet, product related word-of-mouth conversation have migrated to online markets, creating active electronic communication that provide a wealth of information. In data mining, the data is stored electronically and the search is computerized or at least augmented by machine. The use data mining is to gain knowledge, not just predictions^[8]. Data Mining is the process of extract hidden information from the data set and it is also called as knowledge discovery. This Techniques is used in various applications such as Education, Banking, Market analysis, Telecom industry, Retail Industry, DNA Analysis and Many more. WEKA is open source software an open source software provides tools for data preprocessing, implementation of several Machine Learning algorithms, and visualization tools which help researchers to develop machine learning techniques and apply them to real-world data mining problems. There are some authors who uses WEKA in their dataset. Y. K. Salal, S. M. Abdullaev, Mukesh Kumar (2019), discovers execution forecast in Academic with assistance of Data Mining procedures to improve instruction quality. Gaganjyot Kaur, Amit Chhabra (2014), The paper portrays successful data burrowing frameworks for foreseeing diabetes from therapeutic records of patients. Pima Indians Diabetes dataset of 768 events is used by maker. V. Veeralakshmi, Dr. D. Ramyachitra (2015) investigate execution of three principles classifier algorithms. The calculation is RIDOR, JRIP, and Decision Table. IRIS Dataset is picked for correlation. Dr.S.R.Kalmegh(2017) uses the WEKA with the data set of Indian news and come up with results.

2. Methodology

2.1 WEKA: - WEKA was developed at the University of Waikato in New Zealand. The name stands for Waikato Environment for Knowledge Analysis The system is written in Java and distributed under the terms of the GNU General Public License^{[12][16]}. It runs on almost any platform and has been tested under Linux, Windows, and Macintosh operating systems. It provides a uniform interface to many different learning algorithms, along with methods for pre and post processing and for evaluating the result of learning schemes on any given dataset. This tool also supports the variety file formats for mining include ARFF, CSV, LibSVM, and C4.5^{[10][13]}. The easiest way to use WEKA is through a graphical user interface called Explorer as shown in Fig. I. Fig. II Shows the ARFF File Opening by WEKA and Fig. III ARFF file processing by JRip. The Step by steps use of WEKA for result purpose is as explain below.

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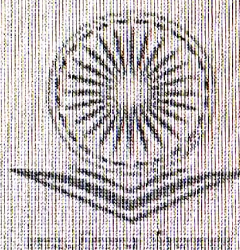
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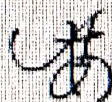
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2. Isolation, Identification and Optimization of Amylase Producer *Bacillus Subtilis* from Municipal Wastewater

Nilesh Amarda Sonune

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Abstract

Amylases are one of the most important industrial enzymes represent approximately 30% of the world's enzyme production and have a wide variety of applications in many industrial processes. In present study, amylase producing bacterial species was isolated from municipal wastewater on nutrient agar medium. This isolate was screened for its amylolytic ability on starch agar medium. Based on the morphological, cultural and biochemical tests, the selected isolate was identified as *Bacillus subtilis*. The results showed that optimum pH, temperature and incubation time for highest amylase activity was found to be 7.5, 37°C and 48 h respectively whereas the highest activity was observed with sucrose and yeast extract as a carbon and nitrogen source respectively. Similarly, *Bacillus subtilis* also showed bioremediation potential as it grows on wastewater agar medium which was devoid of any external nutrients in the medium.

Keywords: Amylase, *Bacillus Subtilis*, bioremediation, municipal wastewater.

Introduction

The α -amylases are enzymes that hydrolyze starch molecules to generate progressively smaller polymers such as glucose, maltose and maltotriose units (Rajagopalan and Krishnan 2008). They can be obtained from several sources such as plants, animals and microorganisms. However, microbial amylase is more beneficial than other sources because it is economical as well as production rate is high and can be engineered to obtain enzymes of desired characteristics (Panneerselvam and Elavarasi, 2015). The α -amylases have many potential applications in a wide number of industrial processes such as food, fermentation, textile, paper, detergent and pharmaceutical industries. However, with the advances in biotechnology, the amylase