

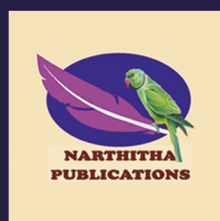
# ERUDITION

## A Research Compendium

Interdisciplinary & Multilingual

**ERUDITION:** A Research Compendium, Investigates the concealed precisions of existence of the current ideologies that sustain the scholarly occurrence through observation, analysis and representation. Discourse of knowledge is a keen medium which cross-examine the secrets of survival on the terrain. It is exploratory in its original sense and identifies the imperative conclusions that have made human beings budge towards enlightenment. Various fields of study have unquestionably created an understanding of life and the intricacies adjacent to existence. Research with a definite intention has created miracles in the evolution of rational detections. All discipline of studies has taken different paths towards understanding the unique concept of Truth.

ERUDITION is a compilation of Research Analysis presented by the Faculty Members of **Little Flower College, Guruvayur**, challenging to create an insight towards the interpretation of innovative intellect.



₹ 100



ERUDITION

Editors  
Dr.Philomena C.F. Dr.Shaijy C. Muringathery

# ERUDITION

## A Research Compendium

Interdisciplinary & Multilingual



Editors

**Dr.Philomena C.F.**  
**Dr.Shaijy C. Muringathery**

A Research Publication  
Little Flower College, Guruvayur



# **Erudition**

## **A Research Compendium**

**Editors**  
**Dr. Philomena C.F.**  
**Dr. Shaijy C Muringathery**



**A Research Publication**  
**Little Flower College, Guruvayoor**  
**Thrissur, Kerala-680103.**

## LITTLE FLOWER COLLEGE

In view of ample scope and immediate necessity for a women's college in South Malabar, Little Flower College was started at Guruvayoor on 1<sup>st</sup> July 1955 and it began to function as a Second Grade College. In March 1957 the college was raised to a first grade one by the starting of B Sc. Mathematics and B.A. Economics Courses. Even though the College had its origin as part of the University of Madras, it was affiliated to the Kerala University in June 1957 and to the Calicut University in July 1968.

Little Flower College was established and administered by the Assisi Province, Thrissur of the Franciscan Clarist Congregation. The motto of the college is –Duc in Altum-Launch out in to the deep-with the steadfast aim of promoting the glory of God and the good of our dear country by perseverance and diligence.

Education in its true sense should comprise besides the acquisition of knowledge, the formation of an ideal character by bringing body, mind and under discipline and by developing everything that is good and beautiful in human nature. Hence it should be the earnest endeavour of every student to cultivate high and noble ideals of life and conduct. She should be gentle and refined in behaviour, polite and courteous in manners and neat and modest in dress and deportment.

Since the last six decades, the college is constantly striving to develop confident, resilient and enlightened young women who are socially committed to shape a vibrant society.

The research forum of our college monitors two peer reviewed research journals of the college, “**Cognitions**” in Humanities and “**Investigare**” in Science. The research forum organizes monthly interdisciplinary seminar presentations of faculties and also encourages teachers to undertake Major and minor research projects of different funding agencies to create a research culture within the campus.

## **EDITORIAL**

**T**he present book “Erudition” is a valuable step towards the academic enrichment of Little Flower College. The successful collection, editing and completion of the work was no easy task. Bringing Science and Humanities under one canvas itself proved a daunting mission. The teaching faculty of the institution forms a group of elite academicians whose research output is held in high value at all platforms. Every Teacher is facilitator and at the same time a mentor who motivate her students to go deep and high of the vast area of knowledge. Enabling research qualities in the process of learning can develop a keen interest among the students to attain aspirations for further studies and also for acquiring further introspections. This is an attempt of our faculty to expand and explore the horizons of education.

The editorial board faced a humongous challenge in choosing out of such superior erudition and shaping and restraining it to the limits of this book. Scholarly articles from both humanities and science streams on a plethora of topics have been curated and edited in this work. This platform is intended to be a fitful beginning to what is dreamt to be a long and fruitful academic pursuit. The very title “Erudition” is intended to proclaim the envisioned mission of the collection. Erudite ruminations of knowledgeable researchers collected for publication here are all carefully formulated and edited for expanding the knowledge horizons of the scholarly community. We are proud to present this collection of scholarly articles by the able academicians of Little Flower College for the perusal of the greater public.

## **FOREWORD**

**R**esearch is an attempt of seeking knowledge through the process of observation, analysis, and interrogation. Research could enable us to move in search of novel ideas and understandings which could lead to new findings. This kind of search and research could be beneficial not only to the individual but definitely to the society and therefore to the Nation. Research can obtain the observations about the progress of Science and Civilisation. When the application of research reaches the root spot of the society and becomes beneficial for the synchronised movement of collateral living then does the true essence of discoveries find an authentic space.

Cordial research attempts to be progressive and harmonious for the earth as well as for the humans. Therefore the result of research in all the disciplines both Science and Humanities should aim at the formation of a better world and no research should go in vain or destructive. The ethical value of discoveries should be maintained for the harmless innovative spectrum.

I am proud that the faculty members have genuinely attempted to generate a book of authentic research outputs which has a relevant and cordial perspective towards the progression of both humanity and the environment. It is inexorable that the Research compilation shall create insights regarding various prominent developments and discoveries which could promote the ultimate aim of harmonious existence. I wholeheartedly appreciate the brilliant effort initiated by the research wing of the college led by Rev. Sr. Philo Jeas accompanied by all those who have extended their intellectual aspirations.

**PRINCIPAL**

**Rev. Sr. Dr. Molykutty M. Kaniampady**

## **EDITORIAL BOARD**

### **Chief Editors**

Dr. Philomena C.F

Dr. Shaijy C Muringathery

### **Associate Editors**

Dr. Moly P.P, Dr. Thanuja. Mathew

Dr. Julie Dominic, Smt. Silpa Anand S

### **Published by**

Dr. Sr. Molykutty M Kaniampady, Principal  
Little flower College, Guruvayoor

The Little Flower College has no responsibility for the statements and  
conclusions written by the contributors.



**Narthitha Publications,**

(MSME Reg:KL12D00010153)

**TC 25/170, 3<sup>rd</sup> Floor,  
Gandhari Amman Covil Road,  
Pulimoodu. P.O  
Thiruvananthapuram.  
Pin 695001,  
Mobile : 70 25 89 29 00,  
: 8 33 000 29 00**

English

**ERUDITION**

A Research Compendium

Chief Editors

**Dr. Philomena C.F.**

**Dr. Shaijy C Muringathery**

First Published March 30 2019

copyright reserved

Cover Design : Muneer Agragami

Printed in India

Vibgyor Prints, Calicut

ISBN : 978 81 9386 464 7

---

No part of this publication may be reproduced,  
or transmitted in any form or by any means,  
without prior written permission of the publisher.

₹ 100.00

## INDEX

1. Kuri companies of Thrissur in the twentieth century: A historical outline - <i>Valsa.M.A</i>	09-15
2. Women and Creative Writing: A study on the Eastern and Western possibilities of Writing - <i>Dr. Julie Dominic. A</i>	16-19
3. Cultural diffusion and Identity crisis confronted in Jayaraj's loudspeaker - A malayalee repatriate film - <i>Dr. Esther Mani</i>	20-23
4. Humour and children's world: Speculating the spectrum of seamless laughter in Danny Devito's film <i>Matilda</i> - <i>Reely Raphael</i>	24-26
5. Climate Change in Fiction: An Analysis of Lorin R Robinson's <i>Warming</i> - <i>Silpa Anand S</i>	27-31
6. Anita nair's Alphabet Soup for Lovers: An introspective interpretation of the food imagery - <i>Dani C. Francis</i>	32-35
7. A Parallel Study of Protagonists in a Fiction and Non-Fiction Facing the Threat of Cancer - <i>Dr. Saneesh C.S.</i>	36-40
8. Memory as Reminder, Retaliation and Resistance: A Brief Exploration of Elie Wiesel's <i>Night</i> - <i>Nair Anushri Rajasekharan</i>	41-43
9. Effect of concentration on the performance of all fe redox flow battery - <i>Jeena C.B., Moly P.P., Elsa P.J., Ambili K.J.</i>	44-49
10. Preparation & Characterisation of Pani- crgo (chemically reduced graphene oxide) composite - <i>Haisel Mathew</i>	50-60
11. Handling of Fe by Intestinal epithelia of Climbing perch ( <i>Anabas testudineus</i> ) kept in Fe II iron-rich water - <i>Dr. Jilna Alex N. &amp; Dr. M.C. Subhash Peter</i>	61-69
12. Comparative study on Vitamin c content in different samples of fruits and vegetables and kinetics of its thermal degradation - <i>Lovely Jacob A.</i>	70-79
13. Srinvasa Ramanujan – The Great lover of Numbers - <i>Dr. Philomena C.F</i>	80-85
15. Laplace Distributions - <i>Dr. Mariamma Antony</i>	86-90
16. <b>स्त्रीकेन्द्रीकृतं कलारूपं नड्यार्-कूत् ।</b> - <i>Mr. Justin P.G.</i>	91-92
17. ബൈബിൾ ശൈലികളുടെ പ്രതിഷ്ഠാപനങ്ങൾ - മലയാളസാഹിത്യത്തിലും കലകളിലും - <i>ഡോ. സി. ഷീബ എ.സി.</i>	93-97
18. ആഖ്യാനം സങ്കരിയയുടെ തേൻ എന്ന കഥയിൽ - <i>ഡോ. ഷൈജി സി. മുരിങ്ങാത്തേരി</i>	98-100





# KURI COMPANIES OF THRISSUR IN THE TWENTIETH CENTURY: A HISTORICAL OUTLINE

Valsa.M.A, Assistant Professor, Department of History,  
Little Flower College, Guruvayoor.

## INTRODUCTION

The financial institutions of a state or district channelize the capital from surplus area to the deficit area. Micro savings and micro credit were the main financial duties done by the kuri companies in Kerala. 'Dhanya kuri', 'Nellukuri', 'Arikkuri' and 'Panakkuri' were the existing customs among the different types of communities in Thrissur from the starting of nineteenth century onwards. Even though microfinance is a modern concept of late twentieth century, it was practised much earlier than that period through chit funds and kuries in Kerala. Chit funds or kuri companies are the Indian version of Rotating Credit Associations. The main objective of this paper is to analyse the historical evolution of kuri companies and the role of kuri companies in the day today life of the rural people of Thrissur district. The origin, growth, functions, merits and demerits of kuri companies in Thrissur also discussed in this paper. Both primary and secondary data were used for the study. Descriptive and analytical methodologies were applied in this research paper.

## ORIGIN AND GROWTH OF KURI COMPANIES IN KERALA:-

The chitty or kuri is a popular indigenous financial institution which existed in Kerala from time immemorial in its former version. In the early days when the people did not know anything about modern banking, the chitty or kuri developed almost spontaneously as an instrument for micro saving and micro credit to the participants. The etymology of a term suggests the background of its origin. 'Chit' means a written note and 'kurippu', is its synonym. The prize winner in a chitty or kuri is determined by drawing of lots. Chit funds or kuri companies were famous saving schemes of India and Kerala. A Chit fund brings savers and borrowers on the same platform. Chit funds or kuri companies are saving cum borrowing schemes, the subscribers agreed to contribute a fixed amount every month for a fixed period. The names of the subscribers were written on separate small chits and the lucky one is picked up from among them at random. The unlucky subscribers interested to get credit facilities through auction. The antiquity of chitty or kuri is referred by William Logan in his Manual of Malabar District.<sup>1</sup>

Changathikkuri and Pallikkuri were the forerunners of modern kuri companies. The word 'Changathikkuri' derived from Sanskrit word 'changati' (convoy, guard, companion, friend) and Dravidian word 'kuri' (lot, share, lottery, club). It may be constructed to mean a season of friendship, a periodical association, the lodge of friendship, a society of friends. It was a meeting formerly very common in Malabar among the natives, and still partially kept up, for the purpose of conversation or of discussing any particular subject. The economic institution conducted by them

supported by the subscription of the members in the following manner. Suppose there are 25 members, that each contributes 4 fanams monthly, making a total stock for each month of 100 fanams; that the society is limited to 25 months duration, and every member is obliged to give an entertainment to the party once in the course of this period at his own house. It does not come to the members in regular turn, but is decided by lot, that is, every member places with his subscription a ticket with his name into the deposit, and a ticket is drawn every month by some indifferent person, and the person whose name appears on the ticket drawn gives the entertainment and is entitled to the amount in deposit for the month.<sup>2</sup>

In Thrissur district, the churches played an important part in running kuries known as Pallikkuri. The Lourdes Catholic Church in Thrissur pioneered the introduction of Church –sponsored kuri in the kingdom of Cochin. Soon after this, a number of churches in Thrissur diocese started a lot of kuries. Daily kuri, Monthly kuri and Pooval kuries were run by them for micro savings and micro credit to eradicate poverty among the rural people. Pallikuries were conducted by the churches of Thrissur, Cherpu, Chittattukara, Ollur, etc. for the welfare of poor in the locality. In the view of P.J. Thomas, Kuries were introduced among Crangannore Christians by the Portuguese missionaries who travelled between Crangannore and China for missionary and evangelical purposes.<sup>3</sup>

The technical terms used in a kuri or chitty are as follows.(1) ‘Foreman’ is the promoter who is responsible for the conduct of kuri. He is entitled to collect from the subscribers at each instalment a certain amount called ‘commission’ for meeting his expenses in conducting the chitty/kuri.(2)

‘Variola’ is a document containing the article of agreement between foreman and subscribers relating to kuri. (3) ‘Prizeamount’ means chitty /kuri amount less discount. The kuri amount in turn is the sum total of the contributions payable by all the subscribers for any instalment without any deduction for discount. The amount of money a prized winner has to forgo under the terms of the variola for the payment of ‘veethapalisa’, foreman’s or other expenses is called the discount.(4)

‘Veethapalisa’ is the share of a subscriber in the discount available under the variola for distribution among the subscribers at each instalment of the kuri. The subscription a subscriber has to pay at each instalment is with normal share value less with the veethapalisa for him for the particular instalment.(5) ‘Ticket’ means the share of a subscriber in a kuri which entitled the holder there of to the kuri amount at any one instalment with or without any deduction by way of discount.

Generally an enterprising individual or institution called the foreman enrolls a number of persons as subscribers and starts the kuri. The terms and conditions of kuri are drawn out in the form of an agreement and duly registered according to the provisions of the law. In every kuri, there shall be a fixed number of members. Every member has to pay a fixed amount at regular intervals in time. To cater to as many subscribers as possible consistent with their capacity for investment, a kuri is often divided into different series. The number of tickets in a chit series equals the number of instalments. Thusevery member has a chance to get the prize. Every member is bound to pay his periodical subscription till the termination of the kuri, the number of instalments being equal to the number of members in a series, so that each one can get the prize once by turn. For the last

subscriber, there is no auction or draw; he gets the prize after deducting the foreman's commission and without having to furnish any security.

### **KURI COMPANIES OF THRISSUR DISTRICT IN THE TWENTIETH CENTURY:-**

There are a number of kuri companies functioning efficiently in Thrissur district during the twentieth century. The most famous among them were : Lourdes Church Kuries, Dharmodayam company, Kshemavilasam kuri company Ltd., The Damien Subsidies , Oriental kuries ,Bharatakshemam , Popular kuries, Mar Apprem kuri co. Ltd, Trichur kuri syndicate Ltd., The Assyrian Charities kuri Ltd.,Cochin kuries Ltd.,Aranattukara Kuries Ltd.,Chaldean Syrian kuries , Forona Church Irinjalakkuda, Dharmapooshanam Co. Irinjalakkuda, etc. Majority of the subscribers of the kuri companies are teachers and daily workers. Through daily kuri or monthly kuri, they can save their money and they will get a big amount at times of need either through lot or auction. Banks are not in that position to support the people who are in need to get money for the marriage of their daughter or building a new house. So kuri companies are very popular among the common people of rural areas in developing countries. Registered and unregistered kuri companies were functioned in the local areas and mobilised micro savings. Micro credit is also available through kuri companies.

Savings – led micro finance programmes operate in poor rural communities in developing countries to establish groups that save and then lend out the accumulated savings to each other. Non-profit organisations train villagers to create and lead these groups. The community based microfinance groups' leads to an improvement in household business outcomes and women's empowerment.<sup>4</sup> The community kuri started by Syrian Catholics of Thrissur attracted the attention of other communities and they started similar type kuries. The kuri companies served as a good agent for micro savings in the country and played a significant role in financing economic development in Kerala.

### **FROM KURI COMPANIES TO BANKS:-**

From very early times India possessed a system of banking suited to her requirements and regulated by the Dharma Sastras (codes of ethics) and the Artha Sastras (codes of political economy). With time the system grew in usefulness and adapted itself to the country's growing needs. The system started with moneylending, but as early as the fourth century B.C., created instruments of credit to finance trade between different parts of the country. "Hundikas", or internal bills of exchange, developed at a later period, and evidence of their existence can be traced back to the twelfth century. Besides financing trade and industry, the bankers became financiers to states, managing their treasuries, guaranteeing the collection of revenues, and even financing their wars and expeditions. Their methods of business were efficient and conformed to the highest canons of commercial morality.<sup>5</sup>

From the late eighteenth century, Christians attained more economic opportunities to contribute significantly to the important process of generating wealth for the nation. One of the most important economic areas of the St. Thomas Christians was trade and spice cultivation. They cleared the forests and expanded their cultivation to amass wealth. They changed the economic landscape of Kerala by the large scale cultivation of pepper, cardamom, paddy etc. Leaders of Christians undertook various economic programmes under the aegis of their parish churches. Among them were chitty and kuries as self-help alternatives to bank finance.<sup>6</sup>

Long before independence, the banks were founded mostly by ‘the Christians’ who dominated the field for several years. According to the report prepared by Reserve Bank of India, in 1930’s Thrissur have head offices of 58 banks and was recognised by RBI as ‘banking town’. The headquarters of three scheduled banks such as South Indian bank Ltd, Catholic Syrian Bank and Dhanalakshmi Bank were existed in Thrissur. M.A. Oommen has expressed the view that, “among the provinces and states of the Indian Union at independence, Travancore and Cochin topped in the list in the range of area and population served by an office of a commercial bank”.<sup>7</sup> Thiruvalla in Travancore and Thrissur in Cochin were the pioneers and promoters of banks in the early period.

The Chaldean Christians of Thrissur started their kuri company first in Thrissur during 1830’ sand Chaldean Syrian Bank started in 1918. The Catholic Christians of Thrissur under the Chakkolas started the Catholic Syrian Bank in 1920 and later South Indian Bank in 1929, which are even now the leading small scale banks of India. The Catholic Orient Bank (1922), Catholic Bank(1929), Malabar Bank(1929), Indian Insurance Banking Corporation(1933) and Ksemavilasam Banks were the other leading banks started by the Chakkola group and other Catholic Christians of Thrissur. The flow of wealth from the newly formed agrarian villages of the Christians of mid-upland Kerala and the surplus from their commercial activities kept the banking sector vibrant and active. In 1953 Thrissur had nineteen registered banks, next to Calcutta which had twenty-one.<sup>8</sup>

During the course of time, many kuri companies were merged into banks such as Catholic Syrian bank, South Indian Bank and Dhanalakshmi Bank of Thrissur due to the provisions of Indian Companies Acts which prohibited banking activity in the kuri companies. “Indigenous-style bankers,” belonging to particular ethnic communities and castes, formerly provided the full range of banking services to their clients.<sup>9</sup> It is evident in Kerala.

The gap between gross capital formation and gross domestic savings in India necessitates the need for supplementing the growth rate of voluntary domestic savings. So, the working of different financial intermediaries for mobilising savings from various income categories will have to be widened and strengthened. Miscellaneous Non-Banking Companies or Chit Funds being a category of Non-Banking Financial Intermediaries, contribute significantly to the value of financial markets in India. Non-Banking Financial Companies have emerged as an integral part of the Indian financial system.<sup>10</sup>

Geertz opined that the basic principle upon which the rotating credit association is founded in everywhere the same. Whether the fund is in kind or in cash; whether the order of the members receive the fund is fixed by lot, by agreement, or by bidding; whether the time period over which the society runs is many years or a few weeks; whether the sums involved are minute or rather large; whether the members are few or many; and whether the association is composed of urban traders or rural peasants, of men or women, the general structure of the institution is constant.<sup>11</sup>

## **TYPES OF CHIT FUNDS:-**

According to the study conducted by the Central Bureau of Investigation, Ministry of Home Affairs and Government of India, the chit funds were grouped into simple chits (It is not a profit earning business. It is an undertaking of individuals. The rules and regulations of chit funds are orally agreed), business chits (Foreman enter into an agreement with subscribers. Each subscriber should pay a certain amount of money of quantity of grain by periodical instalments for a certain definite period. The chance to get prize is determined through lot.) and prize chits or commission chits (There are different varieties of schemes, publicise them and invite the public to join them. The prize amount may either be cash or an article of utility. Commission will go to the foreman for the expense of the conduct of kuri).<sup>12</sup>

Another categorisation grouped chits into three (1) Chit Funds run by State Government – These types of chit funds are run by state governments. These types of chit fund are completely transparent. Kerala State Financial Enterprise is an example for these types of chit funds. (2) Private Register Chit Funds – There are a number of privately held register chit funds. These funds are registered as per Chit Funds act 1982. (3) Unregistered chit Funds – It is illegal to run unregistered chit fund. However, you will find many unregistered chit funds across the country. These funds are usually run by a closed group such as relatives, friends, neighbours etc.

## **ADVANTAGES AND DISADVANTAGES OF CHIT FUNDS:-**

There are a lot of advantages we can see in the functions of kuri companies. Chit fund gives the flexibility to borrow and save. It provides a chance to borrow money (pot) just by paying first monthly instalment. Kuri companies are the best financial institutions for the needy people. One can get finance without any documents. The non-prized subscriber who is a saving member up to the last instalments gets a dividend which is comparatively higher than the interest that are accrued by way of other Deposit Schemes. There is no need to disclose for which purpose you will be using the prize money. For an ordinary person, it is not easy to take a big amount within a short time because he is not in such a financial condition. Through kuries, he can earn a large sum by keeping his small savings in a long time process. If he is in a needy condition, he can auction his kuri to suit for it. Micro savings and micro credit are two sides of the coin of economic development of a country.

A number of disadvantages also exist in the working of kuri companies. There is no guarantee of fixed returns. Chance of fraud is very high in kuri companies - suppose foreman run away with

corpus amount. A winning subscriber may disappear after winning the first bid. It will affect the function of the company. The subscriber may default and not ready to pay next instalments. It will create tensions for other subscribers also. There is a chance for high degree of risk with very little protection. The lapses in the Kerala Chitties Act such as fixed ceiling on discount, security to be kept by the foremen, cumbersome registration formalities and procedural delay are the important problems in Chit Finance Industry. The flight of foremen and the 'Chit like' schemes have resulted in loss of revenue to the State. Many of these problems could have been avoided if, the Central Chit Funds Act, 1982 with its amendments had been implemented in the State. Difficulty in finding substitutes and the absence of revenue recovery provision are problems especially in the private Chit sector. The other prominent problems are loss of reputation to Chit business due to the malpractices of certain foremen, growth of private Chits without State control and registration, the high levels of default and arrears, delayed receipts and non-receipt of subscription, absence of protection by insurance coverage, etc. An analysis of the above problems of Chit Finance leads to the striking conclusion that The Kerala Chitties Act, 1975 has failed to protect the interests of both the subscriber and foreman. It calls for remedial action by either the strict enforcement of the amended Kerala Chitties Act, 2002 or the implementation of the Central Chit funds Act.<sup>13</sup>

## **FINDINGS AND SUGGESTIONS:-**

Kuri companies of Thrissur played an important role in the economy of this region during the nineteenth and twentieth centuries. The urbanisation of Thrissur is gradually achieved with the effective functioning of kuri companies. We can witness the socio-economic progress in Thrissur during this period. It provided a chance for accelerating education among the youth of Thrissur. The progressive culture and civilisation of the locality is the result of these advances. Women empowerment is one of the most important results of the micro saving programme of kuri companies. Modernisation of Thrissur started by Sakthan Thampuran and now it is at the highest level. Trade and commerce flourished to enhance the economy of the region. There are certain suggestions for the effective working of kuri companies or chit funds in the future.

For solving the problems faced by kuri companies, the Central Chit Funds Act, 1982 must be enforced. Credit Rating by independent, professional agencies provides the potential for the subscriber to differentiate between the various Chit Funds in operation, thereby preventing the mushroom growth of Chit Fund Companies. Chit companies rated with the highest safety could be permitted to conduct 'Corporate Chits'. The Minimum paid up capital for such Chit companies should be enhanced. The setting up of a State Chit Fund Regulatory Authority will serve as an enforcer of standards as a problem solver and a reviewer and evaluator for helping Chit Fund companies. Effective system of disposal of disputes can implement through the establishment of a grievance cell. Insurance schemes could be introduced to protect the interests of subscribers and foremen. An All Kerala Federation of Chit Funds free of political bias for the common cause of the Chit business is desirable.

**ENDNOTES:-**

1. William Logan, *Malabar Manual*, Government of Madras, 1951, p.36.
2. 'Ibid'. , *Malabar*, Vol. II, Asian Educational Services, New Delhi, 1951, p. clxxiii.
3. P.J. Thomas, "Our Economic Heritage" in *Silver Jubilee Souvenir of Dharmodhayam Company*, Thrissur, 1948.
4. Dean Karlan, Beniamino Savonitto, Barm Thuysbaert, and Christopher Udry., "Impact of saving groups on the lives of the poor", (Edr.) Abijit Banerjee., Massachusetts, Institute of Technology and Jameel Poverty Actions, retrieved from jstor on 06-06-2016.
5. Manilal B., Nanavati., "Banking in India," in "*The Annals of the American Academy of Political and Social Science*", Vol. 233, India Speaking , May, 1944, pp. 152-160, Sage Publications, Inc. in association with the American Academy of Political and Social Science.
6. Grigory Karotemprel, "Contributions of the Syro-Malabar Church to the Church in India" , in *Journal of the Syro-Malabar Liturgical Research Centre*, TCH, LRC publications, Vol.VI, No.11, November 2013, pp.12-36.
7. M. A. Oommen, "Rise and Growth of Banking in Kerala", in *Indian School of Social Sciences*, New Delhi, Vol.5, 1976, pp.24-46.
8. 'Ibid'.
9. *The Report of the Banking Commission*, Bombay, Government of India, 1972, pp. 413-68.
10. "*Statutory Guide for Non-Banking Financial Companies: An Authorised Publication of Reserve Bank of India*"., The Taxman Allied Services Pvt. Ltd., 2000, pp.I-12.
11. Clifford Geertz, "The Rotating Credit Association: A 'Middle Rung' in Development," *Economic Development and Cultural Change*, X, No. 3, 243.
12. "*Chit Funds, A Critical Analysis of Legal and Monetary Aspects*", The Central Bureau of Investigation, New Delhi, 1967.
13. Sallyamma Job, "*A study of chit finance in kerala with special emphasis on kerala state financial enterprises Ltd.*", Ph. D. Thesis submitted to the Cochin University of Science and Technology, February 2003.pp.230-241.



# **WOMEN AND CREATIVE WRITING: A STUDY ON THE EASTERN AND WESTERN POSSIBILITIES OF WRITING**

**Julie Dominic A**, Assistant Professor, Department of English,  
Little Flower College, Guruvayur

**T**he thesis statement traces the significance and tradition of women writing in the East and the West. Women and expressive writing has always created an impact on the knowing of the self and personal experiences of women. The different spheres of life has led to an outlet for women to express themselves and their social, psychological and personal encounters of life through writing. Writing has created a grant spectrum of human intricacies and psychological expressions from time immemorial. History of the world has always mapped the progress of human existence through the art of writing. Therefore the experience of writing has promoted the knowledge about the life, growth and existence of humans.

But when it comes to the progress and exposure of women through writing, the question arises whether the life and progress of women have been imprinted in history. Works like “A Room of One’s Own” by Virginia Woolf, convey that women have not been explored in the writings of History. History has not much to speak about the life and survival of women. They were considered as soul less as per the belief of Chinese philosophy and it can also be understood that there were not much writings about the real experiences of women. They were painted in the works written by male authors as beautiful, divine and highly polite but the real condition of women in real life was not exposed. Though they were glorified and adored in Literature from time immemorial, it could be found that women were brutally exploited and also that men had the right to beat women. It was also traced in the work “queer India” that the author found Indian women without nose and mostly without one breast, which was cut by their husbands to suffice their anger. It was quoted that husbands had the right to cut off the nose and the breast of women in case of any mischief found to be done by women. Wife beating was a common attempt both in the east as well as in the west.

In the works of great writers like Shakespeare, we find strong women characters who speak truth and wisdom, like Portia, Desdemona, Lady Macbeth, Rosalind etc. but in real life, we find women were not allowed to act their characters on stage or rather, it could be seen that women had no right even to attain education. In such a situation and question arises on where was such a place of women in the social cadre in a strong patriarchal realm.

If this was the condition of women in real life and if there were the restrictions endowed on them then how could we find women and their experiences in the field of writings? Though the east was not much a place of restriction for women, where women were glorified and considered holy

and divine in many cults and tribes, the position of women deteriorated on the thread of Patriarchal ideals tightened. Women of the lower cadre of the society were of much better in their social circumstances rather than women from the upper class social decorum. Women of the Patriarchal community had to encounter a highly restrictive social order which led to very destructive traumatic conditions.

The tradition of women writing has been much ignored due to the inferior position women have held in male dominated society. Women's literature has made its mark since the 19<sup>th</sup> century with critics and writers tracing the existence of women. Women's writing became a new area of study. The essence of women's literature is to create an area of study for a group of people downtrodden and marginalized in the history and also to know and understand the conditions of their lives through their writings.

It was the publication of the work "A Vindication to the Rights of Women (1792) by Mary Wolstonecraft which made the landmark that paved way for women to publish their works and also to engage in the critical discourse surrounding the issue of women in literature. The works of Date Spender "Mother of the Novel" (1986) and Jane Spencers "The Rise of the Woman Novelist (1986) were breaking insistence on women writing.

Occasionally there were men who spoke out for women. It was in the 18<sup>th</sup> century that a catalogue about women's contributions to literature was published.

- Faminead - 1754 - John Duncombe
- Memoirs of several ladies of Great Britain who have been celebrated for their writings or skill in the learned language, arts and science (1752) – George Ballard.

Virginia Woolf's *A Room of One's Own* (1929) is considered as during force which led towards the exploration of various facets of women's writing. The book also paved way towards the publication of a journal named Room in 1975 which helped in publishing the works by female writers.

The second wave feminism of the 70s was a resurgence which forced the growth of women writing. It was only after 1980s that institutions and universities initiated courses related to Women's Literature. A long list of women writers were recognised and gained popularity beginning from Doris Lessing.

Tony Morrison, Adrienne Rich, Margaret Atwood, Sylvia Plath etc. the emergence of a number of dedicated presses which attempted to publish the works of women like Second Story Press and Women's Press.

Recent scholarship on race, class, sexuality, religion, psychology in literature has further established the recognition of women in writing with various wings of study like Post Colonial Literature, Gay and Lesbian literature leading to the genre of Queer Literature and Post Feminist Phase.

The east recognizes women as the upholders of the rich tradition of folklores, fables and storytelling. In prior days women used to write and sing about women, their perceptions and experiences within a closed domestic arena Indian English Literature has been lucky enough to have a long list of women writers who expressed the said and the unrevealed experiences of their lives and of other women. From Sarojini Naidu, Anita Desai, Kamala Das, Shashi Deshpande etc. to the contemporary personalities like Arundathi Roy, Anita Nair, Kiran Desai, Meena Kandaswamy.

The period from 600 BC to the early twentieth Century there are great writings which were not to the reach of the public due to various reasons. *Women Writing in India* by Susie Tharu and Lalita portrays the writings from the 17<sup>th</sup> and the 18<sup>th</sup> Century women writers starting from the Buddhist Nuns. The work brings into our notice the journey of 2600 years of women's investigation of life.

The East has always proved to be an accommodating space for the voice of women since the BC. Women during the Vedic period were acknowledged with equal status and were also educated during the period. The ancient Grammarians like Patanjali and Katyayana confirm through their works that women were educated during the early Vedic period. Rig Vedic verses convey that women married at a mature age and were given freedom for the practice of swayamvara or live in relationship like Gandharva Marriage. The verses from Upanishads mention several women sages like Gargi and Maitreyi. In the Dharmasutra of Harita, it is mentioned that "There are two types of women: those who become students of the Vedas and those who marry immediately.", Apastambasutra of the 4<sup>th</sup> Century BC also show the elevated position of women during the period.

In Mahabharata, the story of Draupadi and her marriage with 5 men is a fact that polygamy was an accepted event as polyandry during the Vedic era. This shows how women's right to live according to their choice was highly considered. This practice of 'Swamvara' was followed till the 10<sup>th</sup> century AD.

The Gods of Hindu mythology were always accompanied by their goddesses. Brahma with Saraswati, Vishnu with Lakshmi and Shiva with Parvati. Idol worship of goddesses proved the relevance and importance showed towards women by the society. In the practice of 'Homa' the mantra is addressed to *Swaha* the life of *Agni*.

Avayyar, Meerabai etc. were celebrated ancient women writers. Abithana Chintamani- states that there were there female poets titled Avvayar, 1<sup>st</sup> lived during Sangam period (1<sup>st</sup> and 2<sup>nd</sup> AD) 59 poems in Puanam. 2<sup>nd</sup> – Kambar and Ottakoother in Chola dynasty- (10<sup>th</sup> AD), wrote many poems. A list of do's and don'ts of daily life. Meerabai's songs are also to be noted.

During the Gupta period, women were also involved in administrative field, like Prabhavathi the daughter of Chandra Gupta I. Many queens and princesses were found leading their states during this period.

It was with the arrival of the Muslim conquest during the medieval period that the position of women deteriorated. Women were forced to remain at Zenana, areas of the house. The rights of women were dictated by the Sharja law and women were prevented from getting share the inherited wealth.

There were positive practices as well as rigorous ways followed in the society such as Naari Puja – women worship was conducted in kerala's district, in the temple called Chakkulathu Kavu. Sati – a defunct custom, widow was immolated alive on her husband's faunal pyre abolished in 1829. Act was instilled. Purdha – practice among Muslim communities. Devadasi – servant of god, women were dedicated to god. They learned music and dance and were laugh 64 types of ants, since 7<sup>th</sup> century. They flourished till the existence of temples and palaces. They were well treated and respected. It later degenerated into the practice of sex labour and practice of child prostitution after the arrival of the colonizers.

There was a changing move towards libertarian and fight for the rights of women during the British rule. During the post independent period, women participated is areas like education, sports, politics, media, art etc. a. 27 (1) (d) – a special marriage act, b. 1954- Kurta and jeans to sari. c. On 22 august 2017, the Indian supreme court deemed intent triple talaq- unconstitutional.

Therefore the study , with relevant research has realized that the east and the west had very different style of replenishing the authorities of women and women from ancient period had to encounter weird experiences, but the east had a better prospect until the encroachment of Patriarchal social system. Creative writing had a space in the lives of women of the east rather than women of the west. It is also observed that the Chinese women had their own language which was exclusively created by women for their own personal interactions named *Nushu* which was considered as the Chinese secret 'women only' languages

## Bibliography

Rivera, Adrienne. *The History and Importance of Women's Literature*. August 11, 2017. literature history books tell you way. com

Women writers in Indian English Literature. voll.edt. Susie Thanru and K. Lalika.

Edgar, Andrew and Peter Sedgwick. *Key Concepts in Cultural Theory*. London and Newyork: Routledge,2004.Print.

Nayar, Pramod. K. *Contemporary Literary and Cultural Theory From Structuralism to Ecocriticism*. NewDelhi:Longman,2010. Print.

<https://www.speakingtree.in/.../role-of-vedas-in-degradation-of-status-of-women-in-in>.

<https://www.thoughtco.com> › ... › Religion & Spirituality › Hinduism › Past & Present

<https://www.booksfact.com/vedas/status-of-women-in-vedic-culture.html>

[https://www.stephen-knapp.com/women\\_in\\_vedic\\_culture.htm](https://www.stephen-knapp.com/women_in_vedic_culture.htm)

# CULTURAL DIFFUSION AND IDENTITY CRISIS CONFRONTED IN JAYARAJ'S LOUDSPEAKER- A MALAYALEE REPATRIATE FILM

**Dr. Esther Mani**, Assistant Professor, Department of English,  
Little Flower College, Guruvayoor

*'Every thing new is merely the result of experimental variation  
Of the old and of constructive intervention in the past.'* - **David Rosmussen**

**M**an is always on a hustle to reach the utopian destination in life and it is usually confined to a mode of life encouraged in any given community of his existence. Each community religiously upholds a set of mores that shaped its inhabitants with a peculiar perception of all that surrounds him. They are inculcated into the growing generations in relation to their habit of work, of thought and of life that harmoniously blends with their habitat. It is in these nurtured cocoons does man bloom within his society. The cordial social bonding is restricted to just peripherals with other social groups. Favourable conditions sustains these groups but to tide over difficulties like cultural diffusion, that is widely evident in multicultural, multi-ethnic ethos makes it difficult for individuals to hold on to their parental cocoons of civilization. The dissensions and cleavages due to clash of ideas and ideologies the inability to factor in new changing conditions or the one-sidedness of their nurturing systems, blow away the shelter of solidarity. Culture is the bedrock for the formalities of a harmonious and enduring social order among man.

The movie loudspeaker directed and produced by Jayaraj a noted director brings out the theme of alienation in his characters that dot his movie. The super megastar Mammooty carries off the role of 'Mike' with much aplomb the social contradictions at his presence at an NRI apartment complex evokes the humour in the movie. Loudspeaker contains a very valuable message for the modern man in a most realistic way. The laughter directed at the star actually comes to rest with the audience for their foibles in real life. The malayalee fastidiousness for simplicity, non complicatory existence is laid bare against the true human being called 'Mike'. Who can be, in a true sense of the term, be called simple and innocent. Cultural norms vary among different people and groups of same society. Ethnographers have recorded the wide governing codes that lead to each peculiar behaviour manifestation.

Culture and myth assume myriad hues in the cauldron of human races. The exclusivity of a culture is a hollow word today as the world is borderless integration of nations, though digital revolutions has evoked a recognition that we may after all be one, lending credence to the poetic philosophy that the world is one great family. Individual differences in appearance and the loss of culture has jaded the long lost memory of togetherness. Cultural history transmitted down the

ages are preserved in the communities of diverse nations. It is hard to delineate, that is purely linked to a specific age, but the continuum of the cultural history is traceable. Cultural history is based on the landscape theory of the community. The landscape that spawns literary and innovative creations are imprinted with its uniqueness. I believe the mutual vibrancy produces individuals who are bearers of this strong bond that the words *langue* and *parole* as explained by Saussure like culture being the *langue* while the myriad manifestations of genre the *parole*. Landscapes are classified into 5 groups as expounded in the sangam literature of the 1 century B.C. The *thinai* concept of the sangam period was an unconscious parallelism between the writer/creator and his environment. The habitat of the creator is bound to affect his perspective of the world around him. He naturally inherits the history of this location. Loudspeaker has the valluvanadan dialect as a cultural hangover of the past. The movie captures the identity crisis in the main protagonist Anand the alienated hero, donned by Sashikumar contrasted with a well rooted 'Mike' who inspite of his loss of materialistic comforts has essentially conserved his 'parole'. The movie is carried forward on the performance of 'Mike' the loud mouthed who lacks the trappings, of civilization as he has landed from Thomprankudy, the 'other' world of uncivilized boors while the city of Kochi is blessed by the presence of highly civilized NRI population. Director Jayaraj makes his silent 'dig' at the civilized lot that boasts of people who have lost their moorings in the society. Anand Menon the hero of the story is an astrophysicist from Palakkad who had been settled in the U.S. for the last 46 years. He is back now at Kochi due to kidney malfunction and a divorce from a western woman. 'Mike' is not only a 'Manfriday' to him but also his donor for his kidney transplantation. The other respectable people are the secretary of the residents union who has only a dog for his company while his NRI wife earns more than enough to feed and clothe her husband and the dog. But his only sorrow is that his wife showers her attention, from a far through the telephone, on her pet animal and ignores the human suffering of loneliness, undergone by her spouse. A quarrelling couple due to misunderstanding, basically a trait of selfishness, that shirks one from giving love and mutual trust, that is implicit in a marriage. An old man Janardharan is another resident who is fighting a legal battle with his children for their perceived omissions and commissions. Lack of parental care and the flaws of grandparental protection all play havoc in mindscape of the residents. Their deceptive appearance of normalcy at their external relationships underscore the deep fissures with their closest relatives.

It is into this world of phoney residents that 'Mike' arrives like a whiff of fresh and unpolluted air. His innocence and lack of awareness of the affairs of men of high estate, capture the heart of the viewers. He bulldozes himself into the lives of the residents of the apartments, offering unsolicited advice that should effectively help them find the anchor in their lives. This large hearted man is treated cruelly even by Anand Menon who is prodded gently through 'Mike wisdom' to connect to the culture that he had abandoned 46 years ago. The stand alone Anand Menon is reunited with his loving and forgiving family of grand uncles aunts and nieces and nephews for whom Anand is a 'runaway' after a traumatic incident of a failed love affair with his 'cousin' that highlights and

exclusive cultural enigma of our nation .A marriage with one's 'Murapennu' belongs exclusively to Indians. The broker of the peace with Anand Menon's family is 'Mike the loudspeaker. The dream path back to the fold of one's culture is exquisite as well as the best event in Anand's life. His yearnings during his sojourn away in an alien land handling various ethnocentrism that have their own governing codes and behaviour manifestation for example, a simple act of food preparation and consumption in different world communities would have created a chasm wider than the ocean. The palakkadan curry making and the American chapsuey is as different as chalk and cheese. Both are edible but vary in the perception of the consumer. His struggle for survival while away on a sabbatical makes him respond to the challenges with great vigour and vitality. He turns into an astrophysicist but refuses to be confident to believe the hurt he must have caused to his family has healed. It took a so called 'bumbling idiot', to address the issues of Anand's mind with foresight and commonsense. The basic human quality of love being a great dispenser of peace allowed 'Mike' to meet huge challenges of oddities of various residents in the complex. The nurse whose instant dislike of Mike's loud mouthedness turns into a recognition of a superhero whose uncivilized manners was actually the only real human among clones.

Jayaraj expertly flits through various residents each in their own world adorning the mask that was helping them to cope with unsettling change that swept each individual off his sphere. The interesting part of this change was it encircled around the issue of economic prospects. Anand is here at Kochi to spend an amount on an organ transplant that would revive his chance to enjoy the prosperity of his hard earned money. Mike is bound to him to encash this money for a kidney donation. The old man Janardhanan is fighting with his children over property, wife and husband over economic balance, children who had over indulgent and affluent parents, an apartment secretary who had send his loving spouse abroad to squander a good portion of his life with a dog. The endless quest for peace through economic prosperity fails miserably here in each of the residents case. Mike tries his common sense, first gently, later a bit forcefully to make these stupid citizen's of the concrete jungle to stop running around for fruitless search outside one's mindscape for peace and stability.

These qualities of steadfastness, close knitness with humans not bound by boundaries of caste, creed, colour or gender that was doggedly pursued by Mike of Thopramkudy that created an aura of wisdom around him and placed him high on the pedestal of human endeavour. Mike attributes his character to the lofty role played by his father. The old man of Mike had to survive among primitive elements of the forests like the story of a wild tusker narrated ceaselessly by Mike, that actually puts Sasi kumar / Anand to sleep. Sleep that can be constructed as a sleep due to boredom or may be a sleep due to the comfort of having a have confident and trust worthy man as his Manfriday.

The climax of the movie is truly a déjà vu as one knows the limitations of human beings, who are prone to be extremely selfish, when their needs are met. Anand who curses mike, when he leaves him without informing one day to meet Anand's relatives at Palakkad. His only worry was

about the surgery and what would happen, if his kidney is not transplanted. The young donor Mike is just a commercial transaction to him. The deeper sense of bonding that took place after his patch up with his relatives took an unexpected twist, when his relatives, did not pay up the amount due to Mike, for the organ donation, out of apathy of his new found relatives' towards Mike, for whom Mike was just a servant that too the most regressive and uncultured one who did not align with their taste. The cultural diffusion that has taken place at a metropolitan or a cosmopolitan milieu is brilliantly captured by Jayaraj in his movie. The so called modernized citizens have cut off their roots that nurtured them, while growing in a cauldron of multi ethnicity. This crowded their senses with dazzling brilliance and the integration of these elements were only superficial as well as temporary. The complexities and inconsistencies of contemporary life soon afflict man that results in personality maladjustments. Ultimately it's a process that each individual goes through when in conflict with certain established conventions of his group. The structural transformation of the established groups as whole is a tough task.

It needs a social change of the members of the group. The evolution of the group as whole usually makes this transformation long lasting and effective, Human life and social order have traversed the elements in different landscapes and different milieu. Time evolves these societies into intricate segregated groups to protect them from tectonic shifts of social change. The challenge to meet the responses to social change demands an instinctive need to modify and restructure and readjust one's cultural loyalties that will harbor new thoughts at the same time allow the groups to understand and become malleable to change. The edifice of a society rests on culture and the elements that breed memories like traditions, rituals practices, oral and written remnants that breathe life into a healthy collaboration of man and his society.

## Bibliography

Pande, G.C, *Foundation of Indian Culture*, Books and Books New Delhi, 1923, 1984

Hughes, Robert, *Nothing if not Critical*, The Harvill Press, London, 2001

Lodge, David, *Language of Fiction*, Routledge, London, 2001.

G.N. Devi Edited, *Indian Literary Criticism*, Orient Longman, 2002.

Rosmussen M. David, *The Hand Book of Critical Theory*, Edited Blackwell Publishers, U.K., 1996.



# **HUMOUR AND CHILDREN'S WORLD: SPECULATING THE SPECTRUM OF SEAMLESS LAUGHTER IN DANNY DEVITO'S FILM *MATILDA***

**Reely Raphael**, Assistant Professor, Department of English  
Little Flower College, Guruvayoor

“Children are not so serious as grown-ups and they love to laugh.”  
( **Roald Dhal, 81**)

**L**aughter is inexorable in an adult as well as in a child's life. There won't be anyone in this world who likes to laugh, especially children. They are born to laugh as they are too innocent to respond. That is why humour is considered as the most important aspect in children's literature and their films as they can transcend culture. Of course a child's sense of humour is different from that of the adults. Kerry Mallan observes that Wearing adult's clothing or putting a potty on their heads is a just part of young children's play, but adults will be amused by this. In the same way, when parents do something incongruous like pretending to suck a baby's bottle, this will be greeted with much astonishment by children. The sense of humour is a very valuable attribute in human life since it can reduce tension and can make you relax in this busy world of harsh realities. According to McGhee, the key element in all humour is incongruity. They laugh when they see something odd, unexpected or out of place. The nature of humour can vary from contexts to contexts.

Humour is an indispensable part of children's literature. It facilitates the cognitive growth of children and enhances their metalinguistic abilities. This research paper is an attempt to analyse the film adaptation of Roald Dhal's novel *Matilda* (1988) by Danny Devito with the same title *Matilda* (1996) in the context of humour. Dhal's *Matilda* is considered to be 'a modern fairy tale'. The genre called children's film is getting very popular due to its alluring audio visual effects. The humour aroused by a film is highly spontaneous and sudden as there is visualization. *Matilda* is an American fantasy – comedy film. The film was released by Tristar Pictures on August 2, 1996. The screenplay by Nicholas Kazan and Robin Swicord. The role of *Matilda* was done by Mara Wilson, which won her the young star award.

The story line goes like this; *Matilda Wormwood* is an extra ordinarily brilliant and bright girl whose talents are neglected by her parents Harry (Danny Devito/ Narrator) and Zinnia (Rhea Perlman). Their main aim is to make money and enjoy life. They even forgot to send *Matilda* to school in their busy life. She accuses her dishonest father for supplying damaged cars by just painting them. Her brother is Michael. They often neglect and belittle her. She became a voracious reader by the time and likes to read Charles Dickens and other classics. Agatha Trunchbull, the sadistic Headmistress of Crunchem Hall, a former Olympion athlete, one of Harry's clients is the

villain of this film. She is notorious for her punishment of throwing the students out of windows. It is Miss Jennifer Honey ( Embeth Davidtz), the loving and kind teacher who realises Matilda's intellect and potentials. Meanwhile Matilda realises the relationship between Trunchbull and Miss Honey and how she was cheated by the cruel Trunchbull. She tries to frighten Miss Trunchbull with her telekinetic powers. It is an alleged psychic ability allowing a person to influence a physical system without interaction. It includes moving an object. Trunchbull is driven insane with fear and left the school. At the end of the story Miss Honey got all her father's assets. Matilda's parents had to fly to Guam as her father was under the surveillance of FBI. She refuses to go with her parents and Miss Honey adopted her and they live happily.

Aileen Beckman points out that there are three primary elements in humorous fiction for children: Character, situation and discourse. Humorous character can be a teacher, an officer, a shop keeper etc. When we analyze the characters in the film Matilda, the main figure comes to our mind is none other than Miss Trunchbull, the very arrogant teacher. This role is enacted by Pam Ferris. Children like to poke fun at such characters. Her character is often satirized by the narrator by exaggeration. It is a device used to highlight the human specific attributes and foibles. Her nature is very monstrous, unconventional and she hates children. She likes to make horrible punishments for children and is a bully. Both the teachers and students will start to tremble at the very sight of her. Her students call her as a hefty, hammer-throwing, muscle-bound javelin –champ who loves to hurl children out of the windows like she throws a shot-put. In the movie we can see how she swings a girl around her by just holding her pigtails and throwing her across the playground. She locks the kids in a device called the “Chokey”. She is a cruel iron maiden. Once she punished a boy for stealing her chocolates by forcing him eat a huge chocolate cake in front of the entire students. The parallel to this character is the innocent and loving Miss Honey. But her parents are also very horrible. The theme of power and revenge can be the main theme of this film.

When the argument happens between Matilda and her father on his fault of selling bad and stolen cars, she wants to teach her father a lesson by putting super glue on his hat which he couldn't take out. His wife helped him to get off the hat and it creates a whole mess in the restaurant which she enjoys a lot. This can be regarded as the most hilarious situation in the movie.

In the same manner there are lots of humorous situations in the movie which can evoke humour by incongruity. The situation can be nonsense or absurd which children like to laugh at. If there is any mishap it can generate great and fresh amusement and there will be humour when it becomes unconventional. In the movie there are lots of such instances. When the principal came to make a visit in Matilda's class, her friend places a newt in her drinking glass. Matilda With her telekinetic powers made the glass break and the newt it falls on Trunchbull and the scene crafts real comic moments for the kids.

Like that, the last but one shot is also very comic where Matilda wants her to help Miss Honey. So again with telekinesis, she frightens her by writing on the black board, miss honey's

father's will. When they get a chance all the children who hate Truchbull take revenge on her by throwing a lot of garbage on her. In panic and fear she runs away from the school. When something happens out of place children will laugh. The visuals in this scene are highly alluring. In the end the universal theme of good will over works out here also. Here the child like delight in the impossible reversals is highly arresting.

Thus humour for children can be generated in various ways. Their world is different from that of adults so also the nature of humour. A slap stick, incongruity, nonsense, witty talk , word play etc. can make them laugh and also when discrepancies happen between expectation and reality. Children's humour is not very silly when we analyse the nuances of it. It is a very complex thing than we think. When they grow old their perspectives, language skills etc. get sophisticated. Children's ability to enjoy humour depends upon their intellectual ability, past experiences and the level of sophistication. Through humour they express their playful and creative way of interpreting the world. As they grow older, their perceptions of what is funny and their life experience will enable them to enjoy wide range of comic situations.

## References

- Beckman, Aleen k. 1984, *The psychology of humour and children's funny books: where do they meet?*, Hershey.
- Dhal, Roald. *Matilda*. Newyork. Scholastic, 1966.
- Mallan, Kerry. *Exploring Humour in childrens literature*.
- McGhee, Paul. 1988 'Humour and childrens development' *Journal of Children in contemporary society*, Vol. 20. 119-134.

# CLIMATE CHANGE IN FICTION: AN ANALYSIS OF LORIN R ROBINSON'S *WARMING*

Silpa Anand S, Assistant Professor,  
Department of English Little Flower College, Guruvayoor.

Climate change, till recently, being a subject dealt with mainly by the realm of science, bringing in a dialogue between science and the humanities itself presents great difficulty. Moreover, climate being an issue of kaleidoscopic proportions, deciding upon a narrative technology to aptly project the theme itself becomes almost impossible for the authors. The paper intends to look into the challenges in incorporating climate change into fiction with special reference to Lorin R Robinson's speculative climate fiction *The Warming*.

The unpredictable moods of nature and the unprecedented shifts in the weather patterns all over the world has become a matter of heightened alarm in the contemporary world. A cursory scan of the recent news papers will reveal that the term "climate change" can be spotted more than once, under different contexts, almost every day. An earthquake at one part of the world, a random shower at another part, disappearance of species, emergence of previously unknown diseases, animals intruding human territory, escalating number of heat waves and sun stroke incidents, lost crops, tourism collapsing due to disappearance of migratory birds or seasonal flowers refusing to bloom, rising sea levels, bleached corals, raging storms, droughts and floods. Everything can be traced back to the term "climate change." The issue has begun to filter into the minds and consciousness of people and is thus finding expression through various mediums. The United Nations and other organizations of significance recognize the issue as an escalating threat to the existence of the earth and are trying to take measures to tackle it.

However, literature, as a medium of expression, can be seen grappling to find an effective narrative mode or strategy to represent climate change. The recent evolution of the genre of "Cli Fi" and the swelling number of works on the theme stands for the recognition of climate change by the literary world. Yet, the inability to anchor upon a definitive strategy to depict the issue is evident in most works.

Amitav Ghosh, in his seminal work, *The Great Derangement: Climate Change and the Unthinkable*, speaks about the reality of climate change and our inability to think or communicate effectively about it. The discourses on climate change, have till recently, been circulating exclusively in the scientific community in a language that is mostly unintelligible to the common man. The increasing frequency of natural calamities all over the world has succeeded in raising the level of anxiety among the populace. However, presenting the issue effectively in arts and literature still proves difficult or even impossible.

Benjamin Kunkel, in his article “Inventing Climate Change Literature”, published in *The New Yorker* (Oct 24, 2014) says “If climate change has, to date, proved hard to write about, that’s because it exists for most of us, to date, as something that afflicts different neighborhoods, distant cities or future times....we are aware of climate change and, also, we are not.”

The lack of serious attention given to the issue of climate change is in fact one of the very crucial impediments to the effective representation of the issue in literature. Moreover, most writers seem to find difficulty in dealing with a subject that demands representation of a probable but undesirable future and also in blaming the humankind for initiating that future. Majority of the works represent vague and dystopian futures which immediately relegate them to the genre of fantasy and science fiction diminishing the possibility of the works being given serious critical attention. Climate change narratives have been criticized for being “doom laden”, unhelpful, distractive and misinforming.

Lawrence Buell says, “Apocalypse is the single most powerful master metaphor that the contemporary environmental imagination has at its disposal....; for the rhetoric of apocalypticism imagines that the fate of the world hinges on the arousal of imagination to a sense of crisis.” (60)

However in spite of the pitfalls and difficulties, the grave nature of the climate situation calls for the representation of issue in literary works so that the awareness is spread among the non scientific community. Fiction can help to trace the dimensions of a futuristic world and its implications across social, cultural and emotional registers. Literature might not evoke immediate action but it is an effective tool in bringing out how the society understands and responds to various discourses and experiences of climate change.

Lorin R Robinson, in his work *The Warming: Speculative Fiction about the Human Impact of the Climate Crisis*, adopts a novel, experimental method in dealing with the theme. The narration uses three primary story telling devices. The first is a narrative of twelve chapters and ends with an epilogue. The narrative depicts a futuristic scenario beginning in the year 2047. The second device adopts the format of flash backs and has seven chapters depicting seven stories from different parts of the world through first person accounts of warming related calamities. Even when the stories project the incoherence of the narrative by standing well apart from the main plot, they help in intensifying the gravity of the theme. The third device introduces a series of fictional short video news stories, also in the flash back mode, underlining the social, political and economic aspects of the growing climate crisis.

The very complexity of the narrative proves the daunting challenge that is faced by the author in trying to illustrate the varied aspects of the issue of climate change. The primary challenge posed is the effective tethering to climate science and fiction. The novelist is faced with a multitude of questions about the relationship between climate science and the novel. Adam Trexler in his seminal text *Anthropocene Fictions*, details the hurdles placed before an author of climate fiction –

1. Which set of predictions should the novelist follow?
2. Which time zone should the novel be set? – In the near future, where the changes must be harder to discern or the distant future where the changes are most likely to become undeniable?
3. How do the most dynamic and ever changing prophecies about the warming, heat waves, droughts or the Gulf Stream affect the novel's imaginative possibilities.?
4. Is it permissible to oversell the threat or to compress the timescale to provide more dramatic possibilities?
5. If climate has indeed changed in the fictional future, how are the characters to know about it? The author will have to create a scenario where scientists explain things to a new generation not familiar to the constancy of nature that existed in an unknown past.
6. But what if the situation is such that the scientists, media or all agents aware about the situation have already been decimated?
7. What should the novel focus upon – the human agency in bringing about the climate catastrophe or the meteorological details of the future climate?

Robinson tries to scale these hurdles by attempting what can be called a collage of several fictional modes bound together by an overarching storyline. The central story focuses on the life of Dr. Jonathan Carver, a marine scientist, who works on a project that would help alleviate the growing hunger and famine that has resulted from the climate change catastrophes around the world. Onto this basic story line is strung a number of incidents from around the world and from different time zones that are the direct aftermath of the climate change phenomenon.

The preface, unlike all conventional prefaces, presents a comprehensive history of the changes the earth has undergone over the period of several millennia since its beginning. The preface features the chronicle of the evolution of *homo sapiens* from the hunted to the hunter and from there to the superstition of being the “master” of the whole world. Now, anthropocentrism dominates the life on earth as an overarching ideology defining and informing everything else. This anthropocentric way of the world has inevitably led the world towards irreversible damage. The attempt to “subdue” the world, according to the author, has actually resulted in ruining it as a habitat for ourselves. And this ruin is in fact a call for retribution from the ecosystem which has begun to shatter simultaneously in all parts of the world in different forms of what is termed “anthropogenic climate change.”

After the preface, which sets the work in its genealogical trail, comes the prologue set in 4046 which squarely introduces the situation wherein, the world is under the throes due to ever changing weather pattern and the scientific and political community is on a race to override the destructive climate and provide some kind of shelter to the humanity. Thus setting the scene, the novel follows

the life of Dr Jonathan Carver, through which is revealed the climatic condition of the world at the time, concerns, climate change denials that take place. However, chapters dealing with different climate change situations during different time periods are introduced randomly. For instance, the third chapter reverts back to the year 2021 and features a set of mountaineers scaling the Kilimanjaro and this narrative is infused with images of the political aspect of the climate change crisis.

Even when a futuristic scenario is illustrated, the author painstakingly incorporates present day events quoting them as the reasons for several crisis situation of the time depicted. For instance, the narrative presents how in the year 2016, the Tanzanian Government built a road bisecting the northern half of the 5700 sq. mile Serengeti, disrupting the greatest animal migration on earth. Now the migration is in disarray and the animals are dying in hundreds and millions.

Similarly, chapter five takes a diversion from the central narrative to portray a massive climate refugee exodus from Viatupu island in Polynesia, in the year 2027. The chapter details, through the memories of Solomone Lomu, the chief of the island, how the rapidly rising sea level disrupted and later made impossible the life of people in his and nearby islands and how they are forced to move out in search of newer pastures for existence. Thus, when the main narrative focus upon how the future struggles to combat climate change, the interspersed chapters succeed in tracing the various aspects that led to this out of control climate situation.

The chapter seven deals with a 2029 storm that completely disrupts and spirals things out of control in the country of Bangladesh. Seen through the eyes of Sumon, one of the few survivors, we get to witness the catastrophe from the receiver's end. The plot, that is reminiscent of the Biblical story of Noah, presents the ray of hope shining for humanity as Sumon, with his family floats in a God given sail boat in search of dry land.

Thus, despite of large scale deviation from the conventional modes of narrative strategies, the author relatively succeeds in bringing together and though, tentatively, tethering the multifarious aspects of climate change – climate change denial, apocalypse, climate refugees, political and economic issues, humanitarian questions, anthropocene, migration and all other related fields. The novel can be said to be an ambitious effort to explore the many aspects of climate change crisis and its implications on the future of the world and humanity. The author can be given credit for the exploration of the impacts of anthropogenic global warming over the course of several decades, on several continents and in the lives of several distinct set of characters.

The very disruptive nature of the narrative strategy adopted can be seen as effective evidence to the challenges in incorporating a issue of multifarious dimensions into literature. Climate change, to be presented in literature in its entirety seems to be a rather impossible task by the look of the novel. The repercussions of the climate change phenomenon can reach individual lives, at the same time affecting the working of the world as a whole. Therefore, the scope of a climate change novel can range from individual tales to epic sagas.

## Bibliography

- Bhalla, Ambika, Jap Preet Kaur Bhangu, Manmohan Singh. "Representations of Nature in Margaret Atwood's *Oryx and Crake*." IJEL 4.6(2014):25-32. Tjprc Publications. Web. 14 June 2017.
- Buell, Lawrence. *The Environmental Imagination*. New York: Norton. 1995. Web.
- Chakroborthy, Dipesh. "Postcolonial Studies and the Challenge of Climate Change." *New Literary History*. Vol 1(2012):43. Web. 24 Jan 2017.
- Cronon, William. *Uncommon Nature: Rethinking the Human Place in Nature*. New York: Norton. 1995. Web. 16 Dec 2016.
- Garrard, Greg. *Ecocriticism*. London: Routledge, 2004. Print.
- Ghosh, Amitav. Interview for Times of India. I have Conquered a Mountain. IANS. Web. July 22, 2015.
- Ghosh, Amitav. *The Great Derangement: Climate Change and the Unthinkable*. Haryana: Penguin Books India, 2016. Print.
- Glotfelty, Cheryl and Harold Fromm (ed), *The Ecocriticism Reader: Landmarks in Literary Ecology*. 1996. University of Georgia Press. Web. 28.12.2016.
- Guha, Ramachandra and Madhav Gadgil. *This Fissured Land: An Ecological History of India*. Delhi: OUP, 2013. Print.
- Guggenheim, David. *An Inconvenient Truth*. Film. 2006
- Harrison, Robert Pogue. *Forests: The Shadow of Civilization*. Chicago: University of Chicago Press. 1992. Print.
- Joshi, Arun. *The Foreigner*. New Delhi: Orient Paperbacks, 2014. Print
- Joshi, Arun. *The Strange Case of Billy Biswas*. New Delhi: Orient Paperbacks, 2015. Print
- Kunkel, Benjamin. *Inventing Climate Change Literature*. NP: *The New Yorker*, Oct 24, 2014. Web
- McPhee, John. *The Control of Nature*. USA. Farrar, Straus and Giroux. 1989.
- Macfarlane, Robert. "The Burning Question.." *The Guardian*, 24-09-2005. Web. 29 July 2017.
- Mehnert, Antonia. *Climate Change Fictions: Representations of Global Warming in American Literature*. Palgrave Macmillan. Web. 29 July 2017.
- Pope Francis. Encyclical Letter, "Laudato Si." *Vatican Archives*. May 24, 2015. [http://w2.vatican.va/content/francesco/en/encyclicals/documents/papa-francesco\\_20150524\\_enciclica-laudato-si.html](http://w2.vatican.va/content/francesco/en/encyclicals/documents/papa-francesco_20150524_enciclica-laudato-si.html). Web. 3.10.2016
- Robinson, Lorin. R. *The Warming: Speculative Fiction about the Human Impact of Climate Crisis*. London: Mill City Press, 2015. Print.
- Rueckert, William. "Literature and Ecology: An Experiment in Ecocriticism." *Second Wave : Literary Ecocriticism*, London: Routledge, 1996. Web. 28.12.2016.
- Thimothy, Clark. *The Cambridge Introduction to Literature and the Environment*. New York: CUP, 2011. Print.
- Trexler, Adam, Adeline Johns-Putra. "Climate Change in Literature and Literary Criticism." *WIRE's Climate Change*. Vol 2(2011): 185-200. Web. 25 July 2017.
- Washington, Hayden and John Cook. *Climate Change Denial: Heads in the Sand*. London: Routledge, 2011. Print



# ANITA NAIR'S ALPHABET SOUP FOR LOVERS: AN INTEROSPECTIVE INTERPRETATION OF THE FOOD IMAGERY

Dani C. Francis, Assistant Professor, Department of English,  
Little Flower College, Guruvayur

Food and eating is a fundamental human activity. It helps the mental and physical growth of human beings. There are a lot of differences in the food habits of human kind according to their nation, culture, religion, economy etc.

Food is always a subject for literature, especially in women writings. The cliché interpretation of kitchen, a place for preparing food, is represented as the space for women. There are many books in which food has a vital role in determining our self identity especially our character. If we look around we can see different species of living beings and we are classifying them according to their food habits as carnivores, herbivores and it becomes their central character. In Margaret Atwood's *Edible Woman*, woman herself becomes an item of food and in Laura Esquire's novel *Like Water for Chocolate*, food becomes a medium through which Tita, the protagonist, expresses her suppressed feelings and emotions and assures her authenticity in her own space, kitchen. Kitchen is a space for women from the beginning. Though man is the bread winner in the family, woman is the taste maker of the family. The taste of the family is decided by the woman and her creativity and imagination makes the place a different one. But the same place happens to be a place of marginalisation.

This paper represents the food imagery used in the novel of Anita Nair's *Alphabet Soup for Lovers*. This book is a unique one among Anita Nair's novels. It builds up around the theme of food and food has given various faces to express women's psychology and her problems. Alphabet is the very foundation of every language and love also has an alphabet. In this novel *Alphabet Soup for Lovers*, Anita Nair sketches a heart touching story of Komati, a kitchen maid who tries to learn English alphabet through her favourite food items. The novel also tells a relationship between a middle aged woman and an old movie star. Their relationship had developed through food. The chapters are named after the alphabet and each letter represents a food item. Komati, the maid in the novel is trying to analyse each character in the novel with the reference of food.

Lena Abraham, whom Komati called Leema is a thirty eight year old woman and is married to KK, a civil lawyer. Leema tries to pretend that she has a happy and loving married life with KK. Actually it is not like that. She is at the brim of depression. There is no open fight between the couple, but their love is cold and lifeless. Leema is not ready to open up her mind to anybody. Komati, though considered as illiterate, realised the cold war between KK and Leema. From her

experiences, Komati comprehends Leema's problems before Leema herself realises the facts. She is trying to convince Leema about the practical solution for her problems by using food as a medium.

The first chapter of the novel is titled with first English alphabet 'A' which indicates Arisi Appalam which is a favourite of Leema. The chapter tells about the routine of Leema and the dissonance between KK and Leema. The taste of the appalam resuscitates her from the dullness of the day. In the novel we read like this "Her eyes fall on the plastic box that Komati has left on the table. She opens it and sees the Arisi Appalam fried exactly the way she likes it, with a tint of brown at the edges. She takes one and bites it. It crunches with a satisfying explosion of flavours in her mouth. For the first time that day, she feels a small curl of joy unfurling her." (Nair, 14-15)

Our favourite food can direct us to a world of happiness when we are upset. The mindset of Leema changed when she bites the arisi appalam. Like Leema, Komati also bore loneliness in her life. But deliberately she is trying to avoid her loneliness by engaging in the preparation of her favourite food items. Her attachment with food is noticeable and she wants comfortable food when she is alone. "What I want is comfort food; something that will reassure me that the epicentre of my world hasn't shifted." (Nair, 60)

Food has medicinal value too. The medical science has proved that many of our diseases depend on our food habit. Komati has a list of food items and its advantages. The fifth chapter of the novel depicts the qualities of Eeral-mutton liver -which is used as medicine in Tamil Nadu and when Komati was a young wife she consumed a lot of mutton liver pepper fry, mutton liver masala etc. Komati tells that in Leema's house there is no mutton liver. Perhaps that explains why KK and Leema are the way they are.

Anita Nair tries to bring out the magical powers of food in this novel. Komati grasped the magical powers of food from her experiences. We have detailed description of the qualities of fish and thayir (curd) in the novel. The novel has an analysis of man's emotions which awake when we have food. If food awakes the emotions of happiness and joyousness in Lena and Komati, it also awakes romance in Shoola Pani, the film star. There is a line in the book which goes like this: "He takes a sip of the coffee. Is coffee an aphrodisiac? He wonders as something stirs in him. He exhales slowly to rein in his impulse to lean forward and kiss her." (Nair, 58) The filter coffee which represents by the letter 'F' in the novel raises his pulse with great passion rather than happiness.

The proverb which says that the way to human heart is through his stomach is proven to be a truth in the case of Leema and Shoola Pani. The novelist uses food as a bridge of fondness between Shoola Pani and Leema. The favourite food of a person will be favoured to us also when we start to love the person. It is notable that Leema takes his or her favourite food with her when she goes to meet him.

Anita Nair has put forward the importance of self-sufficiency through Komati who is a person of depressed feelings and desires. Anita Nair expressed her ideas of self reliance through

Cheppankizhangu, named colocasia in English and it represents the letter 'C' in Komati's alphabet book. Komati explains the nature of Cheppankizhangu to make Leema aware that she should arise from her hidden self. Leema is an introvert and is melancholic by nature. She never wants to reveal her mind to anybody. Komati is explaining the cleaning steps of cheppankizhangu as a metaphor of self reliance. She states that some violence to flake the skin off and it is brought out to its real nature or self. Like that, Leema has to speak up her emotions, feelings, problems etc. In the words of Komati, it is difficult to make an omelette without breaking the shell of the egg. It alludes that we can obtain self reliance only through the negligence and acceptance of our complexities.

Through the conversation between Leema and Komati about Dangar chutney, Anita Nair conveys that we can't live on the rules of others and we must be independent to choose our desires. Komati aimed to exemplify the importance of kindness. Human behaviour is divided into two natures: tender and tough like the liver which is a strange organ that can't be cooked too long. If cooked too long, the tender nature of liver becomes tough. Everyone must be included in these two categories. But no one likes a tough piece of meat as well as the impolite nature or the toughness of a person. Anita Nair tries to make us self reliant through the imagery of liver. She states that we should be vigorous and should stir our emotions like we stir liver for making fry. If we never stir our emotions or feelings we will be changed into a tough piece like melancholia or repression.

Anita Nair uses Karuvepilai as a metaphor to exemplify the significance of following our own rules. Komati gives a brief account of Karuvepilai which is related to the nature of woman. It has certain distinguished characteristics from other plants. In Komati's opinion it is a plant which refuses to be planted; it has to grow on its own terms. So that everyone cared and treated it remarkably. Komati insists that like Karuvepilai, Leema should make her own rules to be independent. Others will respect us if we have our own decisions and opinions. We should have the firmness to speak out what we want.

Komati uses sweet laddoo as an example to show the value of a woman given by herself. We always make laddoo to make others happy. Always woman degrades herself due to lack of self confidence. Komati uses another food item oorkai, pickle in English. She has given a set of rules for the preparation of oorkai such as don't make it on Sunday, Tuesday and Friday and don't touch the pickle pot after sex with a man etc. Komati refutes all these rubbish rules and she makes her own rules. Komati advises that sometimes we must make our own rules depending on what works for us.

If we discover ourselves, we will be free. After falling in love with Shoola Pani, Leema is panic and is in a dilemma. Her affection to Shoola Pani and the morality of a wife makes her confused. Here also, Komati embodies the invalid regrets of human mind through Yera(prawn). The neglects and alienations make people suffer but Komati justifies that sometimes these neglects and alienations are necessary to analyze our self and to build us up as self made person. Sometimes lives will fall

apart because of the self made decisions, but life has the capacity to heal itself. When Lena realises what she wants, she certainly did not consider others and the consequences of her flee. She should be free to decide her life.

Anita Nair's *Alphabet Soup for Lovers* is a novel which vacillates woman's mind through food. Food and love are inexorably linked. The tongue could be a window to the mind. Self love is a thing which is totally neglected by women in their rush of household duties. Anita Nair tries to speak out that the cause of woman's repression might be the negligence of her emotions and instability in making decisions. She tells that the root of women's inner conflict is her suppressed feelings and unvoiced desires.

## References

- Barthes Roland, 'Toward a Psychosociology of Contemporary Food Consumption', in Carole Couhinan & Penny Van Esterik, *Food and Culture*, New York: Routledge, 2008.
- Couhinan, M Carole and Steve L Kaplan Ed. *Food and Gender Identity and Power*, UK : Harwood Academic Publishers, 2005.
- Eivind Jacobsen, 'The Rhetoric of Food', in Marianne E. Lien & Brigitte Nerlich, *The Politics of Food*, Oxford: Berg, 2004.
- Greene, Carlinite P. *Shopping for What Never Was: The Rhetoric of Food, Social Style, and Nostalgia*, Jefferson: McFarland & Co, 2008.
- Hall, Stuart. *Questions of Cultural Identity*, CA: Sage Publications, 1996. Levi-Strauss, Claude. *The Raw and the Cooked: Mythologies* . Vol.1, Chicago: University of Chicago Press, 1983.
- Montanari, Massimo. *Food is Culture*, Newyork: Columbia UP, 2006.
- Nair, Anita. *Alphabet Soup for Lovers*. India: Harper Collins, 2015.
- Parasecoli, Fabio. *Cultural History of Food*, Oxford: Berg, 2012.

# **A PARALLEL STUDY OF PROTAGONISTS IN A FICTION AND NON-FICTION FACING THE THREAT OF CANCER**

**Dr.Saneesh C.S.,** Assistant Professor on Contract,  
Little Flower College, Guruvayoor

The Present study is an attempt to analyse characteristics of a real life person who survived Cancer and a fictional character who succumbed to Cancer. The real life person is Mr. Innocent, a Malayali film actor and politician, and the fictional character is Annie in Sibi Malayil's movie *Akashadoothu*. The study analyses how Innocent faced his Cancer based on his memoir *Cancer Wardile Chiri* with the tear-jerker Malayalam Movie of the nineties *Akashadoothu*.

*Cancer Wardile Chiri*, which has been translated into English as *Laughing Cancer Away*, is Innocent's Memoir in which he shares his experiences as a Cancer patient. The book depicts how he managed to escape from the clutches of this deadly disease with the help of medicine, mind power and of course laughter. *Laughing Cancer Away* is the heart warming story of Innocent, who, by sheer courage, determination and an incomparable sense of humour, withstood the onslaught of Cancer (Lymphoma) and emerged victorious from its claws. Innocent's story inspires countless despondent people around the globe and also acts as a guiding force to them.

*Akashadoothu* is a 1993 Malayalam-language drama film, directed by Sibi Malayil. The film is an adaptation of 1983 American made-for-television biographical film *Who Will Love My Children?* Based on a true story of Iowa farm wife Lucile Fray, *Who Will Love My Children?* portrays a dying mother of ten whose last wish is to find loving families for her children. *Akashadoothu* tells the tale of a widow, named Annie, on discovering she has terminal stage leukemia, tries to find suitable foster homes for her four children. Madhavi and Murali acted in the lead roles. It won the National Film Award for Best Film on Family Welfare. Madhavi won Kerala State Film Award for Second Best Actress and Filmfare Award for Best Actress awards for this film. This film was remade in many other Indian languages such as Telugu, Kannada, Marathi and Hindi. The movie was so deeply rooted in the minds millions of Malayali audience that whenever they spot a little blood on the tip of their nose, they immediately think of Annie.

## **The story of Annie in *Akashadoothu***

The story of *Akashadoothu* revolves around Johnny and Annie, a married couple who had both grown up together in an orphanage, fallen in love and had got married. The couple have four children; the eldest being a teenage girl named Meenu, twin boys Rony and Tony, and the youngest Monu, a toddler. Rony and Tony are about eight years old and are very close to each other. Rony is physically handicapped. Johnny is a jeep driver by profession and Annie a violin teacher. Though the family struggles to live and make ends meet, they lead a happy life together, except for the moments when Johnny, a recurrent alcoholic spends most of his daily earnings at the

local toddy shop. During an altercation between Johnny and the local milk delivery man Keshavan, the latter is humiliated in front of his family. Keshavan therefore decides to take revenge on Johnny.

One day, he sees Johnny's son Tony riding a bicycle on his way home. Keshavan increases the speed of the van he is driving and knocks Tony off the road. Some bystanders bring the injured Tony to the hospital. Despite being in a not so critical condition, Tony has lost a lot of blood and requires blood transfusion. While looking for suitable donors, it is discovered that Annie's blood sample has some abnormal characteristics and she cannot donate her blood. After further analysis, it is revealed that Annie is suffering from a late stage of leukaemia and that she only has a couple of months to a year to live. The news shocks both Johnny and Annie. Johnny reforms from his alcoholic demeanor and becomes more responsible. However, as fate takes a turn, one day when Johnny is on his way home with medicine for Annie, he gets into a fight with Keshavan and is killed. Annie is devastated but remains strong willed to take care of the family. She deeply worries about the future of her children. She does not want her children to grow up in an orphanage like she and Johnny did, growing up with the label as orphans. She decides to give her children up for adoption. She lies to her kids that the money she gets out of her classes is not sufficient for them to live and therefore she is going to Germany very soon, so they have to go to new houses and there will be new parents to love and take care of them. By now Meenu has come to know about her mother's condition and asks her about it. Annie is totally broken down. Both of them keeps this a secret between them.

Annie, with the help of the priest of their church – Father Vattappara – makes arrangements for the adoption of the kids. Monu is adopted by a leading Doctor. Annie wishes that both her boys Rony and Tony live together forever and hence expects a couple to adopt both of them. But they find it difficult to get people ready to accept the disabled boy. Finally Annie decides to give Tony to a wealthy businessman and his wife. Meenu decides not to go to a new house and be with her Mum, but Annie and Father Vattappara convince her for the same. She is taken by a rich old man and his wife to their home. The only one left is Rony, the handicapped child. Annie and father Vattappara try hard to find someone to take care of him. Mean time Annie's doctor give her a hint that days are counted for her. She wishes to celebrate Christmas at her home with her kids and makes arrangements for that. She writes a letter to Meenu asking her to always keep in touch with her brothers so that the bond between the siblings remain forever. On the day before Christmas, Annie dreams that all her children have come to see her. She wakes up and happily runs to the door, only to realize that was a dream. She starts bleeding from her nose and understands that there isn't much time left for her, she prays in front of the Crucifix begging for a day more to live so that she can see her kids for the last time. She finds real blood flowing from the wounds of Jesus in the Cross and realizes that death has come for her. Later that night Rony finds her dead.

At her funeral, all her children and their newly adopted parents are there and after she is buried, the children and their families tearfully part ways, except for Rony who is about to be taken by Father Vattappara to the orphanage. The movie ends with Tony's adopted parents coming back, and Tony jumps out of the car and runs to Rony and the two embracing each other, as Tony's adopted father was moved during the farewell and agreed to take in Rony as well.

## Laughing Cancer Away

Innocent, an eminent film actor, writer and member of the parliament, is a man with high sense of humour and presence of mind. He has successfully faced many problems in his life with an aura of humour. He could do that even in the face of death. *Laughing Cancer Away* narrates how humour helped Innocent to recover from Cancer.

Innocent was born in Iringalakkuda on 28<sup>th</sup> February, 1948 as the son of Thekkethala Vareeth and Margaleetha. He stopped studies in the eighth class. His roles in *Mazhavilkavadi*, *Kilukkam*, *Devasuram*, *Ramji Rao Speaking*, *Godfather*, *Vietnam Colony*, *Manasinakkare* received great acclaim in the minds of viewers. He has acted in more than six hundred films. He has been the president of AMMA, the association of actors and actress, for the past seventeen years. He has authored many books namely, *Mazhakannadi (stories)*, *Njan Innocent* and *Chirikku Pinnili (autobiography)* He was elected to Chalakkudi Constituency in 2014.

Amidst the happiness and celebrations did Innocent realise the severity of the disease that had taken away control of him. Soon after, his wife also suffered the same fate. This book is a memoir of their hardships and yesteryear troubles. But rather than evoking sadness this book exudes humour and dedication. It pits humour against the inevitability of death. It is through confrontation and not through despair we jump the hurdles of life.

On the outset of the book, Dr. V.P. Gangadharan, the renowned oncologist who diagnosed, treated and cured Innocent's Cancer states that 'Innocent' now means 'a remedy for Cancer'. He says that even when he knew that he was suffering from Cancer, it did not shatter him much as would ordinary patients. There was only some gloom in him. But during any stage of treatment, Innocent did not suffer from the sort of depression that Cancer patients would generally exhibit. Perhaps, he would have had some anguish within, and he was not showing outwardly. He was cured so fast perhaps because he had maintained certain pleasantness in his mind throughout.

His doctor appreciates Innocent that he openly declared to the world that he was suffering from Cancer. The fact is usually is hidden by even ordinary people. When the news spread all over Iringalakkuda day by day, one day Alice told him about this very hesitantly. He consoled her: "See, I didn't bring home this Cancer stolen from any temple or bishop's house, you know. It affected me as would anybody else. That's all!" His 'treatment of Cancer with humour' starts there.

Dr. Gangadharan remarks he has no doubt about Innocent's 916 witticisms about Cancer would be more effective than the words of a doctor. He tells authentically that the sense of humour with which he handled Cancer hastened his cure more than by the treatment itself. Many unknown chemical reactions might have taken place in immunising his body because of that. Many side effects of the medicine had been averted by this approach. He transfers his own mental attitude to people in the same condition through these memoirs. Hence, this doctor says that 'Innocent' is now a 'remedy for Cancer'. And, he authentically recommends this medicine as a doctor to all genres of patients.

How he responded to the news of having diagnosed with Cancer was way different from most other people do. On the day Innocent was diagnosed with this terminal disease, everyone in his house burst into tears and a thick silence surrounded everywhere in the house. It was too much for him. He said to them: “If you continue to sit around me always crying, I will leave this house and go around somewhere else. I come home to be happy, only to be happy.” His statement that he would leave home was a shock to all. They began to calm down gradually.

That night when he was lying sleepless on the bed, with my mind full of sorrow, he took a strong decision: “Anyhow, I am a patient now. I will face it, if possible, with pleasure. I was one who could find mirth in anything. Why I could not do that even in illness? Let the doctors treat me; along with that, I would continue my own treatment with laughter as the elixir of life! I was not prepared to pledge my Being to Cancer.”

Once the doctors asked Innocent to pedal a machine like a cycle as an exercise. He climbed on to the bicycle and started pedalling. Soon, he was surrounded by a crowd, who were intent on enjoying the fun of Innocent’s drill. When he was being torn between two major diseases, they were all laughing to their heart’s content! He told them: “Warn me if some lorry or bus comes from behind!” On hearing that, they roared with laughter while he carried on with his exercise. This only one of the many examples that indicates how he used ‘humour’ to treat his Cancer’.

In another occasion a guest who visited Innocent’s house when it was known that Alice (Innocent’s wife) was afflicted soon after Innocent was cured, commented:

“Everything happens because of your unity of mind. Alice also got Cancer when Innocent got it. Has anyone heard of such things anywhere else?”

“It was good that it was Alice who was inflicted. You would have said the same thing even if our neighbour Eliamma had got it!” Innocent quipped. The guest said nothing more.

Just before he gets busy in his acting career after his and his wife’s complete recovery from Cancer he proclaims “The only thing I have to tell the patients who read this book is that they have to mentally admit that the disease is a fact. Get proper and regular treatment. Take the medicine systematically. The most important thing is that they should never think that the disease signals the end of life. Is it not better to *think that you will be cured* than *thinking that it will take your life*? Be aware of the truth and pass through the stage of illness with full optimism. Remember, Life is waiting for you on the other side, with much greater charm!”

### **Take life as it comes**

The prime difference between the disease of the fictional character Annie and the real person Innocent was their period of diagnosis. By the time Annie was diagnosed with leukemia, it was too late for any chance of recovery. This was not the case of Innocent. And obviously, medical science has also made tremendous improvement in the treatment of Cancer in the last two decades. Being a well off person Innocent could afford the best treatment that he could get on earth.



Both Innocent and Annie were desperate when the news hit them. Innocent was not a person who would take a *no* for an answer. Along with modern medical care and treatment he used his trump card, ‘humour’ to overcome the challenges of Cancer. Readers of his memoir will be bewildered on thinking whether it the application of ‘humour’ or medicine cured his Cancer. For one thing it’s sure; he would not have come back to life without the application of both. When you lose everything what still remains is the last little flame of hope. He had to come back to life not just for himself or his family but for the millions of people who love him and his humour. Sure did he come back and served the people of Chalakudy constituency as the Member of Parliament in Lok Sabha. Being the sitting MP, he is competing again in the Lok Sabha election 2019 from the same constituency on party symbol.

For Annie in *Akashadoothu* nothing else mattered more than her family. She had a little hope for her children when her husband came to his senses by quitting alcohol. But when he lost his life in a combat with his foe all of a sudden, she had no other option than giving away her children to capable spouses for adoption. She succeeded in her attempt to a great extend. Only Rony, the handicapped son, was yet to be adopted. But he was too adopted by the same people who adopted his twin brother Tony after her demise. Even though she had left the world before fulfilling her final wish of having a Christmas with her children, she did her best from the day she was diagnosed with Cancer. In a nutshell, she did what she could.

Death is sure for anyone who born into this world. But no one can say *when* and *how* it will happen. People cannot choose what happens to them just like they cannot choose their life and death. People can only take life as it comes. In other words, people cannot change the events, but what matters more than that is what meaning and decision are they taking from it.

## References

- Akashadoothu*. (2018, September 16). Retrieved from <https://en.wikipedia.org/wiki/Akashadoothu>
- Innocent , V.T. (2014). *Cancer Wardile Chiri*. Ernamkulam: Mathrubhumi Books
- Innocent , V.T. (2014). *Laughing Cancer Away: An Actor’s Memoir*. Ernamkulam: Mathrubhumi Books
- Innocent , V.T. Innocent explains the mental pressure during the time of Cancer | Manorama News Feb 7, 2016 Retrieved from <https://www.youtube.com/watch?v=ajQhc0ZvH58>
- Innocent , V.T. *JB Junction - Innocent Full Episode*. (05, April, 2014) Retrieved from <https://www.youtube.com/watch?v=SBB2Ik2GLfc&t=2162s>
- Mukherjee, S. (2010). *The Emperor of All Maladies: A Biography of Cancer*. New York: Scribner.
- Saneesh C.S. (2018). Reading Humour as a Therapy in Innocent’s ‘Laughing Cancer Away’ *Horizon of Hope*, 125-128.
- Who Will Love My Children?*. (2019, January 23). Retrieved from [https://en.wikipedia.org/wiki/Who\\_Will\\_Love\\_My\\_Children%3F](https://en.wikipedia.org/wiki/Who_Will_Love_My_Children%3F)

# MEMORY AS REMINDER, RETALIATION AND RESISTANCE: A BRIEF EXPLORATION OF ELIE WIESEL'S *NIGHT*

Nair AnushriRajasekharan, Assistant Professor on Contract  
Department of Functional English, Little Flower College, Guruvayoor

In a fast paced world like ours, being in amicable terms with one's 'Self' and one's 'History' is a need. But taking into account the monstrosity of comfort that we enjoy, this need is often overlooked rather than met with. Memory does the role of an interface between our present and past, a reminder of everything that encapsulates our very being. The Holocaust, as we all know, was a time in the timeline of events that caused immense pain and anguish to the non- German races especially the Jewish community. It was a time when one man's nepotism wiped off a community's right to live; when one human mercilessly tortured a community based on hate instigated by racial animosity.

Elie Wiesel, a Nobel Laureate and a Holocaust survivor, in his book *Night* he puts under spotlight his memory of the harrowing experiences in the concentration camps at Auschwitz and Buchenwald in 1944/1945. To speak a little on "memory", it is a bitter-sweet sneak-peak into the crevices of the past that are unconsciously/subconsciously cradled by the mind. In effect, a memory is that which 'Represents' experiences of our past. A conscious representation or a retelling of the experiences of the past is what then constitutes "episodic memory".

Episodic memory is a conscious representation of past experience. You re-experience the past as part of your experience of the present. Episodic memory and imagination form a personal past and future that grounds a temporally extended self. Consciousness unifies the various experiences that you have had and will have by bringing them together in the present.

(Bernecker 111)

In this light, Wiesel's work stands as a memory that foregrounds two things: one being the torture that innocent lives were subjected to, and two, the Jewish predicament. It stands as a reminder of the how under the Nazi propaganda to find "The Final Solution to the Jewish Question" lead to a cultural smothering that saw no end for years. So Elie by translating his memory into words not only reminds us of a man's brutal misdeeds against a community but also reflects upon how the Jewish clan tried their best to survive the political and emotional whips and lashes.

Towards the end of their reign, their goal changed: they decided to leave behind a world in ruins in which Jews would seem never to have existed. That is why everywhere in Russia, in the Ukraine, and in Lithuania, the Einsatzgruppen carried out the Final Solution by turning their machine guns on more than a million Jews, men, women, and children, and throwing them into huge mass graves, dug just moments before by the victims themselves. Special units would then disinter the corpses and bury them. Thus,

for the first time in history, Jews were not only killed twice but denied burial in a cemetery. It is obvious that the war which Hitler and his accomplices waged was a war not only against Jewish men, women, and children, but also against Jewish religion, Jewish culture, Jewish tradition, therefore Jewish memory. (Wiesel 11)

By shaping this piece of writing into a “cultural episodic memory”, Wiesel attempts to pay obeisance to the dead and gone. This memory leads him to a need to evoke the past to pacify his present Self; this memory (*Night*) for him becomes a reminder of a requiem that is inevitable.

For the survivor who chooses to testify, it is clear: his duty is to bear witness for the dead and the living. He has no right to deprive the future generations of a past that belongs to our collective memory. To forget would not only be dangerous but also offensive; to forget the dead would be akin to killing them a second time.

(Wiesel 18)

Another characteristic of memory is that it is closely associated with emotions. Emotions stand capable of orienting man’s emotions and intentions, or in other words, emotions instigate action. This mutual entanglement is what helps keep a memory alive, and on further exploration of the work, we understand that this entanglement functions at its best when the heart of the experience or emotion is “dark and unpleasant”.

Any object identified by perception is categorized in terms of associations with past events. These can be explicit, constituting episodic memories which are typically tinged with emotional significance. There evidence that unless an emotion arouses some sort of affect, it will not be transferred to long term memory at all and also that experiences with negative valence are better remembered. One can think of this as a mechanism of relevance built-in by natural selection. If it is pleasant, remembering it is less important than if it is unpleasant”.

(Bernecker 159)

This stands true in case of the Holocaust and it is in this framework that Wiesel attempts to use memory as a tool of retaliation and resistance. Him penning down his memory stands as a blazing testimony to the crimes of the Nazi regime. As a ‘miraculous’ survivor, he takes it upon himself to let out his anger through the power of words. He uses his memory to desist the living from forgetting the agonising past and since he believes that ‘past lingers in the present’.

I only know that without thus testimony, my life as a writer- or my life, period- would not have become what it is: that of a witness who believes he has a moral obligation to try to prevent the enemy from enjoying one last victory by allowing his crimes to be erased from human memory.

(Wiesel 11)

*Night* as a ‘memory’ can also be seen assuming significance on the following three levels: Wiesel writes down each of the Holocaust instances that he experienced being fully “conscious” of his doing so, i. e, in this way the work becomes an Explicit one. His writing becomes Declarative

in nature since he evokes “specificity” of occurrences instead of giving a vague and general outlook. He resorts to specific moments to convey trauma instead of wallowing in general postulates; so in other words, this memory of his is Self-specifying in nature. The harmonious co-existence of these three levels of memory makes *Night* a remarkable piece of “autobiographical memory” that calls for first-hand experience as its foundation.

As a note of conclusion, it can thus be said that Wiesel effectively utilizes memory as reminder, retaliation and resistance by traversing along the routes of the autobiographical and the episodic.

### Work cited

Bernecker, Sven and Michaelin, Kourken. *The Routledge Handbook of Philosophy of Memory*. New York: Routledge, 2017. Amazon. Web. 20 November 2018.

Wiesel, Elie. *Night*, translated by Marion Wiesel. New York: Hill and Wang, 2006. Amazon. Web. 19 November 2018.

# EFFECT OF CONCENTRATION ON THE PERFORMANCE OF ALL FE REDOXFLOW BATTERY

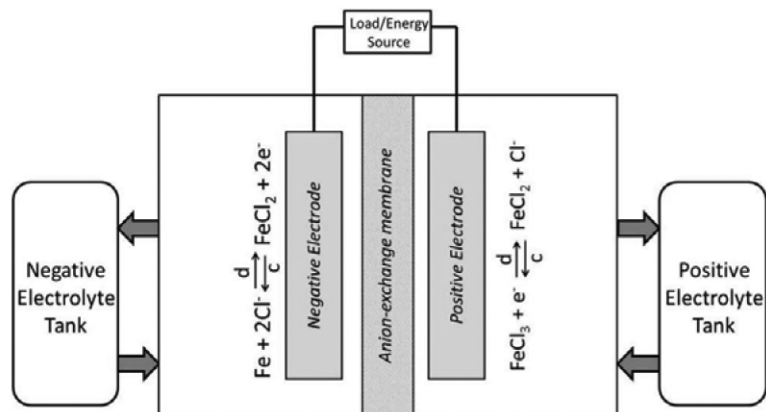
Jeena C.B., Moly P.P., Elsa P.J., Ambili K.J.,  
P.G. Reaserch Department of Chemistry, Christ College, Irinjalakkuda,

## *Abstract*

**R**edox flow batteries (RFBs) are one of the most promising scalable electricity-storage systems to address the intermittency issues of renewable energy sources such as wind and solar. The prerequisite for RFBs to be economically viable and widely employed is their low cost. Here we present a new all-iron (Zn-Fe) RFB and the effect of concentration on the performance of the battery was investigated. For 1M, 2M and 3M solutions, the CE is stable at above 95%, which indicates the high anion selectivity of the membrane. The VE values decreases from 80% to 50% as the concentration of  $\text{FeCl}_2$  increases from 1M to 3M which is mainly due to the increasing electrolyte resistance arising from increasing concentration of electrolyte.

Redox-flow batteries (RFBs) have been considered one of the most flexible systems for stationary energy storage owing to their decoupled energy and power. A typical RFB consists of two soluble redox pairs separated by an ion-exchange membrane (IEM). Designed for large-scale energy storage, RFBs are required to have low system cost and long service life. Unfortunately, the imperfect ionic selectivity of existing IEMs inevitably leads to undesired crossover of redox species between negative and positive electrolytes. Electrolyte contamination brought on by the crossover of redox species can cause permanent losses in both battery capacity and Coulombic efficiency (CE), seriously threatening the reliability and durability of RFBs. Hruska and Savinell proposed an all-iron flow battery in 1981 as a possibility for redox flow battery applications. The all-iron chemistry utilizes a single element iron in three oxidation states ( $\text{Fe}^0$ ,  $\text{Fe}^{2+}$ , and  $\text{Fe}^{3+}$ ) for both the negative electrolyte and positive electrolyte. The performance of an all-iron flow battery as a function of electrolyte composition, cell membrane, and operating temperature has been studied. They report round trip current efficiencies of 90% and energy efficiencies of 50% for an all-iron flow battery operated at 60 °C. However, when the battery was charged and discharged, the largest voltage loss occurred at the iron plating electrode (or negative electrode) and also a large voltage drop due to the electrolyte. Also, hydrogen evolution resulted in lower Coulombic efficiency and corrosion of the plated iron.

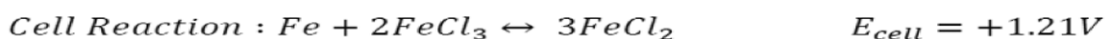
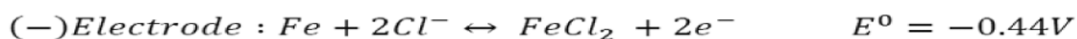
A schematic of a new iron chloride redox flow battery is provided in Figure 2.1. There are 3 parts in the cell; positive electrode, negative electrode, and an anion exchange membrane. At the positive electrode, ferric/ferrous redox reaction occurs. The standard reduction potential for this reaction is 0.77 volt. At the negative electrode, ferrous/iron redox reaction occurs. The standard reduction potential for this negative electrode reaction is -0.44 volt. These values of standard reduction potential allow us to predict a cell voltage of 1.21 V.



**Figure 1.** Schematic of the principle of operation of an iron-chloride redox flow battery. In the chemical equations, ‘d’ and ‘c’ refer to discharge and charge, respectively.

### Electrochemical Processes in the Iron Chloride Redox Flow Battery

The overall cell reaction in the iron-chloride redox flow battery is the conversion of iron and iron (III) chloride to iron (II) chloride. The reactions at the positive and negative electrode are shown below.



During the charge process, the Fe(II) ions at the positive electrode release electrons, and oxidize to Fe(III) ions; the Fe(II) ions at the negative electrode acquire the electrons from the external circuit, and electrodeposit onto the electrode as the metallic Fe. During the discharge, electrons are transferred from the negative electrode to the positive electrode; the ferric ion at the positive electrode accepts an electron generated from the oxidation of iron to the ferrous ion at the negative electrode. So the net reaction is the conversion of iron and ferric ion to the ferrous ion.

### Electrolyte Composition

While the electroactive component of the electrolyte in the all-iron redox flow battery is just the iron (II) chloride, iron (III) chloride and iron (0), there are several additives used to achieve optimal performance for example ammonium chloride is used for supporting electrolyte in order to improve conductivity.

## Membrane

An anion- exchange membrane is needed to separate the two electrode compartments of the cell. To prevent cation permeation from one side of the cell to another, an anion exchange membrane was used. Such a membrane was chosen to allow for the transport of chloride ions during the charge and discharge processes. Commonly, a membrane type A201 obtained from Tokuyama Corporation was used and it has a thickness of 28 micrometers and an ionic conductivity of 27 mS/cm in 1 M chloride at 20°C. Here we are using a PVC membrane as a separator for the electrolytes.

## Electrodes

The electrodes used in the iron-chloride redox flow battery consisted of two graphite sheets as anode and cathode.

## Advantages of iron chloride redox flow battery.

- ❖ Iron chloride redox flow battery uses non-toxic materials. There are no aggressive chemical reagents inside of the both electrolytes. Therefore, the new technology of iron chloride redox flow battery is eco-friendly.
- ❖ Since iron is the fourth abundant material in the earth, the cost of iron is low. Also, there are abundant quantities of chloride from sea salt (NaCl). Compared with other systems, their abundance is superior.

## Electrochemical measurements

### Cyclic voltammetry

Cyclic voltammetry (CV) was carried out in a three-electrode setup using an AUTOLAB PGSTAT (made in Netherlands) connected to a personal computer. The electrodes used for CV experiments include: a platinum disc electrode as the working electrode, a saturated Ag/AgCl electrode as the reference electrode and a platinum wire electrode as the counter electrode.

Cyclic voltammetry was performed at a scan rate of 25 mV s<sup>-1</sup>.

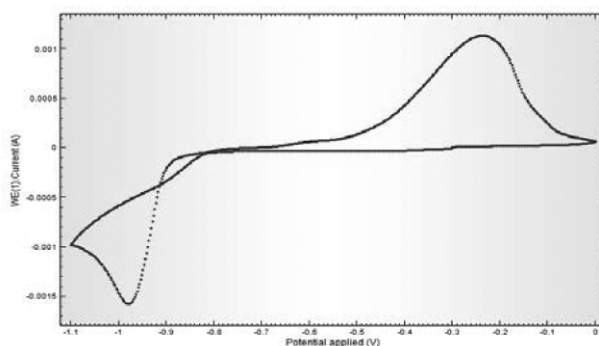
### Flow battery experiment

The cycle test was conducted at 25 mA/cm<sup>2</sup> with 30 mL of 1 M FeCl<sub>2</sub> as negative electrolyte and a combination of FeCl<sub>2</sub> and FeCl<sub>3</sub> as the positive electrolyte, respectively. The cyclic measurements were also repeated for 2 M and 3 M concentration. The coulombic efficiency (CE), and voltage efficiency (VE) of the battery were calculated.

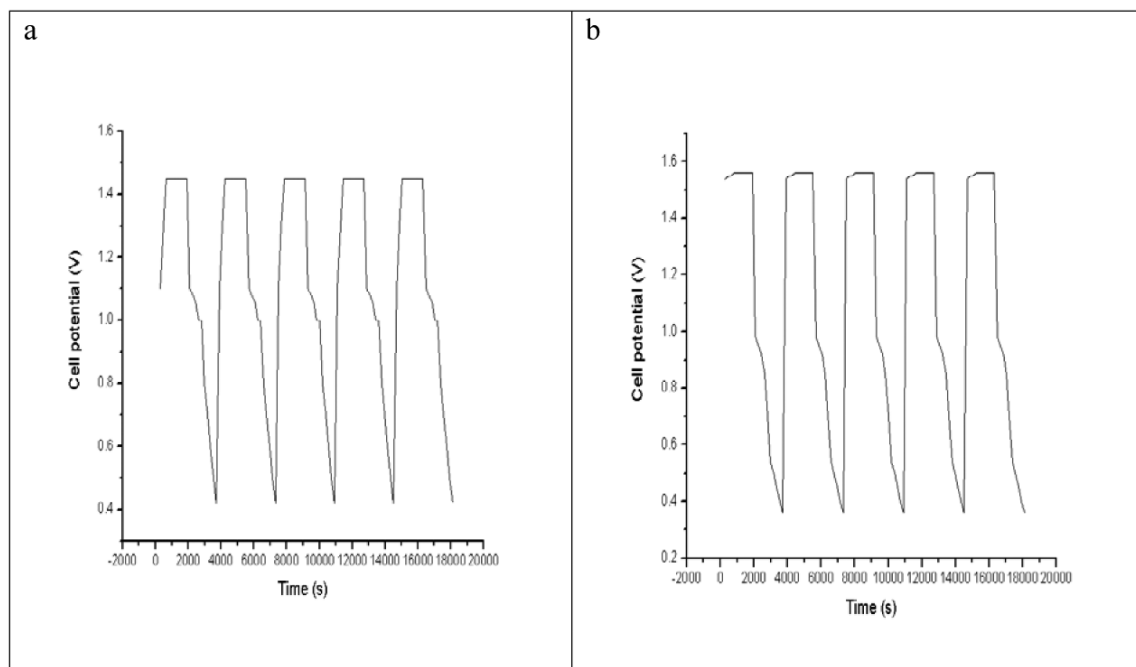
## Results and discussion

A cyclic voltammogram (Figure 2) of 0.05 M FeCl<sub>2</sub> + NH<sub>4</sub>Cl on a platinum disk electrode at a scan rate of 25 mV s<sup>-1</sup> shows a reduction peak at -0.96 V and an oxidation peak at -0.25 V. Figure

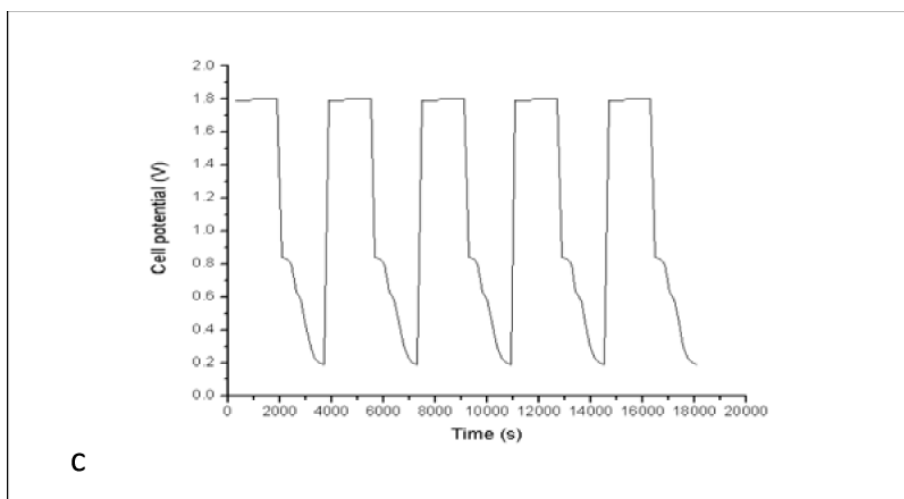
3 shows five cycles of charge/discharge voltage Vs.time curves of 1M, 2M and 3M electrolyte solutions at a current density of  $25 \text{ mAcm}^{-2}$ , and figure 3 shows the comparison of these results. The corresponding CE and VE for 1M, 2M and 3M electrolyte solutions are shown in Figure 4. For 1M, 2M and 3M solutions, the CE is stable at above 95%, which indicates the high anion selectivity of the membrane. VE remains between 75 and 80% for 1M, between 60 and 65% for 2M and between 45 and 50% for 3M solution. The VE values decreases from 80% to 50% as the concentration of  $\text{FeCl}_2$  increases from 1M to 3M which is mainly due to the increasing electrolyte resistance arising from increasing concentration of electrolyte.



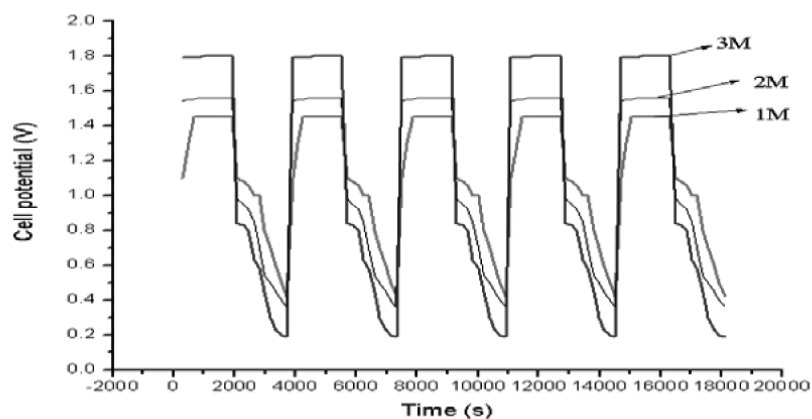
**Figure 2.** CV of  $0.05\text{M FeCl}_2 + \text{NH}_4\text{Cl}$  on a platinum disk electrode at a scan rate of  $25\text{mVs}^{-1}$ .



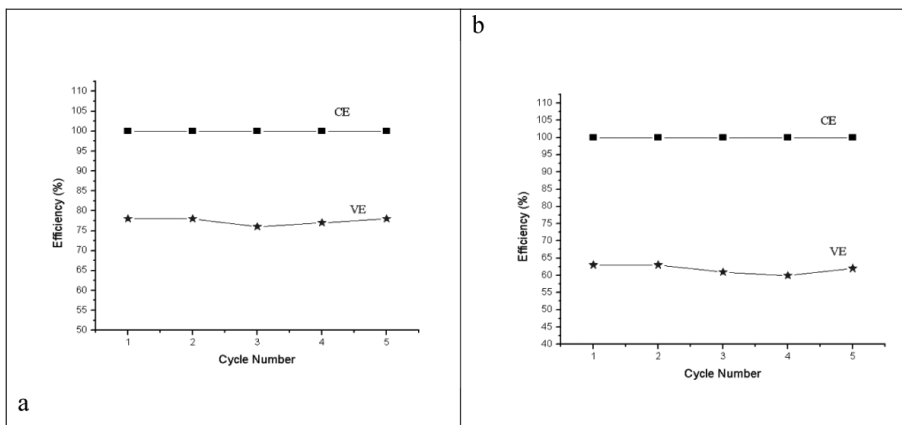


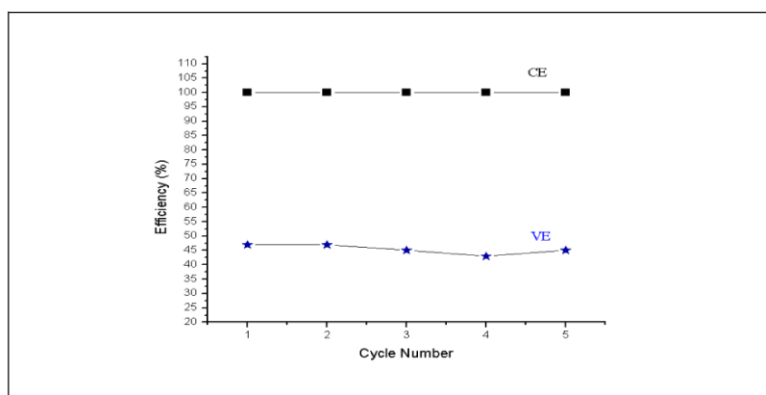


**Figure 3.** Cycle performance of the all-iron redox flow battery containing (a) 1M negative electrolyte (b) 2M and (c) 3M solutions



**Figure 3.** Comparison of the cyclic performance of all-iron redox flow battery with different electrolyte concentration.





**Figure 4.** CE and VE of (a)1M,(b)2M and (c) 3M electrolytes with cycle number.

## Conclusions

In summary, a RFB utilizing cheap and abundant iron redox material has been proposed and demonstrated. During the cycle test, the RFB exhibits stable performances and efficiencies. The highest coulombic and voltage efficiency values in the flow cell viz. above 95% and 75-80% respectively, were obtained from an electrolyte system consisting of 1M  $\text{FeCl}_2$  as negative electrolyte and a combination of  $\text{FeCl}_2$  and  $\text{FeCl}_3$  as the positive electrolyte. For 1M, 2M and 3M solutions, the CE is stable at above 95%, which indicates the high anion selectivity of the membrane. The VE values decreases from 80% to 50% as the concentration of  $\text{FeCl}_2$  increases from 1M to 3M which is mainly due to the increasing electrolyte resistance arising from increasing concentration of electrolyte.

# PREPARATION & CHARACTERISATION OF PANI- CRGO (CHEMICALLY REDUCED GRAPHENE OXIDE) COMPOSITE

<sup>1</sup>Haisel Mathew, <sup>2</sup>Anne Jose M& <sup>3</sup>Laly A.S.

<sup>1,2&3</sup> Department of Physics, Little Flower College, Guruvayur, University of Calicut,  
Puthepalli P.O., 680103, Kerala, India  
email: haiselmathew@gmail.com

## INTRODUCTION

A polymer is a material whose molecule contains a very large number of atoms linked by covalent bonds, which makes it a macromolecule. Conductive polymers or, more precisely, intrinsically conducting polymers (ICPs) are organic polymers that conduct electricity. Such compounds may have metallic conductivity or can be semiconductors. Electrical conductivity of conducting polymers can be tuned from insulating to metallic through proper doping. They have a conjugated structure with alternate  $\sigma$  and  $\delta$  bonds. The  $\delta$  bonds are delocalized throughout the entire polymer network. This results in enhanced electrical conductivity [1]. Preparing conducting polymer composite is a clever way to vary the properties of conducting polymers [2].

Of all the carbon based nanofillers graphene is perhaps the newest and has grabbed wide attention since its discovery in 2004. This can be attributed to its novel electronic properties, absent in thicker carbon films or other carbon nanostructures [3] coupled with its unique mechanical and thermal properties. Graphene can be prepared via various techniques, of which the most commonly researched route are via graphitic oxide (GO) [4] and shows potential for the production of graphene sheets in bulk quantities required for the fabrication of polymer composites. Brodie, Staudemaier, Hummers and Tour group have proposed various methods for the synthesis of graphite oxide from graphite [5-7].

Graphene in its oxidized form is nonconductive and it is sensitive to higher temperature. By removing oxygen containing groups (reducing), it is possible to restore the properties, however the structure and electrical properties of reduced graphene oxide can be never fully restored to that of pristine graphene [8]. Due to the presence of residual functionalities, this material is referred as chemically reduced graphene oxide (CRGO) instead of graphene. These functionalities not only allow good dispersion of graphene in polymer matrix, but also provide active sites to form chemical bonds between the graphene nanosheets and the polymer matrix [9]. In this paper, study of the structural, morphological, thermal and electrical properties of GO, CRGO, PANI and PANI-CRGO composite samples are outlined.

## II. MATERIALS AND METHODS.

### A. MATERIALS

Aniline, Hydrochloric Acid, Ammoniumperoxodisulphate, graphite, Sulphuric

acid, Phosphoric acid, Hydrogen peroxide, Potassium permanganate, Ether, Ethanol, Hydrazine

hydrate were the materials used in this work. All the materials except aniline were used as purchased without further purification. Aniline is distilled before the synthesis.

### ***B. SYNTHESIS OF PANI***

Polyaniline is prepared using chemical oxidative polymerization. For this, aqueous solution of one molar distilled aniline and one molar HCl were mixed to form a solution. Ammonium persulphate (APS) is used as oxidant. This solution is kept in a magnetic stirrer. After five hours of stirring the polymer is filtered, washed with dopant electrolyte solution, and dried in air oven at 60°C. The dried polymer is finely powdered.

### ***C. SYNTHESIS OF CHEMICALLY REDUCED GRAPHENE OXIDE (CRGO)***

The graphite platelets were first exfoliated to form graphene oxide using the improved method of Tour group. In a typical process, a 9:1 mixture of concentrated H<sub>2</sub>SO<sub>4</sub>/H<sub>3</sub>PO<sub>4</sub> was added to a mixture of graphite and KMnO<sub>4</sub> producing a slight rise in temperature to 35 to 40°C. The reactants were heated to 50°C and stirred for 12 h. The mixture was cooled to room temperature and poured onto ice, 30% H<sub>2</sub>O<sub>2</sub> was slowly added into the mixture until the solution turned bright yellow. The resulting yellowish brown mixture was centrifuged and the solid material was then washed in succession with water, HCl and ethanol. After this multiple wash, it was coagulated with ether. The solid graphene oxide (GO) obtained after the evaporation of ether, was vacuum-dried overnight at room temperature. The dried GO powder was chemically reduced using hydrazine hydrate.

### ***D. SYNTHESIS OF PANI-CRGO COMPOSITE***

For preparing PANI-CRGO composite, 0.5 gm of CRGO synthesised is dispersed in 1M HCl solution. Freshly distilled aniline (5ml) is added to it. Ammonium persulphate (APS) added to the mixture with continuous stirring for 5 hrs. The reaction is allowed to continue for 5 hrs. The precipitate obtained is filtered, washed and dried.

## **III. CHARACTERIZATION TECHNIQUES**

### ***A. XRD ANALYSIS***

XRD patterns were employed to portray the structure of PANI, GO, CRGO & PANI-CRGO composite. The patterns were obtained using a fully automated Rigaker 1710 X-ray powder diffractometer. In our set-up, filtered Cu-K<sub>2</sub> radiation having wavelength 1.542 Å is used for diffraction. The accelerating potential applied to the X-ray tube is 30 KV and the tube current is 20mA.

### ***B. FTIR ANALYSIS***

Fourier transform infrared (FTIR) spectroscopy can be used to detect changes in coordination and configuration of molecular species in a system. The vibrations of individual bonds or groups in a molecule have the same frequency as electromagnetic radiation in the IR region. FTIR spectrum is taken using an Avatar 370 spectrometer employing DTGS KBR detector

### C. SEM ANALYSIS

Scanning Electron Microscopy is similar to optical microscopy. But here electrons are used instead of photons. Electrons of high energy impinge on the sample. Secondary electrons, back scattered electrons and X-ray photons are produced. Secondary electrons form the SEM image. Scanning electron Microscopy is used for high resolution imaging. JEOL Model JSM - 6390LV Scanning Electron Microscope was employed to check the morphology of the sample

### D. TRANSMISSION ELECTRON MICROSCOPY

#### (TEM) ANALYSIS

In this technique, a beam of electrons is allowed to transmit through an ultrathin specimen, which interacts with the specimen as it passes through the material. Using TEM, it is possible to get a resolution thousand times better than that with a visible light microscope because of the much lower wavelength of the electrons. In the present study, the sample was dispersed in acetone by ultrasonicator, and some pieces were collected on carbon coated 200 mesh copper grids for TEM observation and examined by a JEM 2100 TEM at 200 kV in a bright field mode.

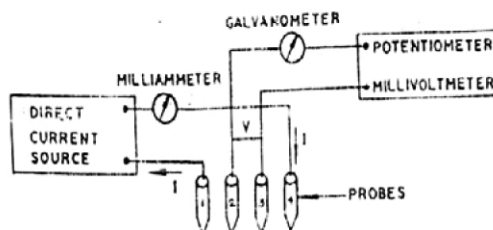
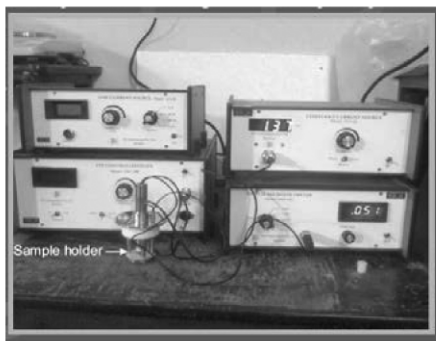
### E. THERMOGRAVIMETRIC ANALYSIS (TGA)

The thermogravimetric analysis of the samples was carried out under nitrogen atmosphere at a heating rate of  $20^{\circ}\text{C}/\text{min}$  in a TGAQ 50 Thermal Analyser (TA Instruments). In all cases the sample weights were between 5 and 10 mg. Thermograms (TG) were recorded for the range from room temperature to  $700^{\circ}\text{C}$ .

### F. MEASUREMENT OF ELECTRICAL CONDUCTIVITY

The D.C. conductivity of different samples was measured using four probe set-up instrument. Electrical conductivity of polymer pellets was measured with a constant - built current source accompanied with four -probe set up.

The circuit used for resistivity measurements are shown in figure



Current 'I' is passed through the outer probes (1 and 4) and the floating potential 'V' is measured across the inner pair of probes (2 and 3). When the point spacings are equal i.e.  $S_1=S_2=S_3=S$ , the equation for resistivity for a large sample using probe technique is  $\rho=2 \pi S^2 V/I$ . Therefore the conductivity  $\sigma = I/\rho$

The sample pellet was put on the base plate of the four probe arrangement and the four probe was gently placed on the pellet and a very gentle pressure was applied and tightens the pipe. By adjusting the millimeter reading current was kept constant. The millivoltage was then measured. Repeat the experiment with the other side of the pellet. Again the same experiment was repeated using another pellet of the same polymeric sample.

## IV RESULTS & DISCUSSION

### 1. RESULTS AND ANALYSIS OF CRGO

#### A. XRD ANALYSIS

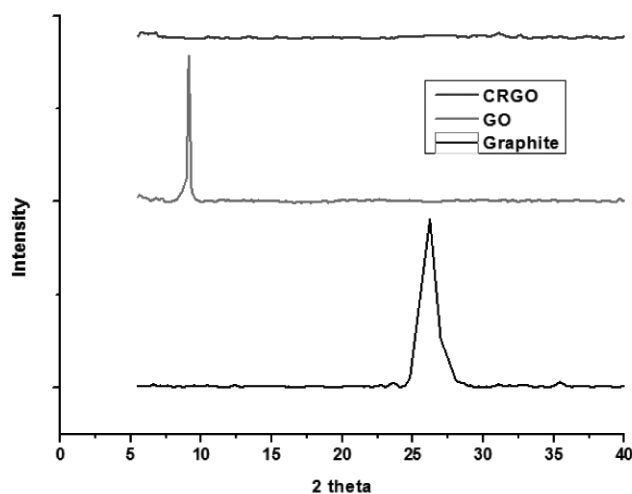


Figure 1. X.R.D spectrum of Graphite,GO and reduced GO

The XRD pattern of pure graphite, GO and CRGO are shown in figure1. Graphite shows a diffraction peak at  $26.27^\circ$  corresponding to a basal spacing  $d_{002}$  of  $3.397 \text{ \AA}$ . The pattern of GO, on the other hand, exhibits a  $d_{001}$  reflection at  $9.38^\circ$  having a basal spacing of  $9.42 \text{ \AA}$ . Intense intercalation of graphite during oxidation is confirmed by the typical increase of  $d$  spacing from  $3.397$  to  $9.42 \text{ \AA}$ . Nevertheless, the XRD pattern of CRGO does not demonstrate any diffraction peaks due to the disappearance of the long-term ordering graphitic structure [10]

### B. FTIR SPECTRA ANALYSIS

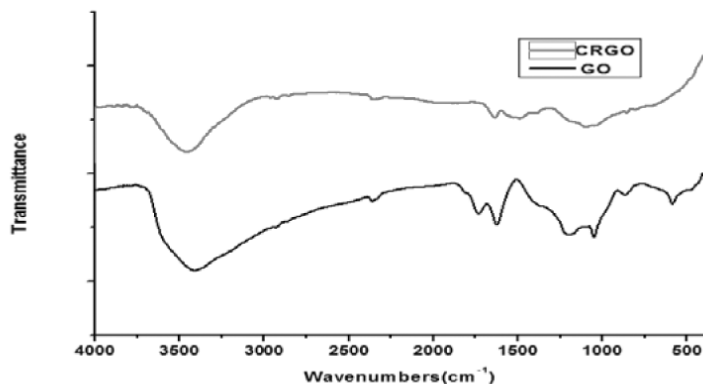


Figure 2 . FTIR spectrum of GO and CRGO

The reactive groups of GO and CRGO are also reflected in the FTIR spectra shown in figure 2. In the case of GO the following functional groups can be identified. O-H stretching vibration at  $3410\text{ cm}^{-1}$ , C-O stretching vibration (carbonyl/carboxyl) at  $1733\text{ cm}^{-1}$ , from unoxidized  $\text{sp}^2$  C-C at  $1626\text{ cm}^{-1}$ , and a C-O (alkoxyl) vibration at  $1186\text{ cm}^{-1}$ . This confirms the presence of hydroxyl and carbonyl functional groups in GO. However, in CRGO, the peak corresponding to O-H stretching vibration gets shifted to  $3463\text{ cm}^{-1}$  and its intensity is decreased. C-C stretching at  $1637\text{ cm}^{-1}$  and C-O stretching vibrations observed as a very low intensity band at  $1092\text{ cm}^{-1}$  are due to the remaining carbonyl groups after the reduction process [10,11].

### C. THERMOGRAVIMETRIC ANALYSIS

Thermogravimetric and the corresponding differential thermal analysis curves are shown in figure 3 and 4.

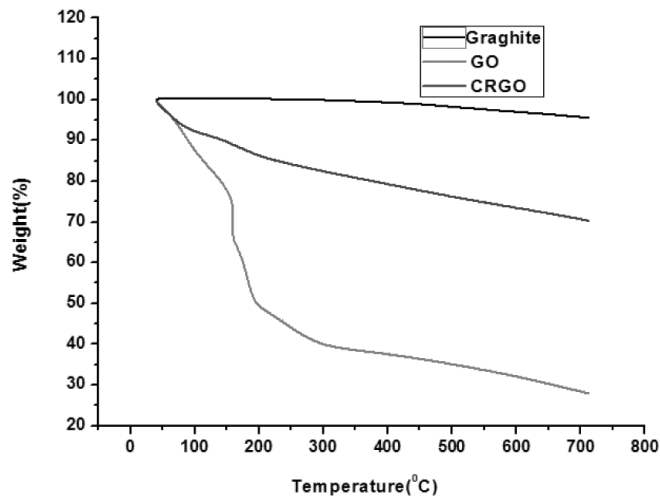
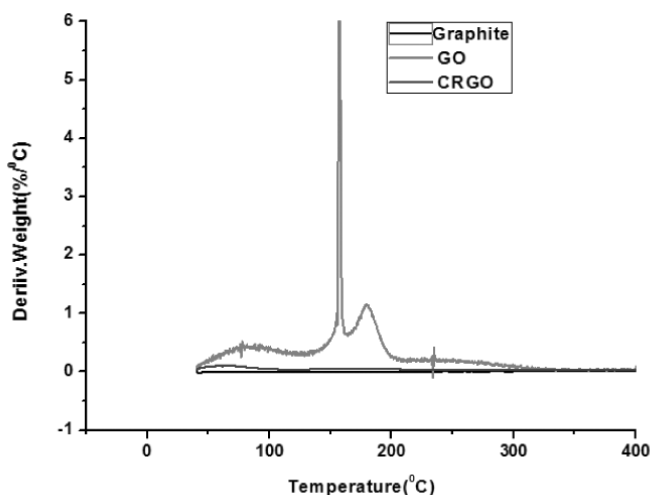


Figure 3 TGA of Graphite, GO and reduced GO

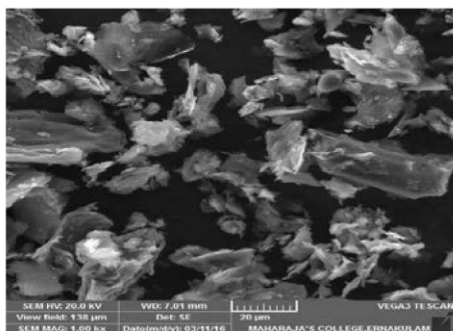


**Figure 4. DTG curve of Graphite, GO and reduced GO**

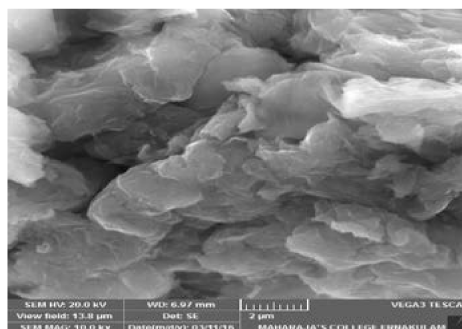
From the TGA curves it is clear that graphite has a good thermal stability on heating up to 700 °C, while GO is thermally unstable and starts to lose mass upon heating below 100 °C. Severe mass reduction at 700 °C is due to the pyrolysis of the oxygen containing functional groups, resulting in a rapid thermal expansion of the material. Compared to GO, which has a severe mass reduction at 200 °C, CRGO displays a slight reduction in mass. It indicates that oxygen-containing functional groups still remain on the graphene sheets to a small extent after chemical reduction[10,12].

#### **D. SEM ANALYSIS**

Figure 5 and figure 6 shows the SEM photographs of graphite and GO, which clearly reflect the morphologies of graphite sheets before and after oxidation. The graphite presented a typical multilayer structure whereas the stacking graphitic sheets were separated from one another after oxidation



**Figure 5 SEM image of Graphite**



**Figure 6 SEM image of GO**



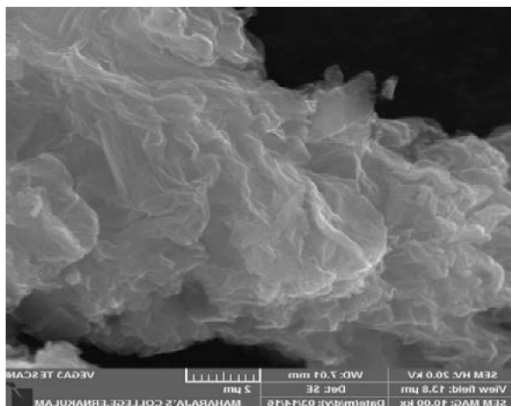


Figure 7 SEM image of CRGO

Figure 6 shows the random orientation and wavy appearance of GO. Figure 7 represents the higher magnification image of CRGO. It is notable in figure 7 that the chemically reduced graphene oxide exhibits a very small thickness having isolated layers. The formation of few layer graphene in some areas is also found.[13]

#### E. TEM ANALYSIS

TEM micrographs of GO and CRGO are shown in figure 8 (a) & 8(b)

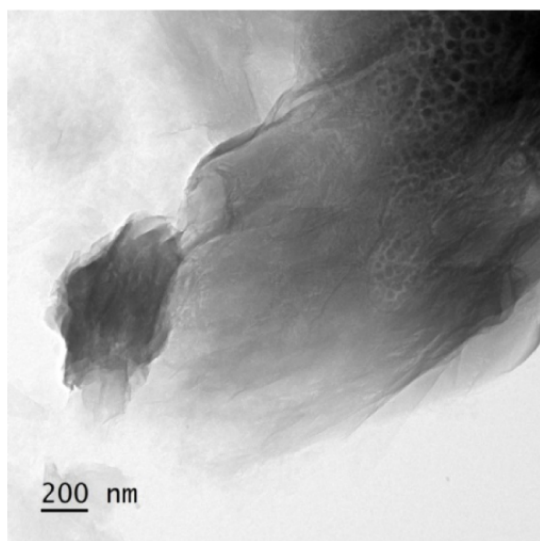


Figure 8(a) TEM image of GO

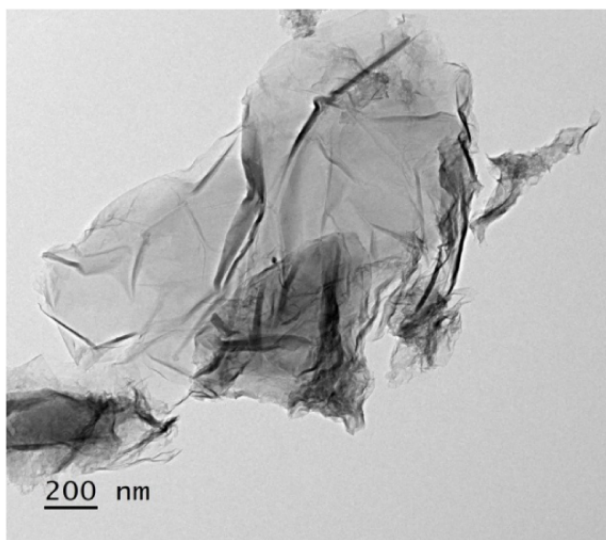


Figure 8(b) TEM image of CRGO

It is observed from TEM micrograph of figure 8 that the graphene obtained via chemical reduction has wrinkled surface and folds at the edges and has an irregular shape.[10]

## 2. STUDIES ON PANI-CRGO COMPOSITE

### A. XRD ANALYSIS

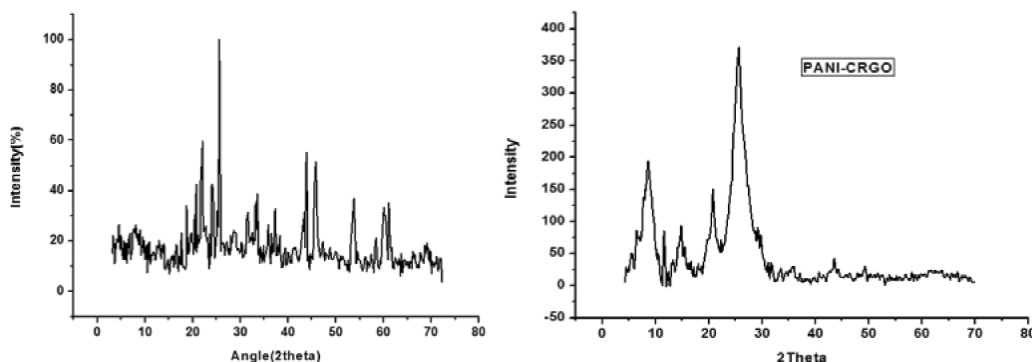


Figure 9(a). XRD spectrum of PANI

(b) PANI-CRGO composite

The structural information of PANI and its composite can be deduced from XRD of the samples. The composite shows a sharp crystalline peak of much higher intensity at  $25^\circ$  indicating the efficient formation of conductive PANI. The peak at  $25^\circ$  is characteristic of the degree of  $\delta$  conjugation in PANI. XRD patterns of PANI-CRGO composites are quite similar to the pattern of PANI [14]. The intensity of reflection corresponding to  $25^\circ$  was slightly enhanced by increasing the addition of CRGO.

### B. FTIR SPECTRA ANALYSIS

Figure 10 shows Fourier transform infrared spectroscopy spectra of PANI and PANI-CRGO composite (PG)

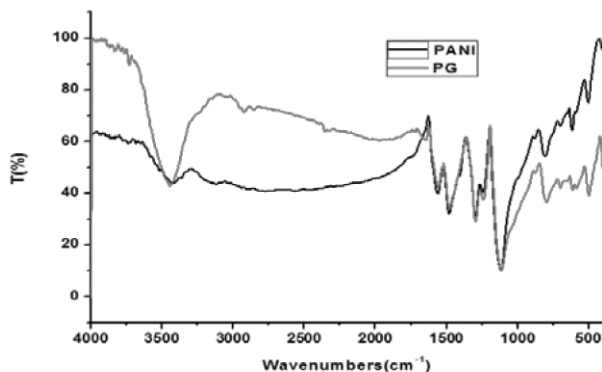
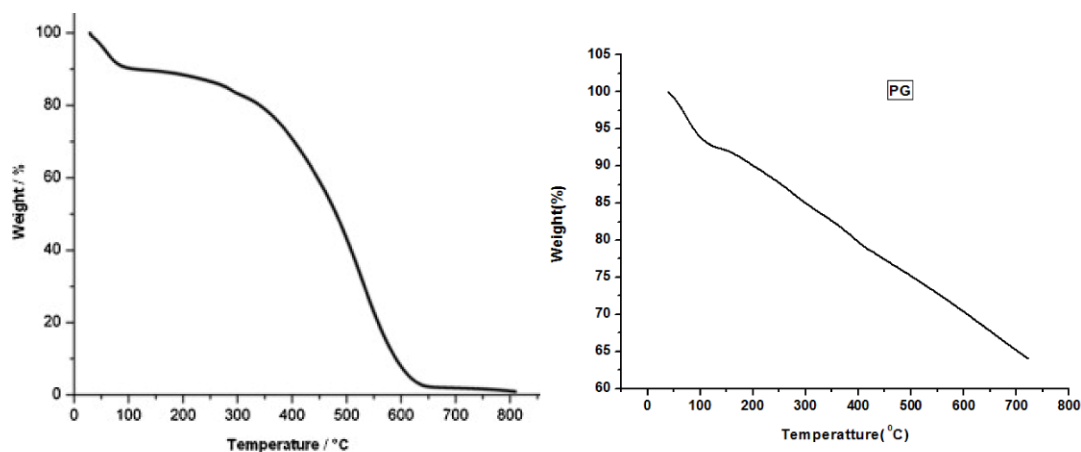


Figure 10. FTIR spectrum of PANI & PANI-CRGO composite

The two spectra resemble each other closely with only small shifts in absorption wave numbers. Both the spectra show all the characteristic vibrations of HCl doped PANI. [15]. The characteristic C=C vibrations of CRGO are more or less in the same frequency range as those in HCl doped PANI. For PANI, the absorption bands at 1570 and 1470  $\text{cm}^{-1}$  are assigned to the C=C stretching of quinonoid rings and benzene rings. The C-N stretching vibration of the secondary aromatic amine and aromatic C-H bending appeared on the characteristic bands at 1296 and 1110  $\text{cm}^{-1}$  respectively [16]. Also, these bands are observed in the spectrum of PG composite. The absorption band at 1570  $\text{cm}^{-1}$  is attributed to the skeletal vibration of the CRGO, which overlapped with the C=C stretching of quinone rings of PANI [17].

### C. TGA ANALYSIS

The TGA curves of pure PANI & PANI-CRGO composite are shown in figure 11(a) and (b).



**Figure 11. TGA of (a) PANI (b) TGA of PANI-CRGO composite**

Pure PANI shows a major weight loss in the temperature range of 400  $^{\circ}\text{C}$ -600  $^{\circ}\text{C}$ . The complete degradation of the polymer PANI happens at 800  $^{\circ}\text{C}$ . The major degradation starts at higher temperatures in the PANI-CRGO composite, compared to pure PANI. The thermal stability of PANI-CRGO composite was found to be higher compared to PANI. The major degradation started at relatively higher temperature for the composite compared to PANI. Also the weight retention value of the PANI-CRGO composite was also compared to PANI. Thus the TGA results indicate the superior thermal stability of PANI-CRGO composite compared to PANI.

#### D. SEM ANALYSIS

The morphology and structural properties of the composites were examined by scanning electron microscopy. SEM image of CRGO and PANI-CRGO composite are shown in figure 12 (a) and 12(b).

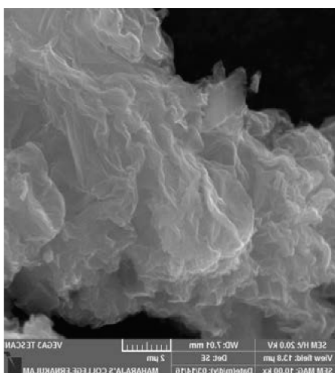
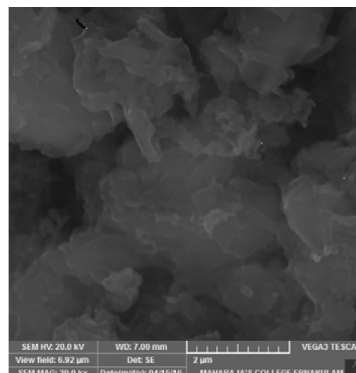


Figure 12(a) SEM image of CRGO



(b) SEM of PANI-CRGO composite

Transparent and wrinkled graphene sheets can be seen in the SEM image of CRGO. In the PANI-CRGO composite, the surface of the CRGO was coated by PANI. Due to the electrostatic attraction between PANI and the functional groups of CRGO, the PANI was coated on the surface of the CRGO [18].

#### E. D.C CONDUCTIVITY STUDIES

The conductivity of PANI, CRGO and the PANI-CRGO composite (PG) was measured according to the four-probe method. The D.C electrical conductivity of synthesized materials is shown in figure 13.

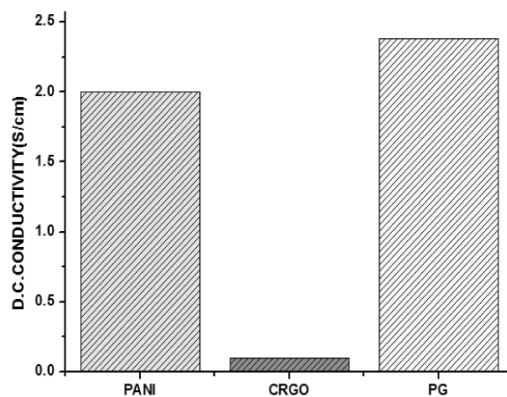


Figure 13. D.C. conductivity of PANI, CRGO and the PANI-CRGO composite (PG)

The results clarified that the electrical conductivity value of PANI-CRGO composite is greater than that of PANI and CRGO alone. The enhanced conductivity indicated the formation of conductive networks between the PANI conductive domains which facilitates charge delocalization leading to enhanced electrical conductivity of PANI. But this enhancement in conductivity is not appreciable as that of PANI-MWCNT composite. This may be due to the partial reduction of Graphene oxide. In contrast to pristine graphene, chemically reduced graphene still contains some oxygen containing groups on the sheet surface. The structure and electrical properties of reduced graphene oxide can be never fully restored to that of pristine graphene.[11]

#### IV CONCLUSION

Chemically reduced Graphene oxide (CRGO) is synthesised and characterized by FTIR, XRD, TGA, SEM and TEM measurements. PANI and PANI-CRGO composites are synthesized using chemical oxidative polymerization using HCl as dopant. The formation of the PANI and the composite is confirmed from the FTIR, XRD and SEM measurements. TGA results indicate the superior thermal stability of PANI-CRGO composite compared to PANI. The D.C. conductivity of the composite sample is found to be enhanced by the addition of CRGO.

#### REFERENCES

- [1] Terj A Skotheim, L Ronald, Elsenbamer, John R Reynolds, Handbook of Conducting Polymers, Marcel Dekker Newyork, 1998.
- [2] M Amrithesh, S Aravind, S Jayalekshmi, R S Jayasree, j. Alloys Compounds 2008; 532
- [3] Mildred Q, Ester V, Maurizio P. Acc Chem Res 2013; 46
- [4] Daniel RB, Erika GH, Ignacio MG. Macromolecules 2012; 45
- [5] Brodie BC. Annales des Chimie et des Physique 1860; 59: 466.
- [6] Staudenmaier L. Verfahren zur L, Graphitsaure DD, Deutschen BD, Gesellschaft C 1898; 31: 1481.
- [7] Hummers WS, Offeman RE. J Am Chem Soc 1958; 80: 1339.
- [8] Dorsa P, Sriya D, Ahmed THS, Fahmida I, Sanjoy B, Micah JG. ACS Nano 2012; 6
- [9] Chen Li, Songgang C, Kai L, Nanying N, Jian G, Qianfa L, et al. ACS Appl Mater Interfaces 2012; 4
- [10] Bindu Sharmila T.K., Ajalesh B. Nair, Beena T. Abraham, P.M. Sabura Beegum, Eby Thomas Thachil. Polymer, 2014; 1-14
- [11] Elsayed M. Elnaggar 1 • Khalid I. Kabel 2 • Ahmed A. Farag 2 • Abdalrhman G. Al-Gamal J Nanostruct Chem, 2017, 7: 75–83
- [12] Sasha Stankovich, Dmitriy A Dikin, Richard D Piner, Kevin A. Kohlhaas, Carbon letters, 45, 2007, 1558
- [13] Jieun Kim<sup>1</sup>, Soo-Jin Park and Seok Kim, Carbon Letters, Vol. 14, No. 1, 2013, 51-54
- [14] P. Noorunnisa Khanam, Deepalekshmi Ponnammam and M.A. AL-Madeed, Polymer and Composite Materials 2015, 26-47
- [15] Zhang LL, Zhou R, Zhao XS. J Mater Chem, 20, 2010, 5983.
- [16] Li G, Jiang L, Peng H. Macromolecules 2007, 7890
- [17] Li Y, Peng H, Li G, Chen K. Eur Polym J, 48, 2012, 1406
- [18] Yan J, Wei T, Shao B, Fan Z, Qian W, Zhang M, Wei F Carbon, 48, 2010, 487

# HANDLING OF FE BY INTESTINAL EPITHELIA OF CLIMBING PERCH (*ANABAS TESTUDINEUS*) KEPT IN Fe II IRON-RICH WATER

Dr. Jilna Alex N.\* & Dr. M.C. Subhash Peter\*\*

\*Assistant Professor, Department of Zoology, Little Flower College, Guruvayoor

\*\* Professor, Department of Zoology, University of Kerala

Iron is an essential nutrient with limited bioavailability which plays fundamental roles in cellular biochemistry and metabolism (De silvia *et al.*, 1996; Aisen *et al.*, 2001). Yet the properties that make iron a necessity also make it potentially deleterious. To avoid harm, iron homeostasis is a necessity and the intestinal epithelial cells are in the unique position of being simultaneously responsible for the regulation of body iron absorption and the regulation of intracellular iron levels to be viable (Nuenz and Tapia, 1999).

The Fe requirements have been reported for many fishes [(Gatlin and Wilson, 1986), (Lall and Hines, 1987) (Nose and Arai, 1979) (Sakamoto and Yone, 1978). Metal absorption and transfer along teleost intestine is complex and involves an integration of biochemical and biophysical process. In fish there are two potential sites for metal uptake, across the intestinal or branchial epithelium. Physiological evidences indicate that iron preferentially crosses the apical membrane of both gills and intestine in the [Fe (II)] state (Bury *et al.*, 2001). Transfer of iron in intestine takes place actively that is, against a concentration and potential gradients, from mucosa to serosa. The active transfer involves two steps – mucosal uptake and net transfer to serosal surface. Both divalent and trivalent Fe are taken up at the mucosal surface, but net transfer to the serosal surface is relatively specific for divalent iron (Frazer and Anderson, 2003).

The bioavailability of iron to unicellular organisms in freshwater is far greater than that of seawater, and in the open oceans iron is the limiting nutrient of primary productivity (Martin *et al.*, 1991). In freshwater the oxidation rate of  $\text{Fe}^{2+}$  is considerably slower (hours) than in seawater (minutes) (Gunnars *et al.*, 2002) and in these oxic conditions iron is predominantly found as colloidal hydrous iron oxides that are not biologically available (Stumm and Morgan, 1996; Lienemann *et al.*, 1999). However, in these hostile conditions, the marine fish must have developed specialized mechanisms to maintain metal bioavailability and ionic metal transport.

The present study analyzed the mechanism of iron acquisition by teleost intestine of both freshwater-adapted and dilute seawater-acclimated fish supplemented Fe either through diet or water. We measured  $\text{Na}^+/\text{K}^+$ -ATPase activity and tissue mineral status and tested whether dynamics of Na/K gradient has any influence on the iron absorption.

## MATERIALS AND METHODS

As a major site for mineral uptake and transport, the intestinal tissue of climbing perch (*Anabas testudineus* Bloch) were analyzed for identifying the mechanism of absorption of [Fe (II)] iron.

**Animals** – Healthy adult *Anabas testudineus*, comprising both sexes ( $40 \pm 5$  g body mass) were collected and acclimated in tap water at  $28 \pm 1^\circ\text{C}$  under natural photoperiod (12 L: 12 D) for three weeks. The fish used in this study was either adapted to freshwater (FW) or acclimated to dilute seawater (20 ppt; SW). They were fed with fish feed at a ration of 1.5% of body mass per day.

**Experimental protocols** – Two sets of experiments were carried out. The first experiment tested the handling of Fe(III) iron in FW fish and the second experiment analyzed its effect in SW fish.

**Freshwater experiment** – In this experiment, twenty-four fish were divided into four groups of six each. Group I fish served as control. The fish in groups II and III were exposed to 3.59 and 35.9  $\mu\text{M}$  of water-borne Fe (II) iron ( $\text{FeSO}_4 \cdot 7\text{H}_2\text{O}$ , SRL) respectively for 7 days. The group IV fish were exposed to 35.9  $\mu\text{M}$  Fe(II) iron for 7 days and then kept in freshwater for 96 h recovery.

**Salinity challenge** – This experiment analyzed the effect of Fe (II) iron in osmotically challenged fish. Fish were divided into five groups of six each. Artificial seawater of 20 ppt salinity was prepared by dissolving natural sea salt. Consequently, fish groups II, III, IV and V were transferred to this salinity after keeping at 5, 10 and 15 ppt for over 12 h at each stage. Group I and II served as freshwater and seawater controls respectively. The seawater-acclimated fish of groups III and IV were treated with 3.59 and 35.9  $\mu\text{M}$  Fe(II) iron respectively for 7 days. The group V fish were first treated with 35.9  $\mu\text{M}$  Fe(II) for 7 days and later kept in 20 ppt seawater for 96 h recovery.

**Sampling and Analysis** – The food was withdrawn for 24 h prior to sampling to ensure optimum experimental conditions. The fish were anaesthetized in 0.1% 2-phenoxyethanol (SRL, Mumbai) and blood was taken from the caudal vessels using a heparinised syringe. Heparinised blood was centrifuged at 5000 g for 5 min at  $4^\circ\text{C}$  to separate the plasma and stored at  $-20^\circ\text{C}$  until analysis. The fish were then sacrificed by spinal transsection and pieces of anterior intestine close to the stomach were excised and stored at ice-cold 0.25 M SEI buffer (pH 7.1) and stored at  $-20^\circ\text{C}$ .

**$\text{Na}^+$ ,  $\text{K}^+$ -ATPase Specific Activity** – The ouabain-sensitive  $\text{Na}^+$ ,  $\text{K}^+$  dependent adenosine triphosphatase ( $\text{Na}^+$ ,  $\text{K}^+$ -ATPase, E.C. 3.6.3.9) specific activity was measured in tissue homogenates as described elsewhere<sup>16,17</sup>. Saponin (0.2 mg.mg<sup>-1</sup> protein) was routinely added to optimize substrate accessibility. About 100 mg of intestinal tissues were homogenized in 2 ml of 0.25 M SEI buffer (pH 7.1) and centrifuged at 700 g for 10 min. The supernatant obtained was used to measure the

specific activity of  $\text{Na}^+$ ,  $\text{K}^+$  ATPase and 10  $\mu\text{l}$  samples was added to all test tubes containing ATP mixture with or without ouabain (Sigma, St. Louis). Homogenated samples were incubated for 15 min at  $37^\circ\text{C}$  in a medium containing 100  $\text{mmol. L}^{-1}$   $\text{NaCl}$ , 30  $\text{mmol. L}^{-1}$  imidazole, pH 7.4, 0.1  $\text{mmol. L}^{-1}$  EDTA, 5  $\text{mmol. L}^{-1}$   $\text{MgCl}_2$  and either 15  $\text{mmol. L}^{-1}$   $\text{KCl}$  (Medium A) or 1  $\text{mmol. L}^{-1}$  ouabain (medium E).  $\text{Na}_2\text{ATP}$  was added to a final concentration of 3  $\text{mmol. L}^{-1}$ . The reaction was stopped by adding 1.5 ml of an ice-cold 8.6% TCA solution. Liberated inorganic phosphate,  $\text{P}_i$ , was quantified spectrophotometrically (Systronics 2202, New Delhi). The specific activity of  $\text{Na}^+$ ,  $\text{K}^+$ -ATPase was defined as the difference between the release of  $\text{P}_i$  in medium A and in medium E, and was expressed as  $\mu\text{mol. P}_i \text{ h. mg protein}^{-2}$ .

*Tissue Ions (Na and K)* – The Na and K levels in the tissues were estimated flame photometrically. The tissues were digested in 65%  $\text{HNO}_3$  and kept at  $60^\circ\text{C}$  overnight. Ions were measured by aspirating the sample using flame in a Systronics Flame Photometer 129 (New Delhi) using known standards (Remedix diagnostics, Palakkad) and values are expressed as  $\mu\text{g/g}$  body weight.

*Total Iron Content* – The total iron ( $\text{Fe}^{2+}$  and  $\text{Fe}^{3+}$ ) content in the intestine were estimated using Iron-Nitro-Paps kit (Centronic, GmbH, Germany) and the values were expressed as  $\mu\text{g/g}$ .

*Statistical analysis* – Before statistical analyses, the data were checked for normal distribution and variance homogeneity. Two-way analysis of variance, (ANOVA) followed by Student-Newman-Keul's test were employed to test the significant difference between the treatment groups using Instat-3 Software (GraphPad Software Inc., San Diego, California). Significant difference between groups was accepted if  $P < 0.05$  and the values are in mean  $\pm$  SEM ( $n = 6$ ).

## Results

### *In vivo* experiment with Fe(II) iron for 7 days

*FW and SW  $\text{Na}^+$ ,  $\text{K}^+$ -ATPase* – The intestinal  $\text{Na}^+$ ,  $\text{K}^+$ -ATPase specific activity of FW fish exhibited a significant ( $P < 0.01$ ) increase when exposed to  $3.59 \mu\text{M}$  Fe(II) iron, (Fig: 1.A) whereas the high dose ( $35.9 \mu\text{M}$ ) produces significant ( $P < 0.05$ ) decrease in its activity in the seawater-acclimated fish (Fig: 1.B). A further decline in the  $\text{Na}^+$ ,  $\text{K}^+$ -ATPase activity ( $P < 0.05$ ) was observed in the seawater-acclimated fish (Fig: 1.B) kept for 96 h recovery whereas recovery did not have an effect on freshwater fish (Fig: 1.A).



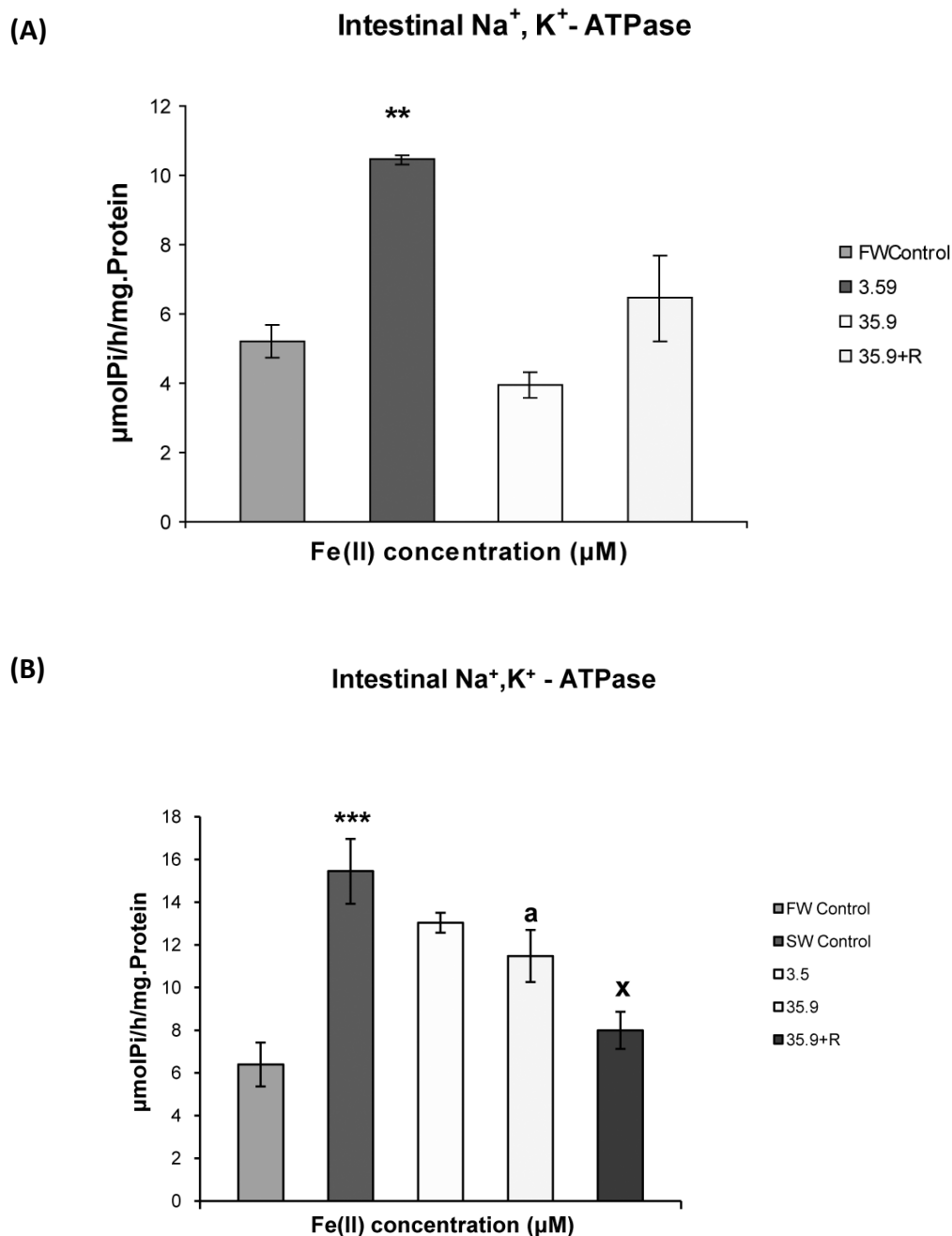


Fig 1:  $\text{Na}^+$ ,  $\text{K}^+$ -ATPase activity in the intestine of freshwater-adapted (FW) (A) and dilute seawater-acclimated (20ppt;SW) (B) *A. testudineus* following exposure to Fe(II) as  $\text{FeSO}_4$  for 7 days with or without 96 h recovery (R). Each column represents mean  $\pm$  SEM for six fish. \*\*  $P < 0.01$ , \*\*\*  $P < 0.001$ , compared to FW control; a:  $P < 0.05$ , compared to SW control; x:  $P < 0.05$ , compared to 35.9  $\mu\text{M}$  Fe(II)-treated group.

Table 1.1 Levels of Na and K (ig/g) in the intestine of freshwater-adapted (FW) *A. testudineus* following exposure to Fe(II) as FeSO<sub>4</sub> for 7 days with or without 96 h recovery (R).

Status	Control	3.5 µM Fe(II)	35.9 µM Fe(II)	35.9 µM Fe(II) + R
Na	0.73 ± 0.09	0.82 ± 0.03	1.09 ± 0.03*	0.84 ± 0.09 <sup>a</sup>
K	0.21 ± 0.08	0.39 ± 0.08	0.24 ± 0.05	0.17 ± 0.02

Values are mean ± SEM for six fish. \*  $P < 0.05$ , compared to FW control; a:  $P < 0.05$ , compared to 35.9 µM Fe(II) treated group

Table 1.2 Levels of Na and K (ig/g) in the intestine of dilute seawater-acclimated (20ppt; SW) *A. testudineus* following exposure to Fe(II) as FeSO<sub>4</sub> for 7 days with or without 96 h recovery (R).

Status	FW Control	SW Control	3.5 µM Fe(II)	35.9 µM Fe(II)	35.9µM Fe(II)+ R
Na	0.42 ± 0.049	0.40 ± 0.041	0.53 ± 0.121	0.38 ± 0.023	0.50 ± 0.072
K	0.07 ± 0.001	0.08 ± 0.001	0.07 ± 0.004	0.07 ± 0.001	0.13 ± 0.017 <sup>y</sup>

Values are mean ± SEM for six fish. y:  $P < 0.01$ , compared to 35.9 iM Fe(II)-treated group.

Table 1.3 Levels of Fe (ig/g) in the intestine of freshwater-adapted and dilute seawater-acclimated (20ppt; SW) *A. testudineus* following exposure to Fe(II) as FeSO<sub>4</sub> for 7 days with or without 96 h recovery (R).

Status	Control	3.5 µM Fe(II)	35.9 µM Fe(II)	35.9 µM Fe(II) + R
FW fish	167.49 ± 2.49	193.79 ± 13.61	172.14 ± 13.46	218.92 ± 10.13
SW fish	53.38 ± 9.11	162.94 ± 26.35**	108.20 ± 16.14	63.58 ± 11.96

Values are mean ± SEM for six fish. \*\*  $P < 0.01$ , compared to control

## Discussion

The present study is aimed at identifying the strategy for water-borne Fe handling in the intestine of climbing perch. Evidences are presented to show the relation between Fe absorption and cellular Na/K gradient. Furthermore, it demonstrated that the accumulation of water-borne iron in the intestine of freshwater-adapted (FW) fish is less dependent on the specific activity of the energy-driven enzyme,  $\text{Na}^+$ ,  $\text{K}^+$ -ATPase, but its accumulation in the SA fish intestine depends upon a downregulated  $\text{Na}^+$ ,  $\text{K}^+$ -ATPase activity.

In fishes,  $\text{Na}^+$ ,  $\text{K}^+$ -ATPase is responsible for the maintenance of Na/K gradients across epithelial membranes and is an index of ionoregulation representing the sodium pump in fish. A significant increase in the  $\text{Na}^+$ ,  $\text{K}^+$ -ATPase activity observed at a concentration of  $3.59 \mu\text{M}$  Fe(II) iron-treated FW fish appeared to be reversed in the SA fish which showed a reduced activity at a high dose ( $35.9 \mu\text{M}$ ) of Fe(II) iron. Though a substantial increase in the  $\text{Na}^+$ ,  $\text{K}^+$ -ATPase activity was noticed at a low dose of Fe(II) in FW fish, no changes were observed in the level of Na, K or total Fe in the intestine. The increased  $\text{Na}^+$ ,  $\text{K}^+$ -ATPase activity may be due to the increased concentration of Na inside the cell which might have inhibited the absorption and accumulation of Fe. The study showed a significant increase in the level of intestinal Na at a high dose of water-borne Fe(II), which gets reversed on recovery in freshwater where the  $\text{Na}^+$ ,  $\text{K}^+$ -ATPase activity and total Fe level tend to increase but not significantly. This indicates that an increase in the cellular Na level may reduce the chance of Fe accumulation by the intestine of FW fish. We, therefore, assume that the Fe accumulation by the intestine of FW fish depends on a particular Na/K gradient.

Ambient salinity significantly increased the intestinal total Fe on exposure to a low dose of water-borne Fe (II) iron. The lack of significant accumulation at higher concentration may be due to the limiting factors that prevent excess accumulation of iron. A reduction in absorption was implemented following evidence that excess iron may be toxic (Salte *et al.*, 1994). The unnoticeable changes in the Na content and remarkable reductions in the intestinal  $\text{Na}^+$ ,  $\text{K}^+$ -ATPase activity recorded in face of ambient salinity exemplify a lowered Na/K gradient in this tissue which may not favour water-borne Fe (II) absorption. Absorption of iron under these conditions probably is enhanced by the gills. During recovery, a significant increase in the intestinal K was observed that may account for a further decrease in the  $\text{Na}^+$ ,  $\text{K}^+$ -ATPase activity. Thus a differential regulation of  $\text{Na}^+$ ,  $\text{K}^+$ -ATPase activity and Fe accumulation in FW and SW fish has been demonstrated.

The differential regulation of  $\text{Na}^+$ ,  $\text{K}^+$ -ATPase activity and subsequent Fe absorption in FW and dilute SW fish may be due to the difference in physiochemical characteristics of the

freshwater and marine water (Gunnar *et al.*, 2002). Marine fish imbibe vast quantities of SW to compensate for the osmotic loss of water across their integument. Water is absorbed along the whole length of the marine fish intestine, through a NaCl-coupled fluid absorption (Loretz, 1995). The movement of water from the lumen results in an increase in concentrations of divalent cations as the fluid moves down the intestinal tract (Wilson, 1999; Grosell *et al.*, 2001; Wilson *et al.*, 2002). Perhaps for this reason, marine fish intestine secrete large quantities of bicarbonate that forms a white precipitate with divalent ions (Walsh *et al.*, 1991). It could potentially cause problems for the intestinal divalent metal uptake.  $\text{HCO}_3^-$  limits the bioavailability of water-borne  $\text{Fe}^{2+}$ , via formation of Fe carbonates and as a consequence the lumen is alkaline, which would result in a proton gradient incapable of providing the driving force for  $\text{Fe}^{2+}$  uptake via a homologue of DMT i.e., a  $\text{Fe}^{2+}/\text{H}^+$  symporter. The marine fish must have developed specialized mechanisms to maintain metal bioavailability and ionic metal transport in these hostile conditions. Gastric and intestinal mucins and mucous layer covering the intestinal wall probably play a pivotal role in metal availability and uptake (Whitehead *et al.*, 1996; Powell, *et al.*, 1999). Specifically the layer of mucus acts as a buffer between the lumen fluids and the tissues, generating a pH gradient with mildly acidic conditions close to the tissue, which aids metal mucus dissociation and proton co-transport (Whitehead *et al.*, 1996).

Our data provide evidence that when Fe is added to water gills act as a route for its absorption and intestine contributes to the iron homeostasis by regulating its cellular Na/K gradient as has been evident in the differential regulation of  $\text{Na}^+$ ,  $\text{K}^+$ -ATPase activity by the ambient salinity. The results also indicate that the climbing perch, *Anabas testudineus* would be a good model to study the physiological mechanism of Fe handling.

## References

- De Silvia, D. M., Askwith, C. C. and Kaplan, J. (1996). Molecular mechanism of iron uptake in eukaryotes. *Physiol. Rev.* 76, 31-47.
- Aisen, P., Enns, C. and Wessling – Resnick, M. (2001). Chemistry and biology of eukaryotic iron metabolism. *Int. J. Biochem. Cell Biol.* 33, 940-959.
- Nunez, M. T. and Tapia, V. (1999). Transferrin stimulates iron absorption, exocytosis, and secretion in cultured intestinal cells. *Am. J. Physiol. Cell Physiol.* 276: C1085-C1090.

Gatlin, D. M. and Wilson, R. P. (1986). Characterization of iron deficiency and the dietary iron requirement of fingerling channel cat fish. *Aqua culture* 52:191-198.

Lall, S. P. and Hines, J. A. (1987). Iron and copper requirement of Atlantic salmon (*Salmo salar*) grown in seawater. Paper presented at the International Symposium on Feeding and Nutrition of Fish, Bergen, Norway, August 23-27.

Nose, T. and Arai, S. (1979). Summary on amino acid requirements of carp. *In: Fin fish Nutrition and Fish feed Technology*, Halver, J. E. and Tiews, K. (Eds), Heenemann GmbH, Berlin, pp. 145-156.

Sakamoto, S. and Yone, Y. (1978). Requirement of red sea bream for dietary iron. II. *Bull. Jpn. Soc. Sci. Fish.* 44: 223-225.

Bury, N. R., Grosell, M., Wood, C. M., Hogstrand, C., Wilson, R. W., Rankin, J. C., Busk, M., Lecklin, T. and Jensen, F. B. (2001). Intestinal iron uptake in the European flounder (*Platichthys flesus*) *J. Exp. Biol.* 204: 3779-3787.

Frazer, D. M. and Anderson, G. J. (2003). The orchestration of body iron intake: how and where do enterocytes receive their cues? *Blood Cells Mol. Dis.* 30(3): 228-297.

Martin, J. H., Gordon, R. M. and Fitzwater, S. E. (1991). The case for iron. *Limnol. Oceanogr.* 36: 1793-1802.

Gunnars, A., Blomqvist, S., Johansson, D. and Andersen, C. (2002). Formation of Fe(III) oxyhydroxide colloids in freshwater and brackish seawater, with incorporation of phosphate and calcium. *Geochim. Cosmochim. Acta* 66: 745-758.

Stumm, W. and Morgan, J. J. (1996). *Aquatic Chemistry: chemical equilibria and rates in natural waters*. 3<sup>rd</sup> ed. John Wiley and Sons, Ltd., Chichester, UK. pp. 45–102.

Lienemann, C. P., Monnerat, M., Dominik, J. and Perret, D. (1999). Identification of stoichiometric iron-phosphate colloid produced in a eutrophic lake. *Aquat. Sci.* 61: 133-149.

Verbost P M, Schoenmakers T J M, Flik G & Wendelaar Bonga S E, Kinetics of ATP and Na<sup>+</sup> gradient driven Ca<sup>2+</sup> transport in basolateral membranes from gills of freshwater and seawater adapted tilapia, *J Exp Biol*, 186 (1994) 95.

- Peter, M. C. S., Lock, R. A. C. and Wendelaar Bonga, S. E. (2000). Evidence for an osmoregulatory role of thyroid hormones in the freshwater Mozambique tilapia, *Oreochromis mossambicus*. *Gen.Com.Endocrinol.* 120: 157-167.
- Salte, R., Rorvik, K. A., Reed, E. and Nordberg, K. (1994). Winter ulcers of the skin in atlantic salmon, *Salmo salar* L., pathogenesis and possible aetiology. *J. Fish. Dis.* 17: 661-665.
- Loretz, C. A. (1995). Electro physiology of ion transport in teleost intestinal cells: Cellular and Molecular Approaches to Fish Ionic Regulation *In: Fish Physiology*, Vol. 14, Wood, C. M. and Shuttleworth, T. J. (Eds), San Diego; Academic press, pp. 25-56.
- Wilson, R. W. (1999). A novel role for the gut of seawater teleosts in acid-base balance. *In: Regulation of tissue pH in plants and animals*. Egginton, S., Taylor, E. W. and Raven, J. A (Eds), Cambridge University Press, Cambridge, pp:287-274.
- Grosell, M., Laliberte, C. N. and Wood, C. M. (2001). Intestinal  $\text{HCO}_3^-$  secretion in marine teleost fish: evidence for an apical rather than a basolateral  $\text{Cl}^-/\text{HCO}_3^-$ -exchanger. *Fish Physiol. Biochem.* 24: 81-95.
- Wilson, R. W., Wilson, J. M. and Grosell, M. (2002) Intestinal bicarbonate secretion by marine teleost fish – Why and How? *Biochim. Biophys. Acta* 1566: 182-193.
- Walsh, P. J., Blackwelder, P., Gill, K. A., Danulat, E. and Mommsen, T. P. (1991). Carbonite deposits in marine fish intestine-a new source of bio mineralization. *Limnol. Oceanogr.* 36:1227-1232.
- Whitehead, M. W., Thompson, R. P. H. and Powell, J. J. (1996). Regulation of metal absorption in the gastro intestinal tract. *Gut.* 39: 625-628.
- Powell, J. J., Jugdaohsingh, R. and Thompson, R. P. H. (1999). The regulation of mineral absorption in the gastro intestinal tract. *Proc. Nutr. Soc.* 58: 147-153.

# COMPARATIVE STUDY ON VITAMIN C CONTENT IN DIFFERENT SAMPLES OF FRUITS AND VEGETABLES AND KINETICS OF ITS THERMAL DEGRADATION

Lovely Jacob A., Department of Chemistry, L.F.College, Guruvayoor

\*Email: lovelyjacoba@yahoo.com

## INTRODUCTION

Vitamin C or L-ascorbic acid or L-ascorbate is an essential nutrient for humans and other animal species. In living organisms ascorbate acts as antioxidant by protecting the body against oxidative stress. Vitamin C is mainly used for tissue growth and repair, skin and bone maintenance. Excess amount of Vitamin C cause to gastric irritation, taste deterioration and renal problems due to the action of the vitamin's metabolic action(oxalic acid). Vitamin C cannot synthesize by the body, so it is necessary to intake through diet. The studies carried out by Henry Borsook, Horace *et al.* exposed the antioxidant properties of Vitamin C. Ascorbic acid is known to be thermolabile. To date several authors have studied its thermal degradation Kinetics in citric juices under pasteurization conditions. Studies on the rate of AA degradation greatly contributed to a better knowledge of the behavior Of ascorbic acid in different systems during Storage. One of the common methods to determine Vitamin C quantities in food is a redox titration determination.

## MATERIALS AND METHODS

### DETERMINATION OF VITAMIN C IN DIFFERENT SAMPLES

The fruit or vegetable cut into pieces then grinded well using a mortar. It is filtered. 10ml is pipette out into a clean conical flask then 20 ml of distilled water is added. 2ml starch indicator is added. It is then titrated against standard iodine solution. Endpoint is the appearance of blue colour. Titration are repeated to get concordant values. From the titre value, the Vitamin C content per 10 ml of sample can be determined by equation  $N_{AA} = N_I \cdot V_I / V_{AA}$ ; Where  $N_{AA}$  normality of AA in the sample,  $N_I$  normality of iodine solution,  $V_I$  volume of iodine,  $V_{AA}$  volume of AA; Mass of AA per Litre =  $N_{AA} \cdot \text{equivalent mass} = N_{AA} \cdot 88.06$ . Therefore 1 ml 1N iodine solution oxidizes 88.06 mg AA in 10 ml of the sample.

### DETERMINATION OF KINETIC AND ARRHENIUS PARAMETERS OF THERMAL DEGRADATION OF VITAMIN C

Thermal degradation kinetics of ascorbic acid was studied by heating isothermally at 70°C, 80°C and 90°C temperatures respectively. 10 ml of samples of both lemon juice and standard

ascorbic acid solution (having same concentration as the lemon juice )were taken in sealed conical flasks and heated by placing them in hot air oven. After regular intervals of 15 minutes, the flasks were taken out and rapidly cooled by plunging into ice cold water and analyzed for ascorbic acid content by titrimetric method using iodine solution.

## DETERMINATION OF BEST COOKING METHOD

Prepare lemon juice and pipette 10 ml of it into a clean conical flask and closed with cork and it is then place for boiling, steaming and ovening .It is then cooled. Then 20 ml of distilled water is added. 2ml starch indicator is added. It is then titrated against standard iodine solution. Endpoint is the appearance of blue colour .Titration are repeated to get concordant values

## DETERMINATION OF ACIDIC STRENGTH OF DIFFERENT SAMPLES

Take 10 ml of different samples in beaker and pH can determined with the help of electronic pH meter. The same procedure is repeated with the heated samples. Take 10 ml of different samples in beaker and pH can determined with the help of electronic pH meter. The same procedure is repeated with the heated samples.

## RESULTS AND CONCLUSIONS

The Vitamin C content in various samples in fruits ,vegetables and soft drinks having artificial fruit flavors are recorded in the following tables 1.1,1.2,1.3.

**Table 1.1 Vitamin C in different fruits**

Sample	Vol. of sample pipetted in (ml)	Iodine solution required (ml)	Vitamin C in mg /10ml juice
Guava	10	25.3	212.7019
Papaya	10	6.3	55.1449
Lemon	10	5.8	50.7683
Orange	10	5	48.1424
Pineapple	10	5	43.7658
Mango	10	2	19.2569
Watermelon	10	0.9	7.8778
Apple	10	0.6	5.2519
Grapes	10	0.4	3.5013



**Table 1.2 Vitamin C in different vegetables**

Sample	Vol. of sample pippettred in (ml)	Iodine solution required (ml)	Vitamin C in mg /10ml juice
Broccoli	10	10.3	90.1576
Bitter guard	10	6.2	54.2721
Tomato	10	2.5	21.8829
Potato	10	2.2	19.2569
Carrot	10	0.7	6.1272
Cucumber	10	0.3	2.6259
Brinjal	10	0.2	1.7506

**Table 1.3 Vitamin C in different fruit flavors**

Sample	Vol. of sample pippettred in (ml)	Iodine solution required (ml)	Vitamin C in mg /10ml juice
Lemon( rasna )	10	0.5	4.1564
Lemon(mountain drops)	10	0.4	3.5013
Pineapple(mountain drops)	10	0.1	0.8752
Pineapple(rasna)	10	0.1	0.8752
Mango fruity	10	0.2	2.6226

**TABLE 1.4 Comparison between fruits and their artificial fruit flavors**

Sample	FRUIT	FRUIT FLAVORS
Lemon	50.7683	Mountain drops-3.5013
		Rasna-4.1564
Pineapple	43.7658	Mountain drops-0.8753
		Rasna-0.8753
Mango	19.2569	2.6223
Apple	5.2519	1.7506

The tables 1.1, 1.2, 1.3 shows that the different samples of raw fruits and vegetables contains different amount of Vitamin C. And it confirms that artificial fruit flavors contain lesser amount of Vitamin C compared to that fruit.

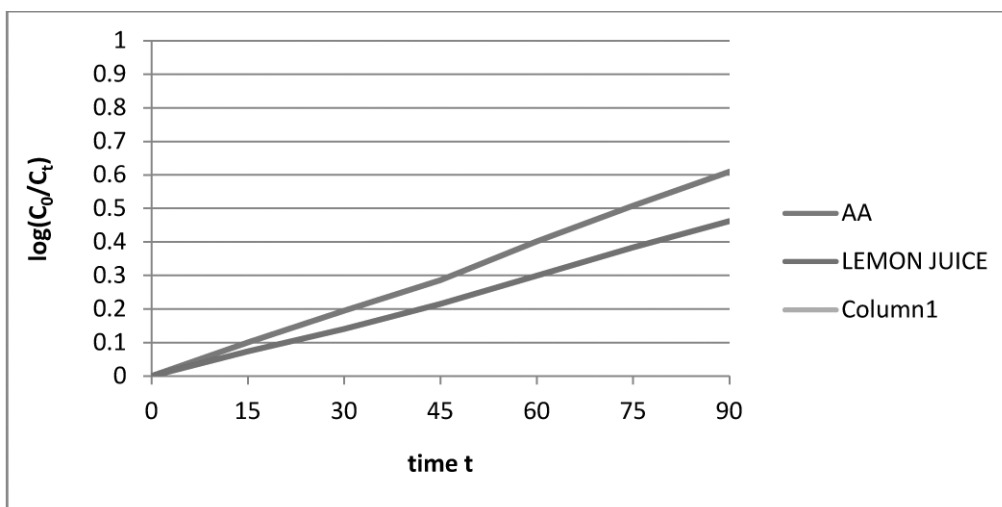
The table 2.4 gives the variation in Vitamin C content in sample and reference solution with respect to the increase in temperature and time of temperature treatment.

**Table 2.1**                      **Temperature treatment**

Time (min)	Temperature( <sup>0</sup> C )					
	70		80		90	
	Lemon juice	Standard ascorbic acid	Lemon juice	Standard ascorbic acid	Lemon juice	Standard ascorbic acid
15	42.8906	40.3174	40.3174	36.7614	38.5205	34.1423
30	36.7614	32.3886	32.3836	25.3859	28.0151	23.6316
45	30.9523	26.2599	26.2599	17.5062	20.1323	16.6300
60	25.4561	20.1323	20.1323	12.2544	14.0053	11.3056
75	21.0084	15.7577	15.7577	8.7537	9.6292	7.8776
90	17.5062	12.4710	12.4710	6.1276	7.0031	5.2516

Table 2.1 confirms that there occurs a decrease in Vitamin C content with the increase in temperature and increase in time of temperature treatment.

The figure 2.1, 2.2, 2.3 explains the kinetics of thermal degradation of lemon juice and standard ascorbic acid solution at 70<sup>0</sup>C,80<sup>0</sup>C,90<sup>0</sup>C temperatures respectively.



**Figure 2.1** Kinetics of thermal degradation of ascorbic acid content of Lemon juice and standard ascorbic acid solution at 70<sup>0</sup>C

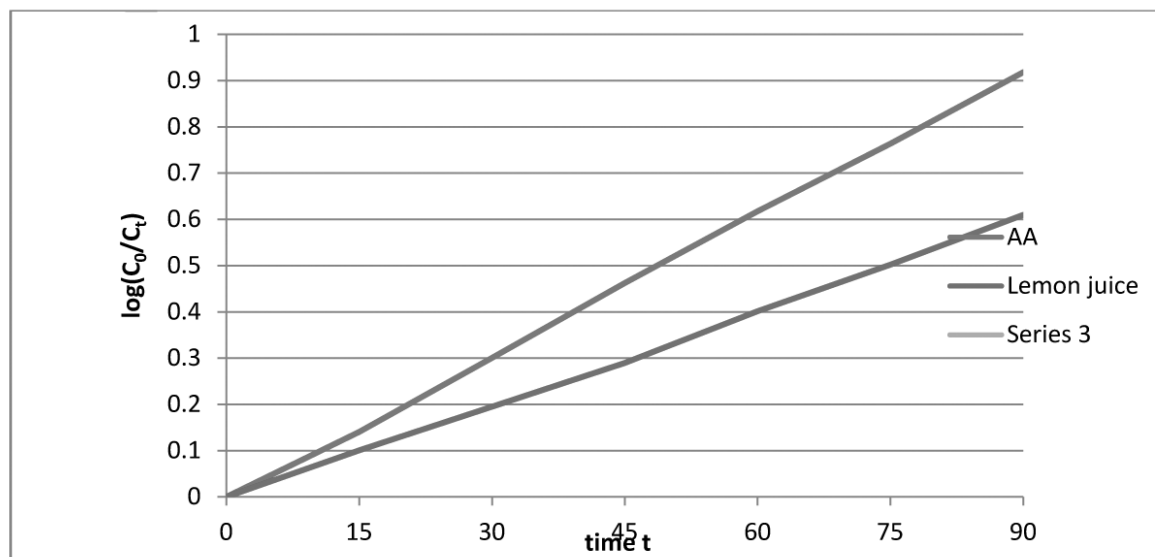
$$\text{Slope of graph for AA} = 7.6933 \cdot 10^{-3}$$

$$\text{Slope} = k/2.303$$

$$\text{Rate constant } k \text{ of AA} = 17.1767 \cdot 10^{-3} \text{ min}^{-1}$$

$$\text{Slope of graph for juice} = 5.66 \cdot 10^{-3}$$

$$\text{Rate constant } k \text{ of juice} = 13.0349 \cdot 10^{-3} \text{ min}^{-1}$$



**Figure 2.2 Kinetics of thermal degradation of ascorbic acid content of Lemon juice and standard ascorbic acid solution at 80°C**

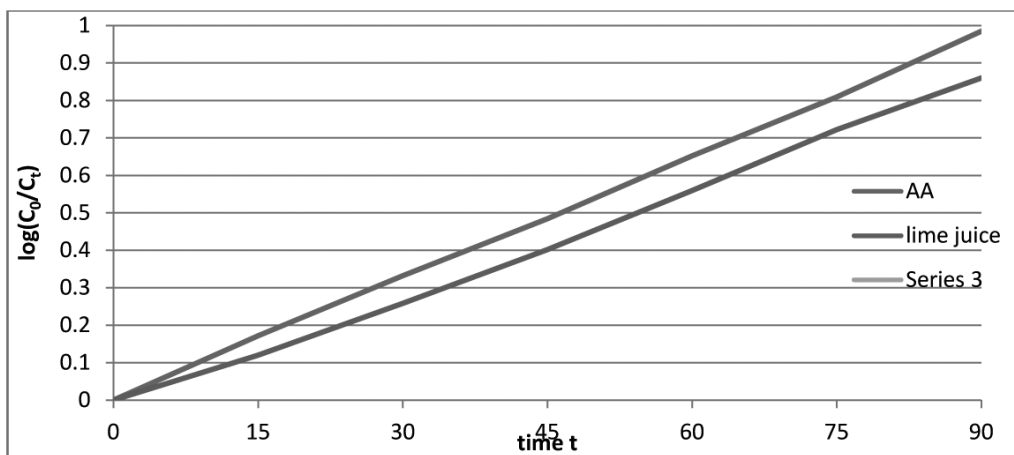
$$\text{Slope of the graph for AA} = 10.3267 \cdot 10^{-3}$$

$$\text{Slope} = k/2.303$$

$$\text{Rate constant } k = 23.7823 \cdot 10^{-3} \text{ min}^{-1}$$

$$\text{Slope of the graph for juice} = 7.4933 \cdot 10^{-3}$$

$$\text{Rate constant } k = 17.2747 \cdot 10^{-3} \text{ min}^{-1}$$



**Figure 2.3 Kinetics of thermal degradation of ascorbic acid content of Lemon juice and standard ascorbic acid solution at 90°C**

$$\text{Slope of the graph for AA} = 11.18 \times 10^{-3}$$

$$\text{Rate constant } k = 25.7475 \times 10^{-3} \text{ min}^{-1}$$

$$\text{Slope of the graph for juice} = 24.19 \times 10^{-3}$$

$$\text{Rate constant } k = 10.5067 \times 10^{-3} \text{ min}^{-1}$$

The plots of  $\log(c_0/c_t)$  versus  $t$  for both standard ascorbic acid and lemon juice thermal degradation of Vitamin C contents (figures 2.1, 2.2, 2.3) confirms that it follows a first order kinetics at all the temperatures. The rate constant  $k$  can be calculated from the slope of the straight line obtained. And also the  $T_{1/2}$ , the required for standard AA solution and lemon juice to degrade 50% of its original value calculated from the rate constant as  $0.693/k$ .

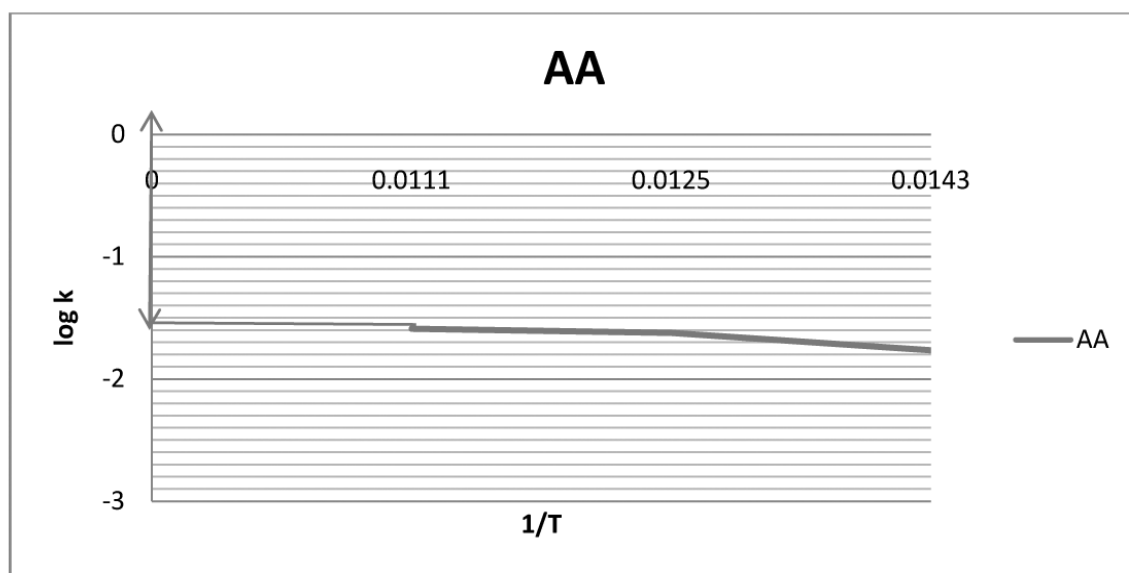
The table 2.2 represents the rate constants and half lives of AA in lemon juice and pure ascorbic acid solutions at different temperatures.

**Table 2.2 Kinetic parameters**

Temperature( <sup>0</sup> C)	Rate constant $k$ (min <sup>-1</sup> )		Half life $T_{1/2}$ (min)	
	AA	LEMON JUICE	AA	LEMON JUICE
70	$17.1767 \times 10^{-3}$	$13.0319 \times 10^{-3}$	40.34	53.18
80	$23.7824 \times 10^{-3}$	$17.2747 \times 10^{-3}$	29.14	40.12
90	$25.7475 \times 10^{-3}$	$24.1969 \times 10^{-3}$	26.9	28.64

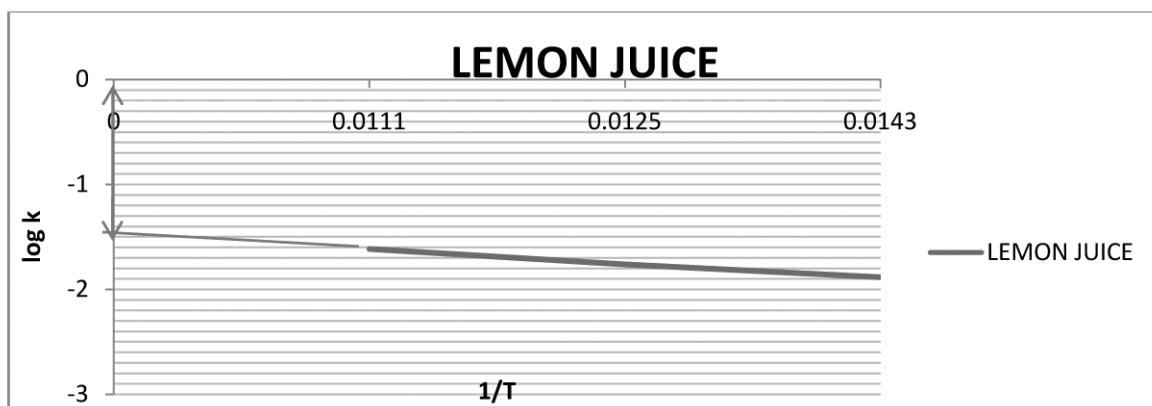
The rate constant for AA degradation in juice increased from  $17.1767 \times 10^{-3} \text{ min}^{-1}$  (for  $70^{\circ}\text{C}$ ) to  $25.7475 \times 10^{-3} \text{ min}^{-1}$  (for  $90^{\circ}\text{C}$ ) and half life decreased from 40.34 min to 26.9 min as the temperature increased from 70 to  $90^{\circ}\text{C}$ . A similar trend was observed with pure Vitamin C solutions. The effect of heat treatment on the concentration of AA in lemon juice and standard solution for different time periods shows that degradation of AA increased with the increase of temperature, but the degradation had been slower in juice as compared with pure AA solutions. This was probably due to the presence of various phytochemicals in juice and their synergistic effect, which helped in the slower degradation of Vitamin C.

The figure 2.4, 2.5 represents the Arrhenius curve for standard ascorbic acid solution and Vitamin C.



**Figure 2.4 log k versus 1/T graph for standard ascorbic acid solution**

Slope of the graph	=	-24.78571
Slope	=	$-E_a / (2.303RT)$
$E_a$	=	0.4745 KJ/mol
Y intercept log A	=	-1.58
Arrhenius factor A	=	0.0263



**Figure 2.5**  $\log k$  versus  $1/T$  graph for Lemon juice

Slope of the graph	=	-104.5
$E_a$	=	2 KJ/mol
Y intercept $\log A$	=	-1.48
Arrhenius factor A	=	0.0331

The table 2.3 gives the Arrhenius parameters for the thermal degradation of Vitamin C in both standard ascorbic acid solution and lemon juice.

**Table 2.3** Arrhenius parameters

Parameter	Standard ascorbic acid	Lemon juice
Arrhenius parameter A	0.0263	0.0331
Activation energy $E_a$ (kJ/mol)	0.4747	2

Arrhenius plot of degradation of AA in juice and pure ascorbic acid solutions are shown in the figures 2.4 and 2.5. Activation energies were calculated as a product of gas constant R, 2.303 and the slope of the graph obtained by plotting  $\log k$  versus  $1/T$ . The table 2.3 represents the Arrhenius parameters of the degradation for both juice and pure ascorbic acid solution. The activation energies of juice and pure ascorbic acid solutions are 2 and 0.4745 KJ/mol. The Arrhenius factor can obtain from the antilogarithm of Y intercept of the graph. The Arrhenius factor for the thermal degradation of both AA and juice are 0.02630 and 0.0331.

The table 3.1 gives the Vitamin C content left in the sample after subjecting to different cooking methods.

**Table 3.1 Vitamin C in different cooking methods**

Sample	Vitamin C content in mg/10 ml juice
Without cooking	52.5189
Steaming	50.7683
Boiling	38.5205
Ovening	20.1323

The greatest loss of Vitamin C occurs in the heating process using oven. These values of Vitamin C content shows that steaming method is more beneficial method of cooking .Because of the loss of Vitamin C is less in this method. The greatest loss of Vitamin C during boiling is due to loss of water soluble Vitamin C in boiling water. Steaming compared to boiling did not loss a large amount of Vitamin C because the liquid water doesn't come in contact with the food samples. Fresh the fruits and vegetables, higher is the amount of Vitamin C in them

The table 4.1 gives the acidity of different samples of fruits and vegetables.

	Sample	p <sup>H</sup> value /10ml juice	p <sup>H</sup> value /10 ml juice after heating
Fruits	Guava	4.10	4.32
	Papaya	6	6.5
	Lemon	2.6	3.2
	Orange	3.83	4.12
	Pineapple	3.25	3.5
	Mango	4	4.5
	Watermelon	6	6.5
	Apple	3.35	4
	Grapes	3.75	4.7
Vegetables	Broccoli	6.5	6.78
	Tomato	3.94	4.2
	Potato	5.5	6
	Carrot	5.88	4.12
	Cucumber	4.03	4.56
	Brinjal	6	6.53

The table 4.1 shows that different samples of fruits and vegetables possess acidity and the p<sup>H</sup> value is different for different samples. The table shows a trend that p<sup>H</sup> value increases with the temperature treatment

## Conclusion

The different samples of fruits and vegetables contains different amounts of Vitamin C. Also the natural fruit products are richer in Vitamin C content than the soft drinks of artificial fruit flavors. The temperature influences the degradation of Vitamin C. The selected sample follows first order kinetics for the reaction. The rate of loss of Vitamin C increases with increase in temperature and time of thermal treatment. Out of the cooking methods adopted steaming is the best cooking method that preserves Vitamin C. Different samples of fruit and vegetables possess acidity and the pH value increases with increase in temperature.

## References

- Davies, Michael B.; Austin, John A.; Partridge, David A. "Vitamin C : its chemistry and biochemistry", 1991, Cambridge [Cambridge shire]: Royal Society of Chemistry, ISBN 9780851863337.
- Baillie, J.K, Thompson, A.A.R.; Irving, J.B.; Bates, M.G.D.; Sutherland, A.I.; Mac Née, W.; Maxwell, S.R.J.; Webb, D.J, "*Oral antioxidant supplementation does not prevent acute mountain sickness: double blind, randomized placebo-controlled trial*", 2009, *QJM* **102** (5):341 doi: 10.1093/qjmed/hcp026.
- Biel ski BH, Richter HW, Chan PC,"*Some properties of the ascorbate free radicals*; Ann NY Acad 258:231-237.1975
- Nishikimi M, Yagi K, "*Biochemistry and molecular biology of Ascorbic acid biosynthesis. Sub cell Biochemistry*", 1996, 25:17–39.
- "*Story of Vitamin C's chemical discovery*". Profiles.nlm.nih.gov. Retrieved On 2.12-12-04
- Szent-Györgyi, A., "*Biochem.J*". 1928,1387,22
- Svirbelf, Joseph Louis; Szent-Györgyi, Albert, April 25, 1932,"*The Chemical Nature of Vitamin C*". Part of the National Library of Medicine Collection.
- Alvarado, J. D., & Viteri, N. P. "*Efecto de la temperatura sobrela Degradacion aerobica de vitamina C en jugos de frutas c\_õtricas*.Archivos Latinoamericanos de Nutricion", 1989. 39 (4), pp 601-612.



# **SRINIVASA RAMANUJAN - THE LOVER OF NUMBERS**

**Dr. Philomena C.F.**, Assistant Professor  
Department of Mathematics, Little Flower College, Guruvayoor

Srinivasa Ramanujan, the renowned Indian Mathematician was born on Thursday, 22<sup>nd</sup> December 1887, at Erode in Tamilnadu. His father Kuppuswamy Srinivasa Iyengar was a Gumastha to a cloth merchant at Kumbakonam and his mother Komalathammal was a great devotee of goddess Namagiri and was a good singer at the local temples. Ramanujan was the eldest of the family which consist of three sons. He was basically shy, physically stout and was orthodox. Chinnaswamy- that was his pet name. In 1892 he started his primary education in Kangeyan Primary school. After the primary school education he joined the Town High school, Kumbakonam. His favourite hobby was to sit behind the window and do all his homeworks. He had no more friends other than Numbers. He was very sharp in the class and used to ask thought provoking questions. Once in an arithmetic class the teacher was teaching the portion of division. The teacher said, if three bananas are distributed to three students each one will get one banana. Then Ramanujan asked the question, “then sir if no banana is distributed to no students, will each one still get a banana?” Later, this made him to think about the concepts  $0/0$  and the ‘limits’ in Mathematics. He answered many tough problems which were out of syllabus even when he was in his primary classes.

While he was studying in IV<sup>th</sup> Forum, he was entrusted to prepare a conflict free timetable by a senior Mathematics teacher and he made it very easily. This led him to think of forming magic tables which was later named as magic squares. The first recorded magic square in his note book was prepared by using the numbers 1 to 9, row sum, column sum and diagonal sum, each being 15.

<b>4</b>	<b>3</b>	<b>8</b>
<b>9</b>	<b>5</b>	<b>1</b>
<b>2</b>	<b>7</b>	<b>6</b>

It is interesting that he prepared another magic square regarding with his date of birth also. According to his date of birth, the magic square he prepared is as follows, in which the first row indicates his date of birth 22-12-1887.

22	12	18	87
88	17	9	25
10	24	89	16
19	86	23	11

Note that the total sum in every square = **139**.

Ramanujan was from a poor Brahmin family. So his parents found it very difficult to meet the expenses including his studies. In his school days he was good in studies and had won many scholarships. But as he entered to F.A. classes in Govt. Arts College, he became poor in all subjects except Mathematics because he was so preoccupied with Mathematics, neglecting other subjects. Though he could not continue his studies there, he never gave up his struggle to open up the mysteries of Mathematics. He used to sit near the window of his room and entered all his mathematical findings in his famous notebooks which he considered to be a great treasure. Though his teachers and friends recognised his talents, he didn't get any financial support from anywhere. Later, it was G.H. Hardy of Trinity College, Cambridge, who took a personal interest in the wonderful works of Ramanujan and he invited Ramanujan to the famous Cambridge University.

In England Ramanujan became a professional Mathematician in collaboration with Hardy. But during the five years of stay in England, he lost his health because of lack of food and hardwork. He became a T.B. patient and he spent two years there in a sanitorium. Hardy visited him very often and compelled Ramanujan to go back to India and asked him to come back after getting well.

### **Ramanujan number 1729**

One day Hardy arrived at Ramanujan's residence to visit him in a cab numbered 1729. Hardy commented that the number 1729 seemed to be uninteresting. Ramanujan who was very weak due to his ill health, suddenly responded on the spot that it was actually a very interesting number mathematically, being the smallest natural number representable in two different ways as a sum of two cubes:

$$\text{i.e. } 1729 = 1^3 + 12^3 = 9^3 + 10^3$$

Generalizations of this idea have spawned the notion of "taxicab numbers".

Ramanujan's talent suggested a plethora of formulae that could then be investigated in depth later. It is said that Ramanujan's discoveries are unusually rich and that there is often more in it than what initially meets the eye. As a by-product, new directions of research were opened up. Examples of the most interesting of these formulae include the intriguing infinite series for  $\delta$ , one of which is given below

$$\frac{1}{\pi} = \frac{2\sqrt{2}}{9801} \sum_{k=0}^{\infty} \frac{(4k)!(1103 + 26390k)}{(k!)^4 396^{4k}}.$$

This result is based on the negative fundamental discriminant  $d = -4 \times 58$  with class number  $h(d) = 2$  (note that  $5 \times 7 \times 13 \times 58 = 26390$ ) and is related to the fact that

$$e^{\pi\sqrt{58}} = 396^4 - 104.000000177 \dots$$

Ramanujan's series for  $\delta$  converges extraordinarily rapidly (exponentially) and forms the basis of some of the fastest algorithms currently used to calculate  $\delta$ . Truncating the sum to the first term also gives the approximation for  $\delta$ , which is correct to six decimal places.

One of his remarkable capabilities was the rapid solution for problems. He was sharing a room with P. C. Mahalanobis who had a problem, "Imagine that you are on a street with houses marked 1 through  $n$ . There is a house in between ( $x$ ) such that the sum of the house numbers to left of it equals the sum of the house numbers to its right. If  $n$  is between 50 and 500, what are  $n$  and  $x$ ." This is a bivariate problem with multiple solutions. Ramanujan thought about it and gave the answer with a twist: He gave a continued fraction. The unusual part was that it was the solution to the whole class of problems. Mahalanobis was astounded and asked how he did it. "It is simple. The minute I heard the problem, I knew that the answer was a continued fraction. Which continued fraction, I asked myself. Then the answer came to my mind", Ramanujan replied.

His intuition also led him to derive some previously unknown identities, such as

$$\left[1 + 2 \sum_{n=1}^{\infty} \frac{\cos(n\theta)}{\cosh(n\pi)}\right]^{-2} + \left[1 + 2 \sum_{n=1}^{\infty} \frac{\cosh(n\theta)}{\cosh(n\pi)}\right]^{-2} = \frac{2\Gamma^4\left(\frac{3}{4}\right)}{\pi}$$

for all  $\theta$ , where  $\Gamma(z)$  is the gamma function. Equating coefficients of  $\theta^0$ ,  $\theta^4$ , and  $\theta^8$  gives some deep identities for the hyperbolic secant.

In 1918, Hardy and Ramanujan studied the partition function  $P(n)$  extensively and gave a non-convergent asymptotic series that permits exact computation of the number of partitions of an integer. Hans Rademacher, in 1937, was able to refine their formula to find an exact convergent

series solution to this problem. Ramanujan and Hardy's work in this area gave rise to a powerful new method for finding asymptotic formulae, called the circle method.

In March 1919 Ramanujan returned to India and was admitted into a hospital. Still he was never bothered about his ill health and he continued his work on new findings and discovered Mock theta functions while he was in deathbed. For many years these functions were a mystery, but they are now known to be the holomorphic parts of harmonic weak Maass forms.

On 26<sup>th</sup> April 1920 at the age of 32, Ramanujan left this world though he got the best medical care at Chepauk Hospital, Chetput, Madras. Today there are a number of institutions in the name of this great Mathematician. A lot of books are written on the works of Srinivasa Ramanujan. The publication of the collection of his papers and the search for his lost notebooks are still progressing. There are three journals named after him.

Ramanujan was a great Philosopher and he derived the inverse relation between happiness and personal desires. According to him,

$$\text{Amount of Happiness} \propto \frac{1}{\text{no. of wants}}$$

According to him each number was his best friend and the very thought of it made him enlightened and ignited. He often said, "An equation for me has no meaning, unless it represents a thought of God."

## Research Topics of Ramanujan

The numbers were the intimate friends of Ramanujan and he worked out a lot of problems connected with Number Theory. His main thrust was on the following topics.

- Continued Fractions
- Hyper-Geometric Series
- Properties of Properties of Bernoulli's Numbers
- Magic Squares
- Numbers - Prime as well as Composite
- Partition of Numbers

## Achievements of Ramanujan

He found out what was necessary for mathematicians

They are:

- Mock theta functions
- Ramanujan prime
- Ramanujan-Euler constant
- Ramanujan theta function
- Ramanujan's sum

## Awards and Rewards

- For his works the scholarship had been given by Madras University.
- He was awarded a B.A degree in March 1916 for his research.
- He was elected as a fellow of Royal Society on Feb 28, 1918, the highest honour in the scientific world in the United Kingdom
- He was the First Indian F.R.S.
- He was elected as a Fellow of Trinity College on Oct 13, 1918 being the first Indian to receive this honour.
- A stamp picturing Ramanujan was released by the Government of India in 1962 the 75<sup>th</sup> anniversary of Ramanujan's birth.



- In 2012, the Government of India declared December 22<sup>nd</sup> as the National Mathematics Day which is the birthday of the great Mathematician Srinivasa Ramanujan.

## Some words about Ramanujan

- Among all Mathematicians of the East, Ramanujan appears to be supreme.  
- By James R. Newman
- Ramanujan was the greatest mathematician of the century.  
- John Prof. Julian Huxley
- Every Positive integer was one of Ramanujan's Personal Friends  
- Prof. G. H. Hardy
- Mathematics in India inevitably makes one think of one extraordinary figure of recent times. This was Srinivasa Ramanujan.  
- Jawaharlal Nehru

Ramanujan's contributions to mathematics are really beautiful and astonishing. The period of Ramanujan's creative mathematical activity extended only for about 15 years. His initiation into Mathematics was almost entirely through his own unaided effort and abiding interest in mathematics. Ofcourse, this genius inspired many, who are working in the field of Mathematics.

## References

1. M. V. Subbarao; Rogers-Ramanujan type partition theorems, *Pacific Jour. Math.*, Vol. 120 (1985), 431–435.
2. C. S. Venkataraman; On von Sterneck-Ramanujan function, *Jour. Indian Math. Soc.*, 13 (1949), 65–72.
3. P. Kesava Menon; Series associated with Ramanujan's function, *Jour. Ind. Math. Soc.*, New series 27, (1963), 57–65.
4. R. Kanigel; *The Man Who Knew Infinity– A Life of The Genius Ramanujan*, Washington Square Press, NY (1991).

# LAPLACE DISTRIBUTIONS

**Dr. Mariamma Antony**, Department of Statistics  
Little Flower College, Guruvayoor

## 1. INTRODUCTION

The double exponential distribution was introduced by Laplace (1774) (Kotz et al. (2001)) as the distribution form for which the likelihood function is maximized by setting the location parameter equal to the median of the observed values of an odd number of independent and identically distributed random variables. This result appeared in Laplace's fundamental paper on symmetric distributions for describing errors of measurement and is known as the first law of Laplace (see Kotz et al. (2001)). A random variable  $X$  on  $R$  is said to have Laplace distribution if its probability density function is

$$f(x) = \frac{1}{2\sigma} e^{-\frac{|x-\mu|}{\sigma}}, \sigma > 0, -\infty < \mu < \infty. \quad (1.1)$$

Another mode of genesis of this distribution is as the distribution of the difference of two independent and identically distributed exponential random variables.

## 2. Laplace Distributions

In the last several decades various skewed Laplace distributions have appeared in the literature. McGill (1962) considered the distribution with probability density function

$$f(x) = \begin{cases} \frac{1}{2\sigma_1} e^{-\frac{|x-\mu|}{\sigma_1}}, & x \leq \mu \\ \frac{1}{2\sigma_2} e^{-\frac{|x-\mu|}{\sigma_2}}, & x > \mu \end{cases} \quad (2.1)$$

while Holla and Bhattacharya (1968) studied the distribution with probability density function

$$f(x) = \begin{cases} \frac{p}{\sigma} e^{-\frac{|x-\mu|}{\sigma}}, & x \leq \mu \\ \frac{(1-p)}{\sigma} e^{-\frac{|x-\mu|}{\sigma}}, & x > \mu \end{cases}, \quad 0 < p < 1.$$

Lingappaiah (1988) derived some properties of (.2.1), terming the distribution as two-piece double exponential. Poiraud-Casanova and Thomas-Agnan (2000) considered a skewed Laplace distribution with probability density function

$$f(x) = p(1-p) \begin{cases} e^{-(1-p)|x-\mu|} & \text{for } x < \mu \\ e^{-p|x-\mu|} & \text{for } x \geq \mu \end{cases}$$

where  $\mu \in (-\infty, \infty)$  and  $0 < p < 1$ . show the equivalence of certain quantile estimators using the method of Azzalini (1985), Balakrishnan and Ambagaspitiya (1994) (see Kotz et al. (2001)) studied a skewed Laplace distribution with density

$$f(x) = \begin{cases} \frac{1}{2} e^{-(1+\lambda)x}, & -\infty < x \leq 0 \\ e^{-x} - \frac{1}{2} e^{-(1+\lambda)x}, & 0 < x < \infty \end{cases}$$

Using the method of Fernandez and Steel (1988), Kozubowski and Podgorski (2000) introduced an asymmetric Laplace distribution with density

$$f(x) = \frac{1}{\sigma} \frac{k}{1+k^2} \begin{cases} e^{-\frac{k}{\sigma}(x-\mu)} & \text{for } x \geq \mu \\ e^{-\frac{1}{\sigma k}(x-\mu)} & \text{for } x < \mu \end{cases}$$

where  $\mu = \frac{\sigma}{\sqrt{2}} \left( \frac{1}{k} - k \right)$ . They have named this distribution as asymmetric Laplace distribution and studied various properties of this distribution. Kozubowski and Podgorski (2000) suggested asymmetric Laplace models for modeling interest rates, arguing that the asymmetric Laplace model



is capable of capturing the peakedness, fat-tailedness, skewness and high kurtosis observed in the data. Kozubowski and Podgorski (2001) presented an application of asymmetric Laplace distribution in modeling foreign currency exchange rates. They fitted asymmetric Laplace laws to a bivariate data sets on two currency commodities: the German Deutschmark Vs. the U.S. Dollar and the Japanese Yen Vs. the U.S. Dollar. The asymmetric Laplace laws are proved to be useful for modeling stock market returns and modeling price changes of commodities. Rachev and Sen Gupta (1993) proposed Laplace – Weibull mixtures for modeling price changes.

For the applications of Laplace distribution in different fields see Kotz et al. (2001) and Johnson et al. (1995). Kanji (1985) and Jones and Mc Lachlan (1990) have discussed the Laplace normal mixture distribution with density function

$$f(x) = \frac{p}{2\sigma_1} e^{-\frac{|x-\mu|}{\sigma_1}} + \frac{(1-p)}{\sqrt{2\pi}\sigma_2} e^{-\frac{(x-\mu)^2}{2\sigma_2^2}},$$

$$-\infty < x, \mu < \infty, 0 < p < 1, \sigma_1, \sigma_2 > 0$$

and applied the distribution to fit wind shear data. Maximum likelihood estimation of parameters of this distribution has been discussed by Scallan (1992). Generalized normal Laplace distribution was studied in Reed and Jorgensen (2004). The normal – Laplace distribution is defined by the characteristic function  $e^{(i\mu t - \frac{t^2 \sigma_1^2}{2})} \frac{\sigma_2^2}{\sigma_2^2 + t^2}$ . The corresponding random variable

$X_1$  can be expressed as  $X_1 = Y + Z$  where  $Y$  and  $Z$  are independent with  $Y = N(\mu, \sigma_1^2)$  and  $Z = La(0, \sigma_2)$  where  $La(\mu, \sigma)$  denotes the Laplace distribution defined in (1.1). The normal Laplace distribution discussed in Reed and Jorgenson (2004) has the characteristic function

$$\phi_{X_2}(t) = \left[ e^{i\mu t - \frac{\sigma_1^2 t^2}{2}} \right] \left[ \frac{\delta \beta}{(\delta - it)(\beta + it)} \right]. \quad (.2.2)$$

$X_2$  can be expressed as  $X_2 = Y + E_1 - E_2$  where  $E_1$  and  $E_2$  are independent exponential random variables with parameters  $\delta$  and  $\beta$  respectively.

The generalized normal Laplace distribution is defined by the characteristic function

$$\phi(t) = \left\{ e^{i\mu t - \frac{t^2 \sigma_1^2}{2}} \left[ \frac{\sigma_2^2}{(\sigma_2^2 + t^2)} \right] \right\}^p.$$

The corresponding random variable  $X_3$  can be expressed as

$$X_3 = Y + La_1 + La_2 + \dots + La_p$$

where  $Y \stackrel{d}{=} (p\mu, p\sigma_1^2)$  and  $La_1, La_2, \dots, La_p$  are independent and identically distributed

Laplace random variables with  $La_i \stackrel{d}{=} La(0, \sigma_2)$ ,  $i = 1, 2, \dots, p$ . As in the case of (2.2), we can write the characteristic function of generalized normal Laplace distribution as

$$\phi_{X_4}(t) = \left[ e^{i\mu t - \frac{t^2 \sigma_1^2}{2}} \left[ \frac{\delta\beta}{(\delta - it)(\beta + it)} \right] \right]^p,$$

$$\delta, \beta, p > 0 \text{ and } -\infty < \mu < \infty.$$

The corresponding random variable  $X_4 = Y + G_1 - G_2$ , where  $Y, G_1$  and  $G_2$  are independent random variables with  $Y \stackrel{d}{=} N(p\mu, p\sigma_1^2)$  and  $G_1$  and  $G_2$  have gamma distribution with scale parameters  $\delta$  and  $\beta$  respectively having common shape parameter  $p$ .

### 3. Applications

The Laplace distribution, being heavier tailed than the normal, has been used quite commonly as an alternative to the normal distribution, in robustness studies. Kotz et al. (2001) discussed the applications of Laplace distributions in Engineering Sciences, Financial Data Modeling, Inventory Management and Quality Control, Astronomy, Biological and Environmental Sciences. Detection of a known constant signal that is distorted by the presence of a random noise was discussed on

Communications Theory on various occasions. For the detection of noise in presence of Laplace noise, see Marks et al. (1978) and Dadi and Marks (1987). A standard problem in communication theory is encoding and decoding of analog signals. The distribution of such signals depends on their nature. Among the most important one's are the speech signals. It has been found that the Laplace distribution accurately models speech signals. Laplace distribution has potential applications in modeling the fracturing of materials under applied forces. Another area where Laplace distribution can find most interesting and successive application is modeling of financial data. This is due to the fact that the traditional models based on Gaussian distribution are very often not supported by real life data because of long tails and asymmetry present in these data. Since Laplace distributions can account for leptokurtic and skewed data, they are natural candidates to replace Gaussian distribution and processes.

## References

1. Azzalini, A. (1985) A class of distributions that includes the normal ones. *Scand. J. Statist.* **12**, 171-178.
2. Holla, M.S. and Bhattacharya, S.K. (1968) On a compound Gaussian distribution. *Ann. Inst. Statist. Math.* **20**, 331-336.
3. Jones, P.N. and McLachlan, G.J. (1990) Laplace-normal mixtures fitted to wind shear data. *J. Appl. Statist.* **17**, 271-276.
4. Kotz, S., Kozubowski, T.J. and Podgorski, K. (2001) *The Laplace and generalizations: A revisit with applications to Communications, Economics, Engineering and Finance*. Birkhauser, Boston
- George, S. and Pillai, R.N. (1987) Multivariate -Laplace distributions. *J. Na. Acad. of Math.* **5**, 13-18.
5. Kozubowski, T.J. and Podgorski, K. (2000) Asymmetric Laplace distributions. *Math. Scientist* **25**, 37-46.
6. Lingappaiah, G.S. (1988) On two piece double exponential distribution. *J. Korean Statist. Soc.* **17**, 46-55.
7. McGill, W.J. (1962) Random fluctuations of response rate. *Psychometrika* **27**, 3-17.
- Mathai, A.M. (1993a) On non-central generalized Laplacianess of quadratic forms in normal variables. *J. Multi. Anal.* **45**, 239-246.
8. Poiraud-Kasanova, S. and Thomas-Agnan, C. (2000) About monotone regression quantiles. *Statist. Prob. Letters* **48**, 101-104.
9. Rachev, S.T. and Sen Gupta, A. (1993) Laplace- Weibull mixtures for modelling price changes. *Management Sci.* **39**, 1029-1038.

# स्त्रीकेन्द्रीकृतं कलारूपं नड्यार्-कूत् ।

Mr.Justin P G

Assistant Professor

Department of Sanskrit

Little Flower College, GGuruvayur

स्त्रीकेन्द्रीकृतं केरलेषु प्रचरितं एकमेव कलारूपं भवति नड्यार्-कूत् । कूटियाड्डम् कलारूपस्य नायिकायाः वेषं नम्ब्यार् कुडुम्बस्य स्त्रीजनाः एव कुर्वन्ति स्म । कूटियाड्डकलारूपस्य विकासः कुलशेखरवर्मणः शासनकाले एव समभवत् । कूटियाड्डे यद्यपि स्त्रीणां प्राधान्यं अधिकं न वर्तते तथापि ताः कलारूपस्य भागभाजः आसन् । केषुचित् भागेषु पुरुषैः समं प्राधान्यं वर्तते । अस्य कलारूपस्योत्भवमधिकृत्य काचन कथा प्रचलिता वर्तते । नायिकात्वेन अभिनयं कृतवत्या एकया सह राजा प्रणयमकरोत् । सामूहिकसदाचारबोधः अमुं सम्बन्धं दण्डार्हत्वेन अनुभूतः । विप्रतिपतिः अविगणय्य तौ विवाहमकुरुताम् । तस्याः पुत्रेभ्यः च स्वसमुदायात् भ्रष्टता विहिता । कुलकर्मणा जीवनमुपनेतुं नाड्यार् जनाः असमर्थाः अभवन् । इदं अभिज्ञातवान् कुलशेखरवर्मा स्त्रीभिः अभिनेतुं योग्यं कञ्चित् नाटकांशं निर्मितवान् । सः स्वस्य कृतौ सुभद्राधनञ्चये कल्पलतिकायाः निर्वहणत्वेन श्रीकृष्णचरितं अयोजयत् । इदं निर्वहणं मन्दिरेषु प्रकाशयितुं नड्यार्जनेभ्यः अनुमतिश्च तेन प्रदत्ता । इदं पश्चात् नड्यार्-कूत् इति नाम्ना प्रथितोऽभवत् ।

## साहित्यम् ।

कुलशेखरवर्मणः सुभद्राधनञ्जयनाटकस्य द्वितीयाऽङ्के मिश्रविष्कम्भकत्वेन चेट्या कल्पलतिकया क्रियमाणं प्रकटनमेव नड्यार्-कूत् कलारूपस्य एकमात्रं साहित्यम् । भूतस्य वलये पतितां कृष्णसोदरीं सुभद्रां अर्जुनः रक्षयति । द्वारकां प्रत्यागतवत्याः सुभद्रायाः नष्टगतां गात्रिकामन्विष्य प्रस्थितायाः कल्पलतिकायाः मनसि प्रतीयमानं श्रीकृष्णचरितमेव नड्यार्-कूत्-कलारूपस्य इतिवृत्तम् ।

चेट्याः निर्वहणत्वेन कल्पितं चेदपि श्रीकृष्णचरितं पूर्णतया अभिनीय तो यादवराजधान्याः मथुरापुर्याः उत्भवः, कंसस्य देवक्याः च जन्म, देवक्याः विवाहः, कंसेन प्राप्यमाणः शापः, बलभद्रस्य श्रीकृष्णस्य च अवतारौ, वृन्दावने श्रीकृष्णस्य बाललीलाः, पूतनामोक्षः, शकटासुरवधः, कालियमर्दनम्, गोपस्त्रीणां वस्त्रापहरणम्, रासक्रीडा, गोवधनोद्धरणम्, मथुरागमनम्, कंसवधः, जरासन्धवधः, द्वारकायाः निर्मितिः, सुभद्रायाः जननम् इत्याद्याः कथाः २१७१ श्लोकैः तस्मिन् नाटके प्रतिपाद्यन्ते ।<sup>1</sup>

## वेदी ।

वेद्याः पुरतः मध्यभागे त्रिवर्तिभिः प्रज्वालितं दीपं स्थापयति । वर्तिकाद्वयं सदसः लक्ष्मीकृत्य तथा एका वर्तिका दर्शकान् लक्ष्मीकृत्य च भवति । नड्यार्-कूत् कलारूपस्य आरम्भे यवनि का उपयुज्यते । यथा कथाकेल्याम् उपयुज्यते । वेद्याः पृष्ठतः मध्यभागे मिषाव् स्थाप्यते । अपि तु वामकोणे इटक्कावाद्यं च स्थाप्यते । वेद्याः दक्षिणतः मध्यभागे तालं यच्छन्ती गायिका उपविशति । नट्या उपयुज्यमानं पीठं वेद्याः वामभागे स्थाप्यते ।

## क्रमः ।

कूटियाड्डकलारूपस्येव भवति नड्यार्-कूत्-कलारूपस्यापि प्रकटनक्रमः । वेदिकाविधानम्, वन्दनम्, मिषाव्-वाद्यस्य शब्दकरणम्, गोष्ठि-कोड्डल्, नान्दी, निर्वहणम्, मंगलश्लोकोच्चारणम् इत्येवं भवति क्रमः ।\*

वेदिकाविधानम् - केरपत्रम्, कदली, नालिकेराः, कौशाम्बरम्, शुभ्रवस्त्रम् इत्यादिभिः क्रियमाणं वेदिकालङ्करणं भवति वेदिकाविधानम् ।

वन्दनम् - वेदिकायां क्रीडादीपं प्रज्वालयति । तदनु नेपथ्ये एव नड्यार्-जनः ईश्वरप्रार्थनया सह वन्दनं करोति ।

मिषाव्-वाद्यस्य शब्दकरणम् - नम्ब्यार्-जनः मिषाव् वाद्ये शब्दं कृत्वा दर्शकेभ्यः क्रीडारम्भस्य सूचनां प्रददति । मिषाव्-वाद्यस्य नमनं कृत्वा नन्दीश्वरं मनसि ध्यात्वा मिषाव्-वाद्यस्य शब्दकरणं करोति ।

गोष्ठिकोड्डल् - नम्ब्यार्-जनः वाद्यप्रयोगं करोति । नड्यार्-जनः वेदिकायां आगत्य अक्किन्तम् उच्चारयति । अक्किन्तम् नाम गणपति - सरस्वती - महेश्वरादीनां स्तवनं भवति । एषः क्रमः गोष्ठिकोड्डल् इत्येव कैरल्यां कथ्यते ।

नान्दी - क्रियानान्दी श्लोकनान्दी इति द्विधा वर्तते । रंगपूजा भवति क्रियानान्दी । नड्यार्-जनेन वेदिकायां क्रियमाणं नृत्यं भवति क्रियानान्दी । श्लोकरूपेण क्रियमाणा ईश्वरस्तुतिः श्लोकनान्दी इति कथ्यते ।

नड्यार्-कूत् निर्वहणरूपेणैव प्रदर्श्यते । एकस्याः पात्रान्तरनटनम् भवतीदम् । अस्य नटनस्य अनुक्रमः, संक्षेपः, श्लोकार्थाभिनयः इति चरणत्रयं वर्तते । कथायाः पृष्ठतः गमनं भवति अनुक्रमः । अनुक्रमस्य श्लोका र्थाभिनयस्य च मध्ये विद्यमानः भागः भवति संक्षेपः । प्रलयकालस्य अन्ते

<sup>1</sup> कलाकेरलम् पृ.सं 32

ब्राह्मणः उत्पत्तिः तदनु तस्मात् समस्तप्राणिनां उत्भवः यादववंशस्य उत्पत्तिः मथुरापुर्याः आविर्भावः इत्यादि कथाभागाः अतिस्पष्टतया संक्षेपेणैव अत्राभिनीयन्ते।<sup>2</sup> तदनु श्लोकार्थं नटति। उच्चार्यमाणाः श्लोकाः मनोधर्ममनुसृत्य यथोचितं नटयन्ते। अभिनयानन्तरमेव श्लोकाः उच्चार्यन्ते।

**अभिनयः।**

कूटियाडुकलारूपस्य शैली मेवानुसरति नड्यार्-कूत्-कलारूपम्। भरतमुनिना नाट्यशास्त्रे प्रतिपादिताः चतुर्विधाभिनयाः आङ्गिक - वाचिक-सात्विक-आहार्याः नड्यार् कूत् कलारूपेऽपि भवन्ति। हस्तमुद्राभिः क्रियमाणः अभिनयः तत्र प्रधानः भवति। आङ्गिकाभिनयस्य विस्तारः कलारूपस्यास्य वैशिष्ट्यं भवति। इलकियाडुम्, पकर्नाडुम्, इरुन्नाडुम् इत्यादि हस्तलक्षणदीपिकानुसारं प्रोक्ताः मुद्राः एव नड्यार् -जनेन कूत् मध्ये उपयुज्यन्ते। इतरे अभिनयाः अपि कूटियाडुकलारूपस्य अभिनयशैलीमेव अनुसरन्ति। वाचिकाभिनयः पूर्णतया नेपथ्ये नियमितः भवति। अर्थात् नटी श्लोकोच्चरणं वा संभाषणं वा न करोति। तत्सर्वं गायिकाः कुर्वन्ति। वेदिकायाः पार्श्वे तिष्ठता नड्यार् -जनेनैव श्लोकाः उच्चार्यन्ते। ते श्लोकाः वाचिकाभिनयत्वेन परिगण्यन्ते।

उदाहरणश्लोकाः

1. ततः प्रभात विमल रामकृष्णौ मुदान्वितौ

अक्रूरेण समं गन्तुमुद्यतौ मधुरापुरीम्॥

2 मधुरां प्राप्य गोविन्दः कथं गोकुलमेष्यति

नगरस्त्रीकलालापमधुश्रोत्रेण पास्यति॥<sup>3</sup>

कथापात्रस्य मानसिकधर्माणाम् प्रतिफलनम् भवति सात्विकाभिनयः। अयं नवरसाधिष्ठितः भवति। प्रत्येकं रसस्य अभिनयप्रक्रमः अपि पूर्वनिर्धारितः भवति। आहार्याभिनयः कूटियाडुकलारूपस्य स्त्रीकथापात्राणां आहार्यविधानमेव भवति। कूत् निमित्तं अलङ्कृता नड्यार् -जनः भगवती एव इति सकल्पः अस्ति। नडेली इति कैरलीभाषायां प्रसिद्धिरस्ति। नड्यार्-जनस्य वस्त्रे विद्यमाना रक्तवर्णपट्टा, शिरोभूषणम्, जपाकुसुमम्, केशे विद्यमानम् नागफलकं इत्याद्याः भगवती सङ्कल्पे न साम्यतामावहन्ति।(\*\*\*\*) नागफणेन अलङ्कृतं शिरोभूषणम्, वीचीसदृशं कौशेयवस्त्रम्, विभूषितं किरीटम् इत्यादयो भवन्ति नड्यार्-जनस्य वेषः। लास्यप्रधानं भवति नड्यार्-जनस्य नृत्यम्। प्रथमे दिवसे नृत्यस्य प्राधान्यं भवति। तदनु अभिनयस्य च।

भारते कला यथार्थचिदानन्दसाक्षात्कारस्य माध्यममासीत्। अतः कलासम्बन्धिन्यः सर्वाः वृत्तयः ईश्वरार्पिताः आसन्। भारते विशिष्य केरले सर्वाः कलाः आराधनरूपेण अङ्गीकृताः आसन्। अनेन कलारूपाणां प्रभवस्थानं देवालयः अभवत् इति अनुमातुं शक्यते। हैन्दवधर्मे ईश्वराराधनं कला च परस्परपूरकत्वेन प्रगतिं प्रापतुः।<sup>4</sup> सहस्राधिकाः पुरातन्यः भारतीयदृश्यकलाः केरलप्रदेशेषु अद्यापि सुष्ठु प्रचलन्ति। केरलभूमिः नानाकलानां केलीवनिका। एतादृशाः वैचित्र्ययुक्ताः दृश्यकलाः भारते अन्यत्र कुत्रापि दृश्यन्ते वा नवेति सन्देहः स्यादेव।

**सहायकग्रन्थसूची।**

1. स्त्रीनाट्यकला नड्यार्कूत् - डा. एन्. रेणुका, केरला भाषा इन्स्टिट्यूट, तिरुवनन्तपुरम्, २०१०
2. क्षेत्रकलासाहित्यम् अरड्डुम् पाठवुम् - डा. जे. उणिक्कण्णपिल्ला, क्रैस्तवकलाक्षेत्रम्, रान्नि, २०११
3. केरलीय कलकल् - डा. शशीधरन् क्लारि, ओलिव् पब्लिकेशन्, कोषिकोट्, २०११
4. केरलीयसंस्कृतसाहित्यचरित्रम् - वटक्कुम्कूर्-राजराजवर्मा, केरलासाहित्य अकादमी, तृशूर, १९९०
5. केरलीयकलानिखण्डु - डा. शशीधरन् क्लारी, ओलिव् पब्लिकेशन्, कोषिकोट्, २०१२.

<sup>2</sup> केरलीयकलकल्, क्लासिक् कलकल् पठनम् पृ-सं. 45

<sup>3</sup> केरलीयकलकल्, पृ.सं. ४५

<sup>4</sup> नम्मल् नटन्न वषिकल्, पृ.सं. १३४

# ബൈബിൾ ശൈലികളുടെ പ്രതിഷ്ഠാപനങ്ങൾ - മലയാളസാഹിത്യത്തിലും കലകളിലും

ഡോ. സി. ഷീബ എ.സി.

അസി. പ്രൊഫസർ, മലയാളവിഭാഗം, എൽ. എഫ്. കോളേജ്, ഗുരുവായൂർ

## 1 ശൈലീപ്രയോഗങ്ങൾ

ഓരോ ദേശത്തിനും വിശ്വാസാചാരങ്ങൾക്കും തത്ത്വസംഹിതകൾക്കുമെന്നതുപോലെ ഭാഷയ്ക്കും തനിമയാർന്ന സാംസ്കാരിക കർതൃത്വവും പൈതൃകങ്ങളുമുണ്ട്. ഭാഷയുടെ ഈ കർതൃത്വം അതിന്റെ അതിസൂക്ഷ്മാംശങ്ങളായ സ്വനങ്ങളിൽനിന്നാരംഭിച്ച് അർഥകല്പനകൾവരെ നീളുന്ന ഘടനാപരവും ആർഥികവുമായ നിരവധി സങ്കേതങ്ങളുടെ സാകല്യമാണ്. ഭാഷയുടെ ഈ സവിശേഷതയാണ് ഒരു ഭാഷയെ മറ്റൊന്നിൽനിന്ന് വ്യതിരിക്തമാക്കുന്നത്. ഇത്തരത്തിൽ ഭാഷയുടെയും സാംസ്കാരത്തിന്റെയും അന്തഃസത്തയുമായി അഭേദ്യമായി ബന്ധപ്പെട്ടിരിക്കുന്നവയും ഭാഷയുടെ ജൈവസ്വഭാവവും ഊർജ്ജസ്വലതയും നിലനിർത്തുന്നതിൽ സുപ്രധാനമായ പങ്കുവഹിക്കുന്നവയുമായ സവിശേഷ ഭാഷാപ്രയോഗങ്ങളാണ് ഓരോ ഭാഷയിലേയും ശൈലീപ്രയോഗങ്ങൾ. വാമൊഴിയിലെന്നപോലെ വരമൊഴിയിലും നൈസർഗ്ഗീകതയോടെ സംവദിക്കപ്പെടുന്ന ഇത്തരം പ്രയോഗങ്ങൾ വാക്കുകളുടെ കോശാർഥത്തിന് അതീതമായ അർഥസാധ്യതകളെ നിർമ്മിക്കുന്നവയും ഭാഷണത്തിന്റെ ഗതിവിഗതികളെ സമർത്ഥമായി സ്വാധീനിക്കുന്നവയുമാണ്.

ഓരോ ഭാഷയുടേയും സ്വത്വം വെളിപ്പെടുത്തുകയും അതിന്റെ ജൈവസ്വഭാവവും തനതുരീതികളും കലർപ്പില്ലാതെ ആവിഷ്കരിക്കുകയും ചെയ്യുന്ന ശൈലികൾക്കും ചൊല്ലുകൾക്കും ആധുനിക ഭാഷാശാസ്ത്രത്തിലും സാംസ്കാരികപഠനങ്ങളിലും അതുല്യമായ സ്ഥാനമുണ്ട്. മറ്റു ഭാഷകളിലെന്നപോലെ മലയാളത്തിലും പുരാണേതിഹാസങ്ങൾ, കല, ആചാരാനുഷ്ഠാനങ്ങൾ, ആഘോഷങ്ങൾ, സാമൂഹികബന്ധങ്ങൾ, മതവിശ്വാസങ്ങൾ, മനുഷ്യസ്വഭാവം, വേഷം, ഭക്ഷണം, പ്രപഞ്ചനിരീക്ഷണം എന്നിങ്ങനെയുള്ള സാംസ്കാരിക നിർമ്മിതികളുടെ സമസ്തമേഖലകളുമായി ബന്ധപ്പെടുന്ന നിരവധി ശൈലികളുണ്ട്. ആനുകാലിക സംഭവങ്ങളിലും മതപരമായ പശ്ചാത്തലങ്ങളിലും ഇത്തരം പ്രയോഗവിശേഷങ്ങൾ കണ്ടെത്താം. രാഷ്ട്രീയസ്ഥിതിഗതികളും അസാധാരണ സംഭവവികാസങ്ങളും കോളേജ് കാമ്പസുകളിലെ വിനിമയങ്ങളുമൊക്കെ പുത്തൻ ശൈലീപ്രയോഗങ്ങളെ സൃഷ്ടിക്കുന്നതിൽ മത്സരിക്കാറുണ്ട്. കുഴൽപ്പണം, ഭൂമാഫിയ, റിയൽ എസ്റ്റേറ്റ്, കാലുമാറ്റം, പെൺപിള്ളെ ഒരുമെ, ബിനാമി, കുതിരക്കച്ചവടം, പെണ്ണെഴുത്ത്, മോനേ ദിനേശാ, ഫാൻ, ബ്രോ, സഹോ, പൊളിച്ചു, അതുകുറുമ്പേലേ, പൊടിപാറി, ചക്സ് എന്നിവയെല്ലാം 'വൈറലായി' മാറിയിട്ടുള്ള ശൈലീപ്രയോഗങ്ങളിൽ ചിലതാണ്.

വാചാർഥത്തിനതീതമായി ലക്ഷ്യമോ, വ്യംഗ്യമോആയ അർഥം പ്രദാനംചെയ്യുകയും കാലഘട്ടത്തിന്റെ പൊതുവായ ആശ്യാവലികളേയും അർഥസാധ്യതകളേയും സംവേദനസാധ്യതകളേയും രൂപപ്പെടുത്തുകയും സ്വാധീനിക്കുകയും ചെയ്യുന്ന സവിശേഷ വ്യവഹാരചിഹ്നങ്ങളെ (Discourse) ഒന്നനിലയിൽ ശൈലീപ്രയോഗങ്ങളുടെ പഠനം ഭാഷാശാസ്ത്രത്തിൽ പ്രാധാന്യമർഹിക്കുന്നു. മലയാളത്തിലെ ശൈലീപ്രയോഗങ്ങളിൽ വലിയൊരു വിഭാഗം ബൈബിൾ പ്രമേയങ്ങളുമായി പ്രത്യക്ഷമായോ പരോക്ഷമായോ ബന്ധപ്പെട്ട് ഭാഷയിൽ സ്ഥിരപ്രതിഷ്ഠ നേടിയവയാണെന്ന് കാണാം. കേരളത്തിലെ ക്രിസ്തുമതസ്വാധീനത്തിൽനിന്നുരൂപംകൊണ്ട മതഗ്രന്ഥങ്ങളുടേയും സാഹിത്യകൃതികളുടേയും ആചാരാനുഷ്ഠാനങ്ങളുടേയും ബൈബിൾ പരിഭാഷകളുടേയും ഇതര വിവർത്തിതഗ്രന്ഥങ്ങളുടേയും പ്രചാരവും പ്രസിദ്ധിയും കേരളത്തിന്റെ സാംസ്കാരിക പരിസരങ്ങളിൽ ബൈബിൾ ചൊല്ലുകളുടേയും ശൈലികളുടേയും പ്രത്യക്ഷവും പരോക്ഷവുമായ സ്വാധീനം ഉളവാകാൻ മതിയായ കാരണങ്ങളായി. നാട്ടുഭാഷയുടെ മൊഴിവഴക്കങ്ങൾ മുതൽ നവമാധ്യമങ്ങൾവരെ ബൈബിൾ ശൈലികളേയും ചൊല്ലുകളേയും ആഴത്തിൽ ഉൾക്കൊള്ളുന്നുണ്ട് എന്ന പരികല്പനയാണ് 'ബൈബിൾ ശൈലികളുടെ പ്രതിഷ്ഠാപനങ്ങൾ-മലയാളസാഹിത്യത്തിലും കലകളിലും' എന്ന ഗവേഷണപ്രബന്ധത്തിന് അവലംബം.

വിവർത്തനസംസ്കാരത്തിന്റെ ഭാഗമായി മലയാളത്തിൽ രൂപംകൊണ്ട ബൈബിൾ ശൈലികളുടെ സവിശേഷതകളും അവ അടയാളപ്പെടുത്തുന്ന ഗദ്യഭാഷയുടെ വികാസപരിണാമങ്ങളും സാഹിത്യത്തിലും സിനിമയിലുമുള്ള അവയുടെ പ്രത്യക്ഷവൽക്കരണങ്ങളുമാണ് ഇവിടെ അപഗ്രഥിക്കുന്നത്.

## 2. ബൈബിൾ ശൈലികൾ

ഭാഷയുടെ സംവേദനത്തെ ത്വരിതപ്പെടുത്തുന്നതും വാചാർത്ഥനിരപേക്ഷമായ ഒരു സവിശേഷാർത്ഥം ധനിപ്പിക്കുന്നതും ബൈബിൾ പരിസരങ്ങളിൽനിന്ന് കടന്നുവന്ന് ഭാഷയുടെയും സംസ്കാരത്തിന്റേയും നിദർശനമായി ഒരോ ഭാഷയിലും സ്ഥിരപ്രതിഷ്ഠനേടിയിട്ടുള്ളതുമായ ഒറ്റപദമോ പദസംഘാതമോ ആണ് ബൈബിൾശൈലികൾ. കുരിശെടുക്കുക, കൈകഴുകിമാറുക, ഒറ്റിക്കൊടുക്കുക, ഓശാനപാടുക, കുഞ്ഞാടുചമയുക, പാറപ്പുറത്തുവീണ വിത്ത്, നല്ലകള്ളൻ, യൂദാസ്, മുടിയനായ പുത്രൻ, തുടങ്ങിയവ ഉദാഹരണങ്ങൾ.

ഭാഷയുടെ സംവേദനത്തിന് ആർജ്ജവവും ചടുലതയും പകരുന്നതും സംഭാഷണഭാഷയുമായി ഇഴുകിപ്പേർന്നിരിക്കുന്നതുമായ മലയാളത്തിലെ ശൈലീപ്രയോഗങ്ങളിലും ബൈബിൾ ശൈലികൾ അപ്രധാനമല്ലാത്ത സ്ഥാനം അലങ്കരിക്കുന്നുണ്ടെന്ന് വ്യക്തമാണ്. അകാരണമായി തന്നെ പിന്തുടരുന്ന ദുരനുഭവത്തെക്കുറിച്ച് 'ഇതെന്തൊരു കുരിശാണപ്പാ' എന്ന് വിലപിക്കുന്നയാൾ, മനസാ വാചാ കർമ്മണാ താൻ അറിയാത്ത ഒരുകാര്യത്തിന് അശനിപാതമെന്നപോലെ വന്നുഭവിച്ച ദുരനുഭവത്തിന്റെ തീവ്രതയാണ് വ്യക്തമാക്കുന്നത്. അയാൾ അപ്പോൾ അനുഭവിക്കുന്ന വേദനയുടെ ആഴം വ്യക്തമാക്കാൻ മലയാള സാഹിത്യത്തിൽ ഇത്രയേറെ ഫലപ്രദമായ മറ്റൊരു പ്രയോഗമുണ്ടാവുമോ എന്ന കാര്യം സംശയമാണ്.

## 3. ബൈബിൾശൈലികൾ സാഹിത്യത്തിലും സിനിമയിലും

ബൈബിൾശൈലികൾ ഒരുതരത്തിലല്ലെങ്കിൽ മറ്റൊരു തരത്തിൽ പ്രത്യക്ഷമായോ, പരോക്ഷമായോ സ്വാധീനം ചെലുത്താത്ത കലാസാഹിത്യാദികൾ വീരളമാണ്. ഒരു കാലത്ത് സവർണ്ണരുടെ കൈവെള്ളയിൽമാത്രം ഞെരിഞ്ഞമർന്നിരുന്ന സാഹിത്യാദികളുടെ ആവിഷ്കാരങ്ങളും ആസ്വാദനവും സാധാരണക്കാർക്കും വഴങ്ങുമെന്ന് തെളിയിക്കപ്പെട്ടതും മിഷനറിഗദ്യത്തിന്റെ ആഗമനത്തോടുകൂടിയാണ്. മലയാളസാഹിത്യത്തിൽ നാടോടിസാഹിത്യരൂപങ്ങൾ, മഹാകാവ്യങ്ങൾ, ഖണ്ഡകാവ്യങ്ങൾ, ലഘുകാവ്യങ്ങൾ, കഥകൾ, നോവലുകൾ, നാടകങ്ങൾ, സിനിമാസംഭാഷണങ്ങൾ, സിനിമാഗാനങ്ങൾ, ഭക്തിഗാനങ്ങൾ വ്യക്തിനാമങ്ങൾ, സ്ഥലനാമങ്ങൾ, ഗ്രന്ഥനാമങ്ങൾ, ലേഖനങ്ങൾ, പഠനങ്ങൾ, നിരൂപണങ്ങൾ, ഇതര കലാരൂപങ്ങൾ എന്നിങ്ങനെ ജനജീവിതത്തിന്റെ സമസ്തമേഖലകളുമായി നേരിട്ട് ബന്ധപ്പെട്ട ബൈബിൾ ശൈലികളുടേയും ചൊല്ലുകളുടേയും അടയാളപ്പെടുത്തലുകളുണ്ട്. ക്രിസ്ത്യൻ നാടോടിപ്പാട്ടുകളിൽനിന്നാരംഭിച്ച് ആധുനിക സിനിമാനാമങ്ങൾവരെ എത്തിനിൽക്കുന്നതാണ് ഇവയുടെ സ്വാധീനം. വള്ളത്തോൾ നാരായണമേനോൻ, ജി. ശങ്കരക്കുറുപ്പ്, ഓ. എൻ. വി കുറുപ്പ്, സുഗതകുമാരി, സച്ചിദാനന്ദൻ, കടമ്മനിട്ട, ബാലചന്ദ്രൻ ചുള്ളിക്കാട്, കുഞ്ഞുണ്ണി, മാധവൻ അയ്യപ്പത്ത് തുടങ്ങിയ കവികളെല്ലാം തങ്ങളുടെ കവിതകളിൽ ബൈബിൾ ശൈലികൾ പ്രമേയങ്ങളായി സ്വീകരിച്ചിട്ടുണ്ട്.

മുട്ടുവിൻ വാതിൽ തുറക്കുമെന്നങ്ങു  
പട്ടാങ്ങുമായ്ച്ചെന്നതുമോർത്തുകൊണ്ടേ  
താവകാനുഗ്രഹദാരത്തിൽ മുട്ടുമീ

പാവത്തിനേകുകിങ്ങൾ പ്രവേശം (വള്ളത്തോൾ- മഗ്ദലനമറിയം)

'പശ്ചാത്താപമേ പ്രായശ്ചിത്തം' എന്ന ബൈബിൾ ചൊല്ലിന്റെ ആൾരൂപമായി 'മഗ്ദലന മറിയ'ത്തെ അവതരിപ്പിക്കാനും യേശുവിന്റെ വ്യക്തിപ്രഭാവത്തിന് മലയാളസാഹിത്യത്തിൽ ശാശ്വതപ്രതിഷ്ഠ നൽകാനും ഇതിലൂടെ വള്ളത്തോളിന് സാധിച്ചു. 'സാഹിത്യമഞ്ജരി'യിലെ പാഠീസിലെ ക്രിസ്തുമസ്, മറക്കാനോ പഠിച്ചു, മികച്ച മുൾക്കിരീടം എന്നീ കവനങ്ങളിലൂടെയും വള്ളത്തോൾ ബൈബിൾ ചൊല്ലുകളെ പ്രത്യക്ഷമായും പരോക്ഷമായും ആവിഷ്കരിച്ചിട്ടുണ്ട്.

പത്തിരുപതു നൂറ്റാണ്ടുകൾക്കു മുൻപത്ര വന്നു പിറന്നൊരു സൽപുമാൻ  
 വാസ്തവേതര ശ്വാസമൊന്നേറ്റിട്ടില്ലാത്ത ശോഭന ദിവ്യാധരങ്ങളാൽ  
 നീളവേ കേൾക്കുമാറുൾ ചെയ്തുപോൽ, വാളെടുപ്പവൻ വാളാൽ കൊലപ്പെടും  
 അത്തിരുമൊഴി തന്നെയാണിപ്പതു ക്രിസ്തുഗാന്ധിയും ചൊൽവതുമുജ്ജലം  
 (വള്ളത്തോൾ- മികച്ച മുൾക്കിരീടം)

ധർമ്മക്ഷേത്രമായ ഈ കുരുക്ഷേത്രത്തിന് അഹിംസാ മാർഗ്ഗമേ ചേരു എന്ന് പ്രഖ്യാപിക്കുവാൻ  
 'വാളെടുക്കുന്നവൻ വാളാൽ' എന്ന ക്രിസ്തുവചനത്തെ ആധാരമാക്കിയതിൽനിന്ന് കേരളക്കര  
 യിൽ ആ ബൈബിൾശൈലിക്കുണ്ടായിരുന്ന സംവേദനത്വത്തിന്റെ പ്രകടനമാണ്.  
 'സ്നേഹമാണഖിലസാരമുഴിയിൽ' 'മാംസനിബദ്ധമല്ല രാഗം', എന്നീ സ്നേഹസന്ദേശങ്ങൾ കൈര  
 ളിക്ക് സമ്മാനിച്ച മഹാകവി കുമാരനാശാൻ പാടിയതെല്ലാം നിർമ്മലസ്നേഹത്തിന്റെ അജയ്യ  
 ശക്തിയെക്കുറിച്ചായിരുന്നു.

സ്നേഹത്തിൽ നിന്നുദിക്കുന്നു ലോകം, സ്നേഹത്താൽ വൃദ്ധിതേടുന്നു  
 സ്നേഹം താൻ ശക്തി ജഗത്തിൽ, സ്വയം സ്നേഹം താനാനന്ദമാർക്കും.  
 സ്നേഹം താൻ ജീവിതം ശ്രീമൽ, സ്നേഹവ്യാഹതി തന്നെ മരണം.  
 സ്നേഹം നരകത്തിൽ ദീപിൽ സ്വർഗ്ഗഗേഹം പണിയും പടുത്തം.  
 (കുമാരനാശാൻ- ചണ്ഡാലഭിക്ഷുകി)

മനുഷ്യജന്മംകൊണ്ട് നേടിയെടുക്കേണ്ട പരിശുദ്ധ പ്രണയം ജീവിത വഴികളിലെവിടെയോ  
 വീണുടഞ്ഞതിന്റെ തേങ്ങൽ ആശാന്റെ നായികമാരായ നളിനി, ലീല, സീത, സാവിത്രി,  
 വാസവദത്ത, മാതംഗി തുടങ്ങിയവരിലെല്ലാം മുഴങ്ങി കേൾക്കാം. ഇങ്ങനെ ബൈബിൾ  
 ശൈലികളുടെയും ചൊല്ലുകളുടെ പ്രത്യക്ഷവും പരോക്ഷവുമായ പ്രത്യക്ഷവത്കരണങ്ങൾ ഒരു  
 ചൈതന്യധാരയായി ആശാൻ കവിതകളിലുടനീളം വ്യാപരിക്കുന്നുണ്ട്.

ഇന്നോളം ക്രൂശിതരായവർ തന്നുടെ ചെന്നിണമാകെ  
 ഇരു സന്ധ്യകളായിരുന്ന ദിക്കിൽ പടരുമ്പോളിതിൽ നിന്നും  
 ഒരു തുള്ളിയെടുത്തെന്നരുമക്കവിതയെ, യെൻ മുറ്റത്തെ  
 ചെറുപൂവിനെപോൽ ജ്ഞാനസ്നാനം ചെയ്യിച്ചാലും  
 (ഓ. എൻ. വി.- ജ്ഞാനസ്നാനം)

കളങ്കംകഴുകുവാൻ യെരുശലേം നിവാസികൾ  
 ഗുരുപാദരിൻ സവിധത്തിലെത്തുന്നു  
 ഒടുവിൽ യേശുവുമെത്തുന്നു.  
 അന്നത്തെ സ്നാനത്തിന്റെ സാക്ഷിയാണീ പ്രാവ്.  
 (എം. ഗോവിന്ദൻ-തോമ്മാക്കുട്ടിയുടെ ജീവചരിത്രം)

ചോരക്കിടാങ്ങളെ വെള്ളം തളിക്കുന്നു  
 താരുണ്യഹസ്തങ്ങൾ തമ്മിലിണക്കുന്നു  
 കെട്ടുപുകപ്പെട്ട മണ്ണുവിളക്കിന്റെ  
 ചുറ്റും മെഴുകുതിരികൾ കൊളുത്തുന്നു (വൈലോപ്പിള്ളി-പഴയപള്ളി)

എന്നിങ്ങനെയുള്ള പ്രയോഗങ്ങൾ മലയാളസാഹിത്യത്തിൽ വ്യാപകമാണ്. സാഹിത്യരൂപങ്ങളിലെന്ന്  
 പോലെ രംഗകലകളിലുമുള്ള ബൈബിൾ ശൈലികളുടെ ആവിഷ്കാരങ്ങളും സവിശേഷമായ  
 പഠനം അർഹിക്കുന്നുണ്ട്. ചവിട്ടുനാടകം, മാർഗ്ഗംകളി, പരിശമുട്ടുകളി, വിവിധ നാടകരൂപങ്ങൾ  
 എന്നിവയിലെല്ലാം ആദ്യകാലംമുതലേ ബൈബിൾ അധിഷ്ഠിതമായ ശൈലികൾക്കും പ്രമേയ  
 ങ്ങൾക്കും പ്രാധാന്യം നൽകിയിട്ടുണ്ട്. മലയാളനാടകസാഹിത്യചരിത്രം പരിശോധിക്കുമ്പോൾ  
 ആദ്യകാല ഗദ്യനാടകങ്ങളിൽ ബൈബിൾ പ്രമേയങ്ങളാണ് മുനിട്ടുനിൽക്കുന്നത്.



ബൈബിൾ സന്ദേശം പ്രചരിച്ച ഇടങ്ങളിലെല്ലാം ചിത്രകല, ശില്പകല, രംഗകല, സംഗീതകല, സിനിമ എന്നീ രൂപങ്ങളിൽ ബൈബിൾ പ്രമേയങ്ങൾ വ്യാപകമായ സ്വാധീനം ചെലുത്തി. ക്രിസ്തു മതത്തിന് തുടക്കമുതലേ കലയുമായുള്ള ബന്ധം അനിഷേധ്യമായിരുന്നു. വിശ്വാസജീവിതത്തിന്റെ പരിപോഷണത്തിനും സംരംക്ഷണത്തിനും കലയ്ക്കുള്ള സാധ്യതകൾ തിരിച്ചറിഞ്ഞ് കലാരൂപങ്ങളെ ക്രൈസ്തവീയതയുടെ അടയാളപ്പെടുത്തലുകളായി സ്വീകരിച്ചത് കലാസാംസ്കാരിക രംഗങ്ങളിൽ ബൈബിൾ ശൈലികളുടേയും ചൊല്ലുകളുടേയും പ്രചാരണത്തിന് വഴിയൊരുക്കി. പാശ്ചാത്യകലകളുടെ ചരിത്രം, ക്രിസ്ത്യൻകലയുടെത്തന്നെ ചരിത്രമാണെന്നു പറയാം. മധ്യയുഗത്തിലെ പാശ്ചാത്യ കലാസൃഷ്ടികളെല്ലാംതന്നെ ബൈബിളിഷ്ഠിതമായിരുന്നു. മൈക്കലാഞ്ചലോ (Michel-angelo), പിക്കാസോ (Picasso), റുഡോൾഫ് (Rudolf) മുതലായ കലാകാരന്മാർ അതിപ്രശസ്തമാംവിധം ചിത്രകലയിലൂടെ ബൈബിൾ ശൈലികൾക്കും ചൊല്ലുകൾക്കും ആവിഷ്ക്കാരം നൽകിയവരാണ്. മൈക്കൽ ആഞ്ചലോ (1541-1614)യുടെ അന്ത്യത്താഴം, ആദം തുടങ്ങിയ ചിത്രങ്ങളും പിയാത്ത, മോസസ് ആദിയായ ശില്പങ്ങളും ലെയനാർഡോ ഡാവിഞ്ചിയുടെ ബൈബിൾ പ്രമേയചിത്രീകരണങ്ങളും കലാലോകം ഇന്നും അത്ഭുതാദരങ്ങളോടെ നോക്കിക്കാണുന്നവയാണ്. ചിത്രകലയിൽ ഐക്കണുകൾ, സ്റ്റൈലിസേഷൻ, ഗ്ലാസ് പെയിന്റിങ്, മൊസൈക് ചിത്രങ്ങൾ, ചിത്രലേഖനങ്ങൾ എന്നീ രൂപങ്ങളിലും ശില്പകലയിൽ, പലവിധത്തിലുള്ള കൊത്തുരൂപങ്ങൾ, പ്രതിമകൾ, ദിവ്യരൂപങ്ങൾ എന്നിവയിലൂടെയുമാണ് ദൃശ്യഭാഷാവിഷ്ക്കാരങ്ങൾ നടത്തിയിരിക്കുന്നത്. സഭാപിതാവായ വി. ജോൺ ഡമഷ്യൻ (St. John Damascene) 'ഐക്കണുകൾ വിളിച്ചിരുന്നത് 'നിരക്ഷരരുടെ ബൈബിൾ' എന്നാണ്.

സാഹിത്യാദി കലകളിലെന്നപോലെ സിനിമാസംവേദനങ്ങളിലും അവരവരുടെ അഭിരുചികൾക്കും താൽപര്യങ്ങൾക്കും അനുഗുണമായ ഭാഷാശൈലികളെ സൃഷ്ടിക്കുന്നതിൽ കാണിക്കുന്ന ത്വര, ആധുനിക കാലഘട്ടത്തിലെ വേറിട്ട കാഴ്ചയാണ്. ബഹുജനമാധ്യമമായ സിനിമയുടേയും ഇതര സാമൂഹികമാധ്യമങ്ങളുടേയും സ്വാധീനതകൾ സംഭാഷണത്തിൽ നവനവങ്ങളായ ശൈലികളെ രൂപപ്പെടുത്തുന്നതിൽ വലിയ പങ്കു വഹിക്കുന്നുണ്ട്. ആധുനികസാഹിത്യവും കലാരൂപങ്ങളും അത് കഥയോ കവിതയോ നോവലോ നാടകമോ സിനിമയോ അടിച്ചുപൊളി പാട്ടോ എന്തുതന്നെ ആയാലും സൂക്ഷ്മമായി വിശകലനം ചെയ്യുമ്പോൾ ഒരു 'ബൈബിൾ ടച്ച്' ഉണ്ടങ്കിലേ മോഡേൺ ആകൂ എന്ന് നിഷ്ക്കർഷിക്കപ്പെട്ടിരിക്കുന്നതുപോലെ തോന്നും. ഉത്തരാധുനികകവിതകളെപ്പോലെ സമകാലിക സിനിമകളും ബൈബിൾ സംബന്ധിയായ ശീർഷകങ്ങളുടേയും ഇമേജുകളുടേയും സ്വീകരിക്കുന്നതിൽ താൽപര്യം പ്രദർശിപ്പിക്കുന്നു. *കാൽവരിയിലെ കല്പപാദപം, ജീവന്റെ അപ്പം, ദുഃഖത്തിന്റെ പാനപാത്രം, ദൈവത്തിന്റെ കുഞ്ഞാട്, നല്ല കള്ളൻ, നല്ല സമരായൻ, നീതിമാന്റെ രക്തം, നന്മതിന്മകളുടെ വൃക്ഷം, നോഹയുടെ പെട്ടകം, പത്തുകല്പനകൾ, പത്രോസിന്റെ താക്കോൽ, പാറപ്പുറത്ത് വീണ വിത്ത്, ഫരിസേയരുടെ പുളിമാവ്, ഭൂമിയുടെ ഉപ്പ്, മനുഷ്യരെ പിടിക്കുന്നവർ, മാലാഖമാരുടെ അപ്പം, മാലാഖമാരുടെ നാട്, മുടിയനായ പുത്രൻ, മുളുകൾക്കിടയിലെ ലില്ലി, യൂദാസിന്റെ ചുംബനം* എന്നിവയെല്ലാം ബൈബിൾ പരിസരങ്ങളിൽനിന്ന് കടന്നുവന്ന് മലയാളത്തിലെ സാഹിത്യത്തിലും സിനിമയിലും സ്ഥാനംപിടിച്ചിട്ടുള്ള ശൈലീപ്രയോഗങ്ങളിൽ ചിലതാണ്.

അർത്തുകല പള്ളിയിൽ ചെന്നട്ടങ്ങീശോയെ കണ്ടിട്ടിന്നോശാന പാടാം..., (ചിത്രം: റോമൻസ്) ഗബ്രിയേലിന്റെ ദർശന സാഹചര്യമായ് സർവ്വലോകർക്കും നന്മയേകും കാരുന്നുമായ്... (ചിത്രം: ഗപ്പി) കർത്താവേ നീ കല്പിച്ചപ്പോൾ നേർച്ചവെച്ച മനസ്സിൽ ഞാൻ... (ചിത്രം: ക്രിസ്ത്യൻ ബ്രദേഴ്സ്) പുണ്യവാനിസഹാക്കുന്നുണ്ടായി രണ്ടു മക്കൾ (ചിത്രം: തൊമ്മനും മക്കളും) എന്നെല്ലാം മലയാള സിനിമകളിൽ അടിച്ചുപൊളിച്ച് പാടിത്തിർക്കുന്നതിലെ താല്പര്യങ്ങളും വ്യത്യസ്തമാകാൻ ഇടയില്ല. കേവലം ചില വരകൾകൊണ്ടും വർണ്ണങ്ങൾകൊണ്ടും ആശയത്തിന്റെ അത്ഭുതലോകം സൃഷ്ടിക്കുന്ന കാർട്ടൂൺ ചിത്രങ്ങൾക്കു സമാനമാണ് ഭാഷയിലെ ശൈലീപ്രയോഗങ്ങൾ. കാര്യമായ പ്രസക്തമായ ഏതാനും ചില വാക്കുകളോ വാക്കുകളുടെ ചേരുവകളോകൊണ്ട് ആശയങ്ങളുടെ ലോകം തുറക്കാൻ അവയ്ക്ക് കഴിയും. അതിനാൽ, നിത്യജീവിതത്തിൽനിന്ന് ഒഴിച്ചുനിർത്താനാത്ത വിധം അനുദിനവ്യവഹാരങ്ങളേയും ഭാഷണങ്ങളേയും ചേതോഹരവും ചൈതന്യനിർഭരവുമാക്കുന്നവയും

ഭാഷയുടേയും സംസ്കാരത്തിന്റേയും പ്രതിനിധാനങ്ങളും സ്വതന്ത്രപങ്ങളുമായി നിലകൊള്ളുന്ന ബൈബിൾശൈലികൾ ഗദ്യഭാഷയുടെ വളർച്ചയിലും വികാസത്തിലും വഹിക്കുന്ന പങ്ക് വിപുലവും വൈവിധ്യമാർന്നവയുമാണ്. മലയാള ഭാഷയുടെ വാമൊഴി-വരമൊഴികളെ വളരെയേറെ സ്വാധീനിക്കുകയും ഭാഷയ്ക്കും സാഹിത്യത്തിനും മാധ്യമസംസ്കാരത്തിനും വിലപ്പെട്ട സംഭാവനകൾ നൽകുകയും ചെയ്ത ബൈബിൾശൈലികളുടെ പഠനം പുതിയ ലോകബോധങ്ങളും ജ്ഞാനനിർമ്മിതിയുടെ പുതിയ മാനങ്ങളും പ്രദാനംചെയ്യാൻ പര്യാപ്തമാണ്.

ബൈബിൾ പരാമർശങ്ങൾ സംവേദനീയതയുടെ പുതുലോകങ്ങൾ സൃഷ്ടിക്കാൻ പര്യാപ്തമാണെന്ന ധാരണയാണ് ബൈബിൾ സംബന്ധമായ ശീർഷകങ്ങൾ തെരഞ്ഞെടുക്കാൻ ആധുനിക സിനിമാനിർമ്മാതാക്കളെ പ്രേരിപ്പിക്കുന്നതിന്റെ ചേതോവികാരം. *ആദാമിന്റെ വാരിയെല്ല്, സമ്മർ ഇൻ ബെത്‌ലേഹം, ആദാമിന്റെ മകൻ, പുതിയനിയമം, പ്രാഞ്ചിയേട്ടൻ, നമുക്ക് പാർക്കാൻ മുന്തിരിത്തോപ്പുകൾ, വിശുദ്ധൻ, ദൈവത്തിന്റെ സ്വന്തം ക്ലീറ്റസ്, ഓം ശാന്തി ഓശാന, ഹല്ലേലൂയ, ആമ്മേൻ, പൗദീസ, ജെയിംസ് ആന്റ് ആലീസ്, ദൈവത്തിന്റെ സ്വന്തം ക്ലീറ്റസ്, റോമൻസ്, അടി കപ്യാരെ കൂട്ടമണി, ക്രിസ്റ്റൻ ബ്രദർസ്, മുന്തിരി വള്ളികൾ തളിർക്കുമ്പോൾ, ജോമോന്റെ സുവിശേഷങ്ങൾ, ജേക്കബിന്റെ സ്വർഗ്ഗരാജ്യം, എസ്ര, 10 കല്പനകൾ, രാമന്റെ ഏകദേശം, സദ്യശവാക്യം 24:29, ആദം, വെളിപാടിന്റെ പുസ്തകം* എന്നിങ്ങനെയുള്ള സിനിമാനാമങ്ങൾ ബൈബിൾ ശൈലികളുടെ മതേതരവും സാർവ്വത്രികവുമായ പ്രയോഗങ്ങളെ സാധൂകരിക്കുന്നവയാണ്.

### ഗ്രന്ഥസൂചി

അച്യുതനുണ്ണി ചാത്തനാത്ത് & രാഘവവാര്യർ എം. ആർ ആന്റോസ് മേക്കാട്ടുകുന്നേൽ & ജോസഫ് പുതുകുളങ്ങര ആന്റണി തേറാത്ത് (ഫാ.) & ജോസഫ് പാംപ്ലാനി (ഫാ.) ആന്റണി വള്ളവനന്ത	1984 2011 2009 1984	ശൈലീവിജ്ഞാനം: സമകാലപഠനങ്ങൾ. വള്ളത്തോൾ വിദ്യാപീഠം, ഗുരുപുരം. വേദപുസ്തകം വർത്തമാനപുസ്തകത്തിൽ. വി.ജി. പ്രിന്റേഴ്സ്, മാനാനം. ബൈബിൾ ശബ്ദകോശം. ആൽഫാ ഇൻസ്റ്റിറ്റ്യൂട്ട് ഓഫ് തിയോളജി & സയൻസ്, തലശ്ശേരി. വത്തിക്കാൻ ലൈബ്രറിയിലെ മലയാളം കൈയെഴുത്തുകൾ. കേരള ഭാഷാ ഇൻസ്റ്റിറ്റ്യൂട്ട്, തിരുവനന്തപുരം
ആൽബർട്ട് ഫ്രൻസ്	1992	സ്കറിയ സക്കറിയ(പ്രസാ.) ഡോ. ഗുണ്ടർട്ട് ബൈബിൾ. ഡി. സി. ബുക്സ്, കോട്ടയം.
എമ്മാനുവേൽ ആട്ടേൽ	2010	വേദതർക്കത്തിന്റെ ഭാഷാശാസ്ത്രഭൂമിക. കാർമ്മൽ ഇന്റർനാഷണൽ പബ്ലിഷിംഗ്ഹൗസ്, തിരുവനന്തപുരം.
എം. എൻ. കാരശ്ശേരി	2012	മലയാള വാക്ക്. ഡി. സി. ബുക്സ്, കോട്ടയം.
കുട്ടികൃഷ്ണമാരാർ	1985	(1942) മലയാളഭാഷാശൈലി. മാതൃഭൂമി പ്രിന്റിംഗ് & പബ്ലിഷിംഗ്, കോട്ടയം.
കുര്യാസ് കുന്ദളശ്ശേരി	2006	പോൾ മണലിൽ(എഡി.) ബൈബിളും മലയാള സാഹിത്യവും; ബൈബിൾ ചരിത്രവും ദർശനവും ബൈബിൾ സൊസൈറ്റി ഓഫ് ഇന്ത്യ, കോട്ടയം.
കൃഷ്ണകുമാരി കെ.	2005	മലയാളകവിതയിലെ ആലങ്കാരിക കല്പനകൾ - ഒരു വിമർശനാത്മകപഠനം; (ഗ.പ്ര.) കോഴിക്കോട് സർവ്വകലാശാല
കൃഷ്ണൻ നായർ പി.	1965	ലോകോക്തിമാലിക എഡ്യൂക്കേഷണൽ സപ്ലൈ ഡിപ്പോ, തിരുവനന്തപുരം.
കെ. സി. എച്ച്. ആർ	2012	കേരളത്തിലെ പഴഞ്ചൊല്ലുകൾ കേരളത്തിലെ ചരിത്ര ഗവേഷണ കൗൺസിൽ, തിരുവനന്തപുരം.
കോയിത്തട്ട എൻ.	1959	പ്രയോഗശൈലി പി. കെ. ബ്രദേഴ്സ്, കോഴിക്കോട്.

## ആഖ്യാനം സക്കറിയയുടെ തേൻ എന്ന കഥയിൽ

ഡോ. ഷൈജി സി. മുരിങ്ങാത്തേരി

അസി. പ്രൊഫസർ, മലയാളവിഭാഗം, ലിറ്റിൽ ഫ്ളവർ കോളേജ്, ഗുരുവായൂർ

ഇരുപതാം നൂറ്റാണ്ടിലെ സാഹിത്യവിചാരങ്ങളിൽ വലിയ പ്രാധാന്യം കൈവന്ന ഒന്നാണ് ആഖ്യാന വിജ്ഞാനം. കഥ, ഐതിഹ്യം, കഥപറച്ചിൽ, വർണ്ണന എന്നിങ്ങനെയാണ് ആഖ്യാനം എന്ന പദത്തിന് ശബ്ദതാരാവലിയിൽ അർത്ഥം കൊടുത്തിരിക്കുന്നത്. സംഭവങ്ങൾ, കഥാപാത്രങ്ങൾ, ക്രിയകൾ എന്നിവ കൂടിച്ചേർന്നാണ് കഥയുടെ ശരീരമാകുന്നത്. കഥ ആവിഷ്കരിക്കുന്ന വിധങ്ങളെയാണ് ആഖ്യാനരീതികൾ എന്ന് പറയുന്നത്. “ഒരു സംഗതി നടന്നതായി പ്രസ്താവിക്കുന്നതിന് പൊതുവെ ചെയ്ത പേരാകുന്നു ആഖ്യാനം എന്നത്. കഥാകഥനം ആണ് ആഖ്യാനത്തിന്റെ സ്വഭാവം.”<sup>1</sup>

എണ്ണമറ്റ ആഖ്യാന മാതൃകകൾ ഉൾക്കൊള്ളുന്നതാണ് നമ്മുടെ ഭാരതീയ സാഹിത്യം. നിദർശനം, ഉപകഥ, ചമ്പു, സർഗ്ഗബന്ധം, കാവ്യശാസ്ത്രം, കോശം, സംഹിത എന്നിങ്ങനെ അനേകം കാവ്യരൂപങ്ങൾ ഉണ്ടായിരുന്നതിന്റെ പൊരുളും ഉദാഹരണങ്ങളും നമുക്കിന്ന് ലഭ്യമല്ല. നാടോടിവഴക്കങ്ങളും വാമൊഴികളുമായി വളർന്ന നമ്മുടെ ആഖ്യാനപാരമ്പര്യത്തിൽ ഏറെ ഈടുവെപ്പാർന്ന നേട്ടമായിരുന്നു രാമായണത്തിന്റെയും മഹാഭാരതത്തിന്റെയും രചന. ഇവയെ ഉപജീവിച്ചാണ് പിൻക്കാലഭാരതീയ ആഖ്യാനപാരമ്പര്യം വളർന്നത്.

പരമശിവൻ പാർവ്വതിക്ക് കഥ പറഞ്ഞുകൊടുക്കുന്ന രീതിയിലാണ് മഹാഭാരതകഥ രൂപകൽപന ചെയ്തിട്ടുള്ളത്. അനേകം ഉപകഥകളോടുകൂടിയ ബൃഹത്തും മഹത്തുമായ ഈ കഥ ആലേഖനം ചെയ്യാൻ ഗണപതിയെ നിയോഗിക്കുന്നതിൽ കാണിക്കുന്ന പുതുമയും ശ്രദ്ധേയമാണ്. മഹാഭാരതത്തിൽ വ്യാസൻ നേരിട്ട് കഥ പറഞ്ഞുപോകുന്ന രീതിയാണ് പൊതുവെ സ്വീകരിച്ചിട്ടുള്ളതെങ്കിലും യുദ്ധവർണ്ണനകൾക്ക് സഞ്ജയനെ നിയോഗിക്കുന്നതിലൂടെ യുദ്ധവർണ്ണനകളുടെ എല്ലാ ദൃശ്യവും വായനക്കാരിലേക്ക് സൂക്ഷ്മതയോടെ പകരാൻ വ്യാസന് കഴിഞ്ഞു.

“ആഖ്യാനകലയിലെ ബോധാബോധപ്രേരണകളെ അപഗ്രഥിച്ച് എങ്ങനെയാണ് കഥാകാരൻ കഥ മെനഞ്ഞെടുക്കുന്നത് എന്നന്വേഷിക്കുന്ന പ്രക്രിയയാണ് ആഖ്യാനശാസ്ത്രം”.<sup>2</sup> കഥയെക്കാളുപരി അതെങ്ങനെ ആഖ്യാനം ചെയ്തിരിക്കുന്നു എന്നതിനാണ് ആഖ്യാനകലയിൽ പ്രാധാന്യം കൽപിക്കേണ്ടത്. സംഭവങ്ങളുടെ വിവരണമാണ് കഥ എങ്കിലും അതിനോട് ചേർന്നുവരുന്ന ആവിഷ്കാരഘടകങ്ങളെല്ലാം ചേർന്നാലേ ആഖ്യാനമാകൂ. കഥയെ കാര്യകാരണബന്ധത്തോടെ രൂപപ്പെടുത്തുന്നതാണ് ഇതിവൃത്തം. കഥാപാത്രങ്ങളും അവരുടെ ചെയ്തികളും ഉദ്ദേശ്യലക്ഷ്യങ്ങളും എല്ലാം കഥാഗാത്രത്തിൽ ഉൾപ്പെടും. നേർരേഖപോലെ വളരുന്ന കഥയിൽ കാലദേശചരിത്ര സാംസ്കാരികപാഠങ്ങളെയും പ്രപഞ്ചഗതിയെയും മനുഷ്യമനസ്സിനെയും ഉൾച്ചേർക്കാൻ മികച്ച ആഖ്യാതാവിന് കഴിയുന്നു. ഇവ കണ്ടെത്തുകയാണ് ആഖ്യാനശാസ്ത്രം. സക്കറിയയുടെ ‘തേൻ’ എന്ന കഥയിലെ ആഖ്യാനത്തിന്റെ സവിശേഷതയെക്കുറിച്ചുള്ള അന്വേഷണമാണ് ഈ പ്രബന്ധം. അത്ഭുതകരമായ കഥാസന്ദർഭങ്ങൾക്കൊണ്ട് നിറഞ്ഞതാണ് ‘തേൻ’ എന്ന കഥ. മാന്ത്രികയാഥാർത്ഥ്യത്തിന്റെ, മാജിക്കൽ റിയലിസത്തിന്റെ സവിശേഷതകളാണ് ‘തേൻ’ എന്ന കഥയുടെ കാതൽ.

“ഫാൻസിയും മിത്തും ദൈനംദിന യാഥാർത്ഥ്യത്തോടു സങ്കലനം ചെയ്യുമ്പോഴാണ് മാജിക്കൽ റിയലിസം സൃഷ്ടിക്കപ്പെടുന്നത്”.<sup>3</sup> 1950കളിലാണ് മാജിക്കൽ റിയലിസം എന്ന വാക്ക് സാഹിത്യത്തിൽ ഉപയോഗിച്ചു തുടങ്ങിയത്. ആദ്യമായി ജർമ്മൻ കലാനിരൂപകനായ ഫ്രാൻസ് റോഹ് ആയിരുന്നു ഈ പദം പ്രയോഗിച്ചത്. റഷ്യൻ സാഹിത്യകാരനായ നിക്കോളായ് ഗോഗോളിന്റെ ‘മൂക്ക്’ ഈ വിഭാഗത്തിൽ പെടുന്ന കഥയാണ്. “ഫാൻസിയുടെയും മാന്ത്രികത്വത്തിന്റെയും അന്തരീക്ഷത്തിന്റെ ഗൗരവപൂർണ്ണമായ വിഷയങ്ങളെ നിവേശനം ചെയ്യുക, അതിനു കാമോത്സുകത്വം കൊണ്ട് നിറമിരുട്ടുക. ഇതാണ് മാജിക്കൽ റിയലിസം..... യാഥാതഥ്യവും സാങ്കല്പികവുമായതിന്റെ വ്യത്യാസം ഇവിടെ നേർത്തുനേർത്ത് ഇല്ലാതാകുന്നു. വായനക്കാണ് രണ്ടും ഒന്നാണെന്നു കരുതി സത്യത്തിലേയ്ക്കല്ല അതിസത്യത്തിലേക്കു മഹാസത്യത്തിലേക്കു (greater reality) പ്രവേശിക്കുന്നു”.<sup>4</sup> പ്രകൃത്യതീതമായ അംശങ്ങളുടേയും മാന്ത്രികമായ കല്പനകളുടെയും അന്തരീക്ഷത്തിൽ ജീവിതസത്യത്തെ അവതരിപ്പിക്കുന്നതാണ് മാജിക്കൽ റിയലിസം. മാജിക്കൽ റിയലിസം തന്റെ കൃതികളിൽ ഉൾച്ചേർത്ത ലാറ്റിനമേരിക്കൻ

സാഹിത്യകാരനാണ് ഗബ്രിയേൽ ഗർസിയ മാർക്വേസ്. അദ്ദേഹത്തിന്റെ പ്രസിദ്ധമായ കൃതിയാണ് ഏകാന്തതയുടെ നൂറ് വർഷങ്ങൾ (One hundred years of Solitude).

പേര് സൂചിപ്പിക്കുന്നതുപോലെ 'തേൻ' മാധുര്യമുറുന്ന ഒരു കഥയാണ്. ഒരു മനോഹരമായ കാടും അതിനടുത്തുള്ള ചെറുഗ്രാമവുമാണ് ഇതിന്റെ ഭൂമിക. അവിടെ നടന്ന സംഭവങ്ങളുടെ വിവരണമാണ് കഥ. പശ്ചാത്തലമായ കാടിന്റെ ലഘുവിവരണമാണ് ആദ്യം നൽകുന്നത്. കാട്ടിലെ മരങ്ങളെയും ചെറു പ്രാണികളെയും മീനുകളേയും തവളകളെയും ആന, പുലി, കടുവ, കാട്ടുപന്നി, ചുണ്ടെലി, കരടി, കുരങ്ങ്, ഇഴജന്തുക്കളായ പല്ലി, ഓന്ത്, പാമ്പ് തുടങ്ങിയ ജീവജാലങ്ങളെയും വിവരിക്കുന്നു. തുടർന്ന് കാടും നാടും തമ്മിലുള്ള പ്രധാന വ്യത്യാസങ്ങളെയും കഥാകാരൻ ചൂണ്ടിക്കാണിക്കുന്നു. “ഇവരും നാമുമായി രണ്ട് പ്രധാന വ്യത്യാസങ്ങളുണ്ട്. ഒന്ന് ഇവർ വാലാട്ടുന്നത് യുദ്ധത്തിലും പ്രണയിക്കുമ്പോഴും ഈ പിടിക്കുമ്പോഴുമാണ്. നമ്മൾ വാലാട്ടുന്നത് മന്ത്രി, മതാധികാരി തുടങ്ങിയവരെ കാണുമ്പോഴാണ്. നാം ഇഴയുന്നതും അപ്പോഴാണ്. ഇവർ ഇഴയുന്നത് ജീവിതവുമായി മുന്നോട്ടുപോകാനാണ്.”

കാട്ടിലെ ജനത കാണാറുള്ള അത്ഭുത ദൃശ്യത്തിന്റെ വർണനയിലൂടെ സക്കറിയ മിത്തിന്റെ സന്നിവേശം സാധ്യമാക്കുന്നു. പുതനയുടെ മടിയിൽ മുലകുടിക്കുന്ന ഉണ്ണിക്കണ്ണൻ. ഏത് സ്ത്രീക്കകത്തും പുരുഷനകത്തും നിലനിൽക്കുന്ന മിത്താണത്. ആ പുതനയെ അമ്മയിലേക്കുള്ള പരിണാമമായി സക്കറിയ അവതരിപ്പിച്ചിരിക്കുന്നു. അമ്മയായി മാറിയപ്പോൾ എല്ലാം തേനായി മാറുന്നു. ചുറ്റുപാടുകൾ അവൾ വിചാരിക്കുന്ന താളത്തിന് മാറ്റപ്പെടുന്നു. തേനീച്ചകൾ മുളിപ്പറക്കുന്നു. പൂമ്പാറ്റകൾ ഒഴുകി നടക്കുന്നു. ജലക്രിയയ്ക്കുശേഷം അമ്മയിലേക്കുള്ള മടക്കമായി ഉണ്ണിക്കണ്ണൻ പുതനയുടെ മടിയിലേക്ക് തിരിച്ചെത്തുന്നു. വനവാസിയുടെ സത്യമാണിതെന്ന് സക്കറിയ ഓർമ്മിപ്പിക്കുന്നു.

സുന്ദരനും ആരോഗ്യദൃഢഗാത്രനും ഈശ്വരവിശ്വാസിയുമായ യുവകരടി മനുഷ്യസ്ത്രീയെ വിവാഹം കഴിക്കുന്നതാണ് തേൻ എന്ന കഥ. “അടിവെച്ചടിവെച്ചുള്ള നടത്തം, കറുത്തിരുണ്ട കട്ടി രോമക്കുപ്പായം, ചിന്താമഗ്നങ്ങളായ കണ്ണുകൾ, വെളുത്തു കൂർമ്പിച്ച മുഖത്ത് വിടർന്ന മുക്കും വിടർന്ന ചുണ്ടുകളും, നെഞ്ചിൽ ഒരു വെള്ളമുദ്ര. യുവകോമളൻ” അയാളുടെ ഹൃദയത്തിലെ ആഗ്രഹം മനുഷ്യപെണ്ണിനെ വിവാഹം കഴിക്കണം എന്നാണ്. ആ ആഗ്രഹം തന്റെ സുഹൃത്തുക്കളോട് പങ്കുവെച്ചു. അവർ അയാളെ പരിഹസിച്ചു. “നാണമില്ലേടാ, ആ ഇരുകാലികളെ പ്രേമിക്കാൻ, ദേഹത്ത് രോമം പോലുമില്ല. തലയിലും അങ്ങുമിങ്ങുമൊഴിച്ച്. ഹോ! ആലോചിക്കാൻ പോലും വയ്യ.”

കരടി കണ്ട യുവതികളെയെല്ലാം കരടിക്ക് ഇഷ്ടമായിരുന്നു. ആരെ വിവാഹം കഴിക്കണം, ഏതു ഭാഷയിൽ അവരോട് സംസാരിക്കണം എന്നൊക്കെ ആലോചിച്ച് കരടിക്ക് ഉത്തരം കിട്ടിയില്ല. അവ സാനം ദൈവത്തെ സമീപിച്ച് തേൻപാളി കാഴ്ചവെച്ച് കാര്യം ഉണർത്തിച്ചു. വായനക്കാരൻ ഇത് സത്യമാണെന്നും സത്യം നല്ലപോലെ മനസ്സിലാക്കട്ടെ എന്നും കരുതി ദൈവത്തിന്റെ ഭവനത്തെക്കുറിച്ച് വ്യക്തമായ വിവരണം നൽകുന്നുണ്ട്. ഗബ്രിയേൽ മാർക്വേസ് വായനക്കാർക്ക് കൊടുത്തതുപോലൊരു ഭൂതക്കണ്ണാടി സക്കറിയ വായനക്കാർക്ക് നൽകുന്നുണ്ടിവിടെ.

“വനത്തിന്റെ ഉള്ളിലൊരിടത്ത് ഒരു തടാകത്തിൽ ഒഴുകി നടന്ന വഞ്ചി വീടായിരുന്നു ദൈവത്തിന്റെ ഓഫീസും ഗൃഹവും. സന്ദർശകർക്കുവേണ്ടി തീരത്ത് ഒരു തോണി കെട്ടിയിട്ടിരിക്കുന്നു. യുവകരടി കെട്ടഴിച്ചതും ദ്രവിച്ച കയർ പൊടിഞ്ഞുവീണു. ആരെങ്കിലും ആ കയറിൽ തൊട്ടിട്ട് കാലം കൂറേയായി എന്നയാൾക്ക് മനസ്സിലായി. അകലെ ഓളങ്ങളിൽ ആടിക്കൊണ്ട് പൊന്തിക്കിടന്ന ദൈവവീടിനു നേരെ അയാൾ തോണി തുഴഞ്ഞു. പാതിവഴി തുഴ ഒടിഞ്ഞു. തുണ്ടങ്ങൾകൊണ്ട് തുഴഞ്ഞ് അയാൾ ദൈവവീടനടുത്തെത്തി. തോണി കെട്ടിയിട്ടിട്ട് ദൈവത്തിന്റെ വരാന്തയിലേക്കു പിടിച്ചുകയറി.”

തേൻപാളി ദൈവത്തിനു സമർപ്പിച്ച് കാര്യം ഉണർത്തിച്ചു. ദൈവം കാലുയർത്തി തലയിൽ വെച്ചുകൊണ്ട് “ഹന്തൊന്ത്?” എന്ന് പറഞ്ഞ് അനുഗ്രഹിച്ചു. കരടിക്ക് അതിന്റെ അർത്ഥം മനസ്സിലായില്ല. സങ്കടത്തോടെ തോണിയിൽ കയറി മറുകരയിലെത്തി. “ഹന്തൊന്ത്” എന്ന് അയാൾ വീണ്ടും ഉരുവിട്ടു. ഉടനെ ഒരു തടിയൻ തേനീച്ച പറന്നുവന്ന് കരടിയുടെ മുകളിൽ ആഞ്ഞൊന്നു കുത്തി. അപ്പോൾ അരുളപ്പാടിന്റെ അർത്ഥം അയാളുടെ മനസ്സിൽ മുഴങ്ങി. “ഒരു തേൻ കൊതിച്ചിയാണ് നിന്റെ ആദർശവധു! ഇനി ഭാഷയുടെ കാര്യം, പെണ്ണ് വന്നാൽ ഭാഷയും വരും.”

കരടി അന്നുതന്നെ ധാരാളം തേൻകുടുകൾ ശേഖരിച്ചു. രാവിലെ സ്ത്രീകളുടെ യാത്ര തുടങ്ങുന്നതിനു മുമ്പുതന്നെ പാതവക്കിൽ തന്റെ തേൻകുമ്പാരം പ്രതിഷ്ഠിച്ചു. എന്നിട്ട് തൊട്ടടുത്ത് മറഞ്ഞിരുന്നു. ആ വഴിയിലൂടെ വന്ന ചില പെണ്ണുങ്ങൾ തേൻപാളിയിലേക്ക് നോക്കിയതേയില്ല. ചിലർ അത്ഭുതത്തോടെ

നോക്കി. രുചിച്ചുനോക്കി ഇലകളിൽ പൊതിഞ്ഞ് സഞ്ചിയിലാക്കി നടന്നുപോയി. തേൻകുമ്പാരം ചെറുതായി. കരടിക്ക് നിരാശയായി. കുറച്ചു സമയം കഴിഞ്ഞപ്പോൾ ഒരു പെണ്ണ് ദൂരെനിന്ന് നടന്നുവരുന്നത് കണ്ടു. പാട്ട് പാടിക്കൊണ്ടാണ് അവൾ വന്നത്. തേൻപാളികൾ കണ്ടപ്പോൾ അവളുടെ കണ്ണുകൾ സന്തോഷംകൊണ്ട് തുള്ളിച്ചാടി വായിൽ ഉമിനീർ നിറഞ്ഞു. അവൾ ചമ്രം പടിഞ്ഞിരുന്ന് തേൻപാളികൾ ആസ്വദിച്ച് കഴിച്ചു. താടിയിലേക്ക് ഒഴുകുന്നതേൻ വടിച്ചു നക്കി. പോകാനൊരുങ്ങിയപ്പോൾ കരടി ഒറ്റച്ചാട്ടത്തിന് അവിടെയെത്തി. “തേൻ കൊതിച്ചീ, ഭവതിയെ ഞാൻ പ്രണയിക്കുന്നു” എന്നു പറഞ്ഞ് ഒരു മണിക്കൂറിലേറെ അവർ ചർച്ച നടത്തി. തുടർന്ന് സുന്ദരിയുടെ വീട്ടിലേക്ക് പോയി. പോകുവഴി നടേശൻ എന്ന് കരടിക്ക് പേരും നൽകി. വീട്ടിലെത്തിയതും കരടി അച്ഛന്റെയും അമ്മയുടെയും കാൽതൊട്ട് നമസ്കരിച്ചു. “ബഹുമാനത്തോടെ, അച്ഛാ, അമ്മേ അനുഗ്രഹിച്ചാലും എനിക്ക് നിങ്ങളുടെ മകളെ ഭാര്യയായി നൽകിയാലും ഞാൻ അവളെ പൊന്നുപോലെ നോക്കിക്കൊളാം.” ഇത്രയും ബഹുമാനമുള്ള പയ്യനെ അച്ഛനമ്മമാർ ഉപേക്ഷിച്ചില്ല. അവർ മകളെ കരടിക്ക് വിവാഹം ചെയ്തുകൊടുത്തു. അവർ കാട്ടിലേക്ക് പോകുകയും ചെയ്തു.

ഒരു വർഷത്തിനുശേഷം നടേശനും ഭാര്യയും കൈക്കൂഞ്ഞുമായി അച്ഛനമ്മമാരുടെ അടുത്തെത്തി. “എങ്ങനെയുണ്ടെടീ ഭർത്താവ്.” അവൾ പറഞ്ഞു. “അമ്മേ, മഹത്തരം. ഇത്രയും ഞാൻ പ്രതീക്ഷിച്ചില്ല. കള്ളുകുടിയില്ല, പുകവലിയില്ല, വായ്നാറ്റമില്ല, രാഷ്ട്രീയമില്ല, മറുപെണ്ണിന്റെ പിന്നാലെ പോകില്ല. അടുക്കള പൂർണ്ണമായും ഏല്പിക്കാം. വയ്പിന്റെ സ്വാദ് പറയാനില്ല. വെള്ളംകോരും, വിറക് വെട്ടും, പൂക്കൾ പഠിച്ചുകൊണ്ടുവരും. തുണിയലക്ക് പ്രശ്നമില്ല, കാരണം തുണിയുടുക്കില്ല. .... മുലകൊടുക്കലൊഴികെ കുഞ്ഞിന്റെ കാര്യം നമ്മളറിയേണ്ട എന്നതാണ്. എല്ലാം അവൻ നോക്കിക്കൊള്ളും. സംശയരോഗം തീരെയില്ല. കുളിച്ച് കുറിയിട്ട് അവന്റെ വരവ് കാത്ത് നില്ക്കേണ്ട. അവനും കുളിയിൽ വലിയ താല്പര്യമില്ല.”

“കിടപ്പറയിലോ?”

“എന്തേ! മാന്ത്രികൻ! ഒരു ദിവസം മുടക്കമില്ല.”

അമ്മ മകളോട് പറഞ്ഞു. “എടീ, എവിടെയെങ്കിലും ഒരു കരടി തേൻപാളിയുമായി ഇരിക്കുന്നതു കണ്ടാൽ എനോട് പറയണം.” സുന്ദരിയായ നായികയുടെ പുരുഷ സങ്കല്പം സമകാലിക പെൺതലമുറയുടെ പുരുഷ സങ്കല്പത്തിന്റെ പ്രതീകമാണ്. അവൻ പുരുഷന്റെ ദുർഗുണങ്ങൾ ഒന്നും ഇല്ലാത്തവനും സർവ്വഗുണസമ്പന്നനുമാണ്. ‘തേൻ’ എന്ന കഥയിലെ ഓരോ ഭാഗവും വിസ്തരം ജനിപ്പിക്കുന്നതാണ്. സങ്കല്പവും സത്യവും തിരിച്ചറിയാനാകാതെ വായനക്കാർ സത്യമായി എല്ലാം വായിച്ചെടുക്കുന്നു. കരടി മനുഷ്യപ്പെണ്ണിനെ കല്യാണം കഴിക്കുന്നതിനെപ്പറ്റിയുള്ള ഓരോ കഥകൾ ഓർമ്മിപ്പിച്ചുകൊണ്ട് ഭ്രമാത്മകമായ അവസ്ഥയിൽ മനുഷ്യ മനസ്സിനെ കൊണ്ടെത്തിക്കുകയും യഥാർത്ഥജീവിതത്തെക്കുറിച്ചും അതിന്റെ നശ്വരതയെക്കുറിച്ചും പറയുകയാണ് സക്കരിയ ‘തേൻ’ എന്ന കഥയിൽ. പ്രകൃതി നിയമങ്ങൾക്ക് വഴങ്ങാത്ത സങ്കല്പമാണ് ഈ കഥയിൽ സക്കരിയ ഉൾച്ചേർത്തിയിരിക്കുന്നത്. അതിലൂടെ ആഖ്യാനത്തിന്റെ വ്യത്യസ്തമായ അനുഭവം വായനക്കാർക്ക് നൽകുവാൻ സക്കരിയയ്ക്കു കഴിഞ്ഞിട്ടുണ്ട്.

## കുറിപ്പുകൾ

1. രാജരാജവർമ്മ എ ആർ, സാഹിത്യസാഹ്യം, പൂ. 12
2. അയ്യപ്പപ്പണിക്കർ കെ., ആഖ്യാനശാസ്ത്രം, ഭാഷാപോഷിണി, പൂ. 25
3. കൃഷ്ണൻ നായർ എം, മജിക്കൽ റിയലിസം, പൂ. 1
4. ടി. പൂ. 3
5. സക്കരിയ, തേൻ പൂ. 15
6. ടി. പൂ. 16
7. ടി. പൂ. 18
8. ടി. പൂ. 19
9. ടി. പൂ. 20
10. ടി. പൂ. 26
11. ടി. പൂ. 27 - 28