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Editorial

I am much delighted to see the response from the academicians and the reading public on the volume 3, 2018 of ACADEMIA. This support and cooperation is highly appreciated and it encouraged the editorial board to proceed with the next volume 4, 2019 of ACADEMIA. Hence the current volume is also submitted before you for your assessment and blessings.

Assuming the fact that higher education institutions are expected to nurture research and innovative explorations, we humbly attempt to present the research outcome of our faculties for your consideration. Hope all the readers would cooperate with this endeavour.

Dr. Naseema. K

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Green Synthesis and Characterization of *NiO* Nano Particle

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Abstract

Green synthesis of nickel oxide nano particles using cymbopogon citratus leaves extract by chemical precipitation method has been reported as it is both cost-effective and environment friendly. The synthesized nanoparticles were characterized using X-ray diffraction (XRD) and UV- visible NIR spectroscopy techniques. The results show that the prepared nano particle is a good material for fabricating solar cells.

Keywords: Green synthesis, Nickel oxide, Nano particles.

1. Introduction

Transition metal oxide nanoparticles have recently received a lot of attention due to their wide range of uses. Among them Nickel oxide has received considerable attention nowadays because of its unique traits. Nickel oxide (NiO) is a promising p-type semiconducting oxide material and Nickel oxide nanocrystallites has a rock salt structure [1]. Due to the quantum measure and surface effects, NiO nano particle shows thermal, mechanical, electronic, catalytic and optical properties that are altogether distinctive from bulk sized NiO particles [2, 3]. It has earned a great attention as a solid candidate for numerous areas including superparamagnetic devices, electrochemical supercapacitors, magnetic materials, catalysis, smart windows, fuel cell and photovoltaic devices [4]. Several methods were used to synthesize NiO nanoparticles such as sol-gel method [5], solvother-

mal route [6], hydrothermal [7], thermal decomposition [8], precipitation method [9], solvothermal process and microemulsion technique [10], coprecipitation method [11] and microwave irradiation [12]. Recent research has drawn a lot of attention to NiO nanoparticle due to its chemical stability, electro catalytic properties, super conductivity characteristics and electron transfer capabilities. Now a days the formation of nanoparticles has been achieved using extracts from various plant parts such as flowers, fruits, seeds, and leaf [13, 14, 15]. The plant extract acts as a powerful reducing, stabilizing and capping agent and has drawn the attention of scientists due to the fact that it is fast, effective, cheap and eco-friendly [16, 17].

In the present study, we have synthesized NiO nanoparticles via chemical precipitation method by using the extract of cymbopogon citratus. The structural and optical properties of nano parti-

cles were characterized by using X-ray diffraction (XRD) and UV- visible NIR spectroscopy.

2. Experimental

2.1. Preparation of cymbopogon citratus extracts

Cymbopogon citratus leaves were washed in distilled water in order to remove any associated dust particle from the leaves and dried in air. These leaves were cut into fine pieces and ground in a mortar. 15g of leaves was immersed in 50ml distilled water and heated at 90°C for 1h. Then the solution was cooled at room temperature and the solid parts were filtered out using filter paper. The obtained solution is taken as cymbopogon citratus extract.

2.2. Preparation of NiO nanoparticles using cymbopogon citratus leaves extract by chemical precipitation method

Nickel (2)nitrate hexahydrate ($Ni(NO_3)_2 \cdot 6H_2O$) was used as the precursor 0.3M nickel nitrate solution was prepared by adding ($Ni(NO_3)_2 \cdot 6H_2O$) to 50ml distilled water. The pH of the solution was adjusted by adding NaOH to the solution under continuous stirring. Then 20ml cymbopogon citratus extract was mixed with 50ml ($Ni(NO_3)_2 \cdot 6H_2O$) solution dropwise under continuous stirring for 8 hours. After stirring, the final solution was placed at room temperature for one day. Finally the light green precipitate was filtered out and washed thoroughly with distilled water and ethanol to remove the impurities. Then the washed particles were dried at 200°C for 1h. After cooling at room temperature, the obtained particles were grinded using a mortar to obtain fine powdered nanoparticles. They were characterized using X-ray diffraction (XRD) and UV- visible NIR spectroscopy techniques.

3. Results and discussions

3.1. XRD analysis of NiO nanoparticles

The structural studies of as prepared nickel oxide nanoparticles were carried out by using X-Ray diffractometer (Bruker AXS D8 Advance) with Cu-K radiation of wavelength 1.5405 \AA over the

diffraction angle 2θ between 20 and 80. Using the XRD pattern shown in Fig.1, the structural information and crystallinity of NiO nanoparticles prepared using cymbopogon citratus extract by chemical precipitation method are examined. The XRD pattern shows diffraction peaks which at $2\theta = 32.94^\circ, 38.56^\circ, 51.47^\circ, 59.24^\circ, 72.50^\circ$ corresponds to (1, 0, 0), (1, 1, 1), (1, 0, 1), (2, 0, 0), (2, 2, 0), (3, 1, 1) (JCPDS card no 00 – 047 – 1049, JCPDS file no.4 – 835). The high intensity and sharp peaks in the XRD pattern indicate the crystalline nature of the as prepared NiO-NPs.

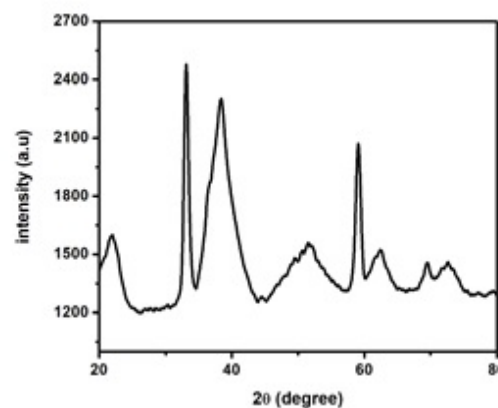


Fig.1 XRD pattern of NiO nanoparticle.

The crystalline size of the as prepared NiO nanoparticles were calculated from the most intense peak using Debye Scherer's equation [18],

$$D = \frac{0.9\lambda}{\beta \cos \theta} \quad (1)$$

Where θ is the Bragg's angle, λ is the wavelength of X-rays (1.5406 \AA for Cu-K), and β is the full width half maximum (FWHM) of the diffraction peak. The crystallite size was found to be 11.7nm. Possibly, the reduced crystallite size is due to the method employed, as plant extract can act as both a fuel and a capping agent, reducing the particle size [19].

3.2. Optical studies

The optical properties of the prepared nanoparticles were studied using Hitachi-U-3410 UV Vis-NIR spectrophotometer. The optical absorption spectra

of as synthesized nanoparticles were shown in Fig.2. From the graph it is clear that a strong absorption in the UV region is occurred at 380nm and a good absorption in the near infrared region.

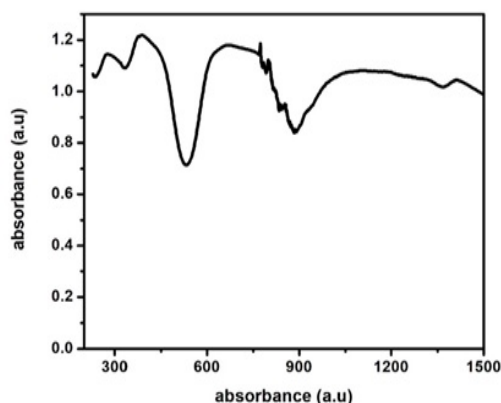


Fig.2 Absorption spectrum of NiO nanoparticle.

The optical band gap energy of the prepared nanoparticles were estimated using Kubelka-Munk function by plotting $h\nu$ versus $(F(R)h\nu)^n$

$$F(R) = \frac{(1 - R)^2}{2R} \quad (2)$$

Where R is the reflectance. For indirect forbidden band gap, $n = \frac{1}{2}$ and for direct allowed energy band, it is 2 [20]. In this case we have calculated the direct band gap by plotting $h\nu$ along x -axis and $(F(R)h\nu)^2$ along y -axis and extrapolating the linear region of the graph to zero $F(R)$.

The value of optical band gap (E_g) is found to be 2.9eV. Hosny reported NiO nanoparticles derived from different precursors have E_g values ranging from 2.45eV to 3.12eV [21]. The obtained value of band gap clearly indicates that the synthesized NiO nanoparticle is semiconductor in nature. We observe that these values are in the same range as that of highly efficient photovoltaic compound [22]. As the present compound has a strong absorption in the UV region and in the near infrared region, it can be considered as a potential material for harvesting solar radiations in solar cells [23, 24].

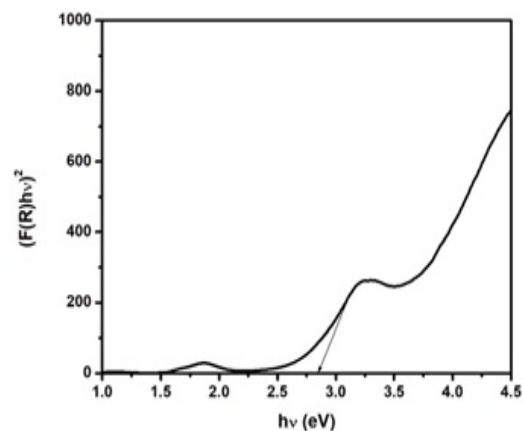


Fig.3 The plot of $(F(R)h\nu)^2$ vs $h\nu$ of NiO nanoparticle.

4. Conclusion

Nickel oxide nano particles have been successfully prepared using cymbopogon citratus leaves extract by chemical precipitation method, which is both cost-effective and environment friendly. XRD pattern confirmed the formation of NiO nanoparticles. The crystallite size of the particle was found to be 11.7nm. The optical band gap of the as prepared particle (2.9 eV) revealed its semiconductor nature. UV Vis-NIR spectrum shows a strong absorption in the UV region and in the near infrared region. Hence it can be considered as a potential material for fabricating solar cells.

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There Was No ‘Watchman’ ; Deciphering Racist Atticus Finch in *To Kill a Mockingbird*

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“Race” has been an interesting term for scholars, theorists, intellectuals and politicians. The endurance of the term in the literary, cultural and political discourses owes its life expectancy to the voyages and explorations made by Europeans in the 15th and 16th century. Since the removal of Jim Crow Laws, after too much imposition, till the murder of George Floyd and the subsequent movement called Black Lives Matter, media in America as well as the whole world has been recording racial violence and counter revolution of the blacks. South America became the ground for more solid discussions on racism. Published in 2015, though written earlier than *To Kill a Mockingbird*(1960), *Go Set a Watchman* triggered controversy in the world of publications and literary world. Amidst the controversy, readers embraced American writer and Pulitzer Prize winner Harper Lees *Go Set a Watchman* as it was the sequel to *To Kill a Mockingbird* (1960) which by critics, readers and celebrities praised as the national novel.

To Kill a Mockingbird is a beautifully constructed novel set in the fictional Maycomb in the 1930s where Scout, her brother Jem and Dill begin their adventurous journey. Ignited by Atticus Finch, lawyer and Scouts father, these children

go through numerous experiences, question the racist actions of their community and show how the society tries to punish an innocent man Tom Robinson. The immediate reason for the accusation of rape attempt towards a woman comes from his mere existence as a black man. Atticus Finch, the father of Scout and Jem stands as a towering figure, owner of an unbiased mind full of sympathy, affection and kindness-the watchman. Guardian states that,

A survey of 2000 U.K. adults to mark the 10th anniversary of literacy charity quick readers found that Finch, the Lawyer father of Lees child heroin Scout, topped the list of the most inspiring literary character for both men and women. . . For women, Finch was followed as most inspirational character by the bow-and-arrow wielding heroin Catniss Everdeen, from Susann Collins Hunger Games series. (Guardian)

In *To Kill a Mockingbird* Atticus Finch defends Tom Robinson and tries to ward off the communities racial prejudice with reason, humanity and idea of equality. *To Kill a Mockingbird* elevates Atticus Finch as an epitome of morality, the guiding star of his children, only to dumb him as a racist, conspirator and a fallible human in *Go Set*

a *Watchman*.

As the sequel *Go Set a Watchman* chronicles the turbulent life of Scout, now a woman, and Atticus Finch, now a racist what unfolds is the unfair treatment of blacks by the privileged race. The drastic change in Atticus Finch becomes clearer when he justifies his participation in the Ku Klux Klan gathering. The only place where readers resort to is in the response of the dazzled younger generation. It is evident in the arguments between Scout and Atticus regarding the rights of black people that;1) The younger generations resist the wicked thoughts and practices of the older generation and always want to follow what they were taught but, in the end, becomes a new version of their parents like Scout;2) The black people seldom get chance to contemplate or speak about their denied rights and sufferings. Readers are unable to see a single black character in the novel engaging in a grave discussion on the condition of blacks. Atticus Finch in *Go Set a Watchman* acts essentially as a racist and partly becomes successful in brainwashing his daughter to his conviction by directing her attention to his state as a simple human being. In the novel Harper Lee portrays how Scout accepts and notices the transition of Atticus realized as the conscience, role model, redeemer of the blacks to a human who is unable to accept the blacks and talks less about their rights.

But this transition is not sudden, but a gradual process. Therefore, the seeds of Atticus the racist were already laid in *To Kill a Mockingbird*. Critical Race Theory enables one to analyse the text critically to see the racist elements. It is very easy to find out racist comments in the novel pronounced by other white characters, but racist Atticus Finch is not manifested. After losing his son Jem, it is with Henry, Scout's childhood friend, that Atticus spends time in legal matters. He was trying to make an Atticus in him and it is explicit in their relationship.

Atticus had treated him like his own son, had given him the love that would have been Jem's—she was suddenly aware that they were standing on the spot where Jem died. Atticus saw her shudder. "Its still with you, isnt it?" he said.

"Yes."

"Isn't it about time you got over that? Bury your dead, Jean Louise." (*Go Set a Watchman*, p.579) Atticus advises Scout to "bury the dead". Along with that he wants her to bury down certain facts also. The history of blacks, how they were segregated in the society-which still exists. Had Jem been alive he would have strongly supported Scout in her crusade against her father's racism and would have hated him more than she does. Jem had engraved Atticus as a great personality and a good man in his mind, even Atticus's failure in freeing Tom Robinson created anger in him.

Atticus's treatment of their black servant in *To Kill a Mockingbird* is remarkable but not fair. She has complete freedom in his house and he never treated her arrogant. Calpurnia's distinction between people is based on culture, cleanliness, and behaviour. And this distinction is made within the whole community (both blacks and whites) whereas; Atticus distinguished Calpurnia based on education not within the whole community but within the black community. In *To Kill a Mockingbird* Scout describes "Atticus said Calpurnia had more education than most coloured folks"—here one can identify that the concept of "race" is not natural referent since it is a social product of the group that holds power. Yet as a hero he gives emphasis to education but dangerously, though his statement suggests colour also. And this stands as an example in viewing Atticus as not a saviour or a watchman for the society. Some way or the other Atticus cannot reject the notorious idea of blackness and whiteness.

To Kill a Mockingbird is written from the point of view of Scout. It's true that Scout had added some gloss on her father. As a child who lost her mother at a very early age her descriptions of Atticus obscures readers view on Atticus Finch. The racial prejudice inherent in the law is also made clear in the novel with the case of Tom Robinson. The history of America involves racial discourse. Atticus was the man of justice and saviour of blacks in *To Kill a Mockingbird*. Tom Robinson turned to Atticus, in the way any hapless man turns to the institution called legal system, court and law. When the law itself is defiled by racism where can the persecuted go for justice? Atticus's withdrawal from the

past is similar to the deliberate amnesia imposed on the German texts after the holocaust. As the character is a lawyer, the questions raised through him in the novel are very significant. Racism concealed in public institutions is unhealthy for a country which looks for co-existence of different races. Considering race as the parameter for recognizing the value of a person is also an alarming issue, which Atticus exemplifies directly in *Go Set a Watchman* and implicitly in *To Kill a Mockingbird*.

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A Study About the Awareness Level of General Public Towards Capital Market with Special Reference to Kasaragod District

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INTRODUCTION

The capital market plays a significant role in the national economy. A developed, dynamic and vibrant capital market can contribute significantly in the speedy economic growth and development. It mobilizes funds from people for further investments in the productive channels of an economy, activating idle monetary resources and puts them in proper investments. Capital market also helps in capital formation. Through mobilization of ideal resources, it generates savings; the mobilized savings are made available to various segments such as agriculture, industry, etc. This helps in increasing capital formation. It raises resources for longer periods of time. It provides suitable interest rate return also to investors. Instruments such as bonds, equities, units of mutual funds, insurance policies, etc. definitely provide diverse investment avenues for the public.

STATEMENT OF THE PROBLEM

The capital market provides an avenue for raising long term financing needs of business. It has a constructive role in the overall development of an economy. The lack of an advanced and vibrant market can lead to underutilization of financial resources. In a particular locality there are hundreds of investors, but all the investors are not ready to invest in capital market. Therefore, the study is concerned with identifying the awareness level of

investors' as well as general public towards capital market. It also aims to find out the factors which induce the investors to have the capital market investment, the factors which restrict the public to invest in capital market and what are the issues faced by investors while investing in capital market.

OBJECTIVES OF THE STUDY

1. To know about the awareness level of investors' towards capital market.
2. To identify the factors influencing the investors to invest in capital market.
3. To identify the awareness level of general public and factors which restrict them to invest in capital market
4. To identify the challenges and issues faced by investors and suggest for further improvement.

HYPOTHESIS OF THE STUDY

Ho: There is no gender difference in capital market investment.

H1: There is gender difference in capital market investment.

RESEARCH METHODOLOGY

Methodology is the way to solve problem systematically. It is an important component of the study. Methodology involves research design, data

collection and sampling techniques. Thus the core concept underlying all research is its methodology.

RESEARCH DESIGN

Research design indicates the plan of action to be carried out in connection with proposed objectives. It provides guidelines to keep a track of all action in order to meet the objectives. This study employed a descriptive research design that uses a survey strategy for data collection.

LIMITATIONS OF THE STUDY

The major limitations of the study are:

1. The sample size is limited to only 100 respondents which constitute small part of the total population.
2. The study was restricted among the people and investors in Kasaragod district.
3. The time available for the study was limited and hence a detailed study would not be constructed.
4. Some respondents are biased in answering the questions.

Review of literature paves the way for a clear understanding of the areas of research already undertaken and throws a light on the potential areas which are yet to be covered. Keeping this fact in mind, an attempt has been made to make a brief survey of the previous work undertaken in the related field of the present study. A review of literature relevant to study has been presented in this chapter and it covers earlier research studies relating to capital market.

Barens Group LLC (1997) studied that India's household savings and foreign investors are key sources of this capital and can and will be increasingly attracted to more efficient, safe and transparent market. Retail investors in India are mostly short-term traders, and day trading is not uncommon. To the extent that buying publicly traded equities is perceived as a risky and speculative short-term activity, many potential investors will simply avoid capital market instruments altogether in deciding to allocate savings.

R. Dixon and R.K. Bhandari (1997) said in their study that consequently derivative instruments can have a significant impact on financial institutions, individual investors and even national economies. Using derivatives to hedge against risk carries in itself a new risk was brought sharply into focus by the collapse of Barings Bank. There is a clear call for international harmonization and its recognition by both traders and regulators. There are calls also for a new international body to be set up to ensure that derivatives, while remaining an effective tool of risk management, carry a minimum risk to investors, institutions and national/global economies. Considers the expanding role of banks and securities houses in the light of their sharp reactions to increases in interest rates and the effect their presence in the derivatives market may have on market volatility.

Patrick McAllister and John R. Mansfield (1998) stated that derivatives have been an expanding and controversial feature of the financial markets since the late 1980s. They are used by a wide range of manufacturers and investors to manage risk. This paper analyses the role and potential of financial derivatives investment property portfolio management. The limitations and problems of direct investment in commercial property are briefly discussed and the main principles and types of derivatives are analyzed and explained. The potential of financial derivatives to mitigate many of the problems associated with direct property investment is examined.

CHI-SQUARE TEST

Chi-square test is an important non-parametric test in statistical work. It is a statistical test, which tests the significance of difference between observed frequencies and corresponding expected frequencies of a distribution, without any assumption about the distribution of the population.

Table showing relationship between gender differences and capital market investment.

HYPOTHESIS

H0: There is no gender difference in capital market investment.

H1: There is gender difference in capital market investment.

Gender	Investment		Total
	YES	NO	
Male	42	10	52
Female	18	30	48
TOTAL	60	40	100

Source: Primary Data

CHI-SQUARE ANALYSIS

O	E	O-E	(O-E) ²	(O-E) ² /E
42	31.2	10.8	116.64	3.73
10	20.8	-10.8	116.64	5.6
18	28.8	-10.8	116.64	4.05
30	19.2	10.8	116.64	6.07
				19.45

$$X^2 = \Sigma(O - E)^2$$

$$E = 19.45$$

$$\text{Degree of freedom} = (2 - 1) * (2 - 1) = 1$$

Result of hypothesis testing

calculated value 19.45

level of significance 5%

degree of freedom 1

table value 3.841

The calculated value is greater than table value therefore we reject null hypothesis. That is, there is gender difference in capital market investment.

FINDINGS

Majority of the investors are investing in capital market for getting better rate of return. But these investors are facing the problem of market fluctuations. Another important problem faced by these investors is risk involved in capital market. Most of the people are investing in secondary market rather than primary market and it is banking sector, in which more investments are made.

Most of the investors are collecting information about capital market from friends and relatives. Magazines and journals also play an important role in providing information about capital market.

Even though people are investing in capital market, most of the investors are not aware of capital market regulators.

Even though most of the people know about capital market, they are not ready to invest in capital market. Majority of the public are not investing in capital market due to lack of awareness and risk factors.

Most of the investors are agreeing the fact that risk of return is high and liquidity is more in capital market.

Most of the investors are trading through brokers. Majority of the investors are in the opinion that there are more investment avenues in capital market. The cost of investment needed is very low and the registration procedure is also very easy in case of capital market investment.

Even though there are more investment avenues, the safety of investment cannot be predicted. Due to that most of the investors are having a neutral opinion with the statement safety of investment is more.

Most of the investors are having neutral opinion regarding the satisfaction on the services provided by the brokers and they are highly satisfied in promptness in receiving return. Majority of the investors are strongly agreeing the statements that "more investment more return", "high risk high return", "more regulation more safety".

Most of the investors are having good opinion about the capital market. Only few percentages of investors are saying excellent opinion about the capital market. There are few investors who are having very poor opinion with capital market.

A major portion of investment in capital market is by male investors. Women participation in capital market is comparatively less.

SUGGESTIONS

Most of the investors are collecting information about capital market from friends and relatives. Efficient investment can be made only when proper information is available to them. So it is better to enhance the amount spent for collecting investment related information among investors.

Capital market is a fluctuating market. There is risk involved in this kind of investment. Due to that the investors should systematically analyse

the industry trend and economic trend before making their investment.

In order to encourage the participation in capital market, the procedure involved in share subscription can be made known to any common individual.

It is revealed from the study that, people have awareness towards capital market but they are not ready to invest in capital market because of lack of awareness and lack of clear guidelines. So the people from rural area and below collegiate educated can be encouraged through various awareness programmes about capital market.

It is risk in capital market that the investors are now facing as a difficulty. An investor can minimize the risk associated with the stock trading by holding diversified stocks in their portfolio. One can diversify their portfolio in many ways like holding stocks of companies operating in different sectors. So that even if one industry is down performing, other sector stocks in the portfolio will pull it to profit.

Brokers can retain their clients only if they are efficient in guiding the investors in the right path. Brokers must insist on the benefits of decent and disciplined trading. They can provide better guidance to their customers for proper investment. Most of the investment in capital market is by male investors. Women are reluctant to enter into the stock market and it must be insisted that it is well suited for home makers. Women market participants can be motivated by emphasizing that it is a path to women empowerment.

Awareness programmes can be organized to home makers by the brokers. Financial literacy must be imparted in the minds of youngsters and boost them to save and invest from their earlier age. Investors should make aware about capital market regulators and security measures provided by them.

CONCLUSION

Investment is the most important input that every developing country requires today to reach the status of a developed country. Capital market is the place where any economy can pool up funds required for its investment needs. In the modern scenario of globalization, capital market plays a vital role. The strong presence of capital market reflects the strength of the economy. Indian

economy has grown into the strong one, strong enough to successfully swim against the currents of global competition, due to the contribution of the Indian capital market. But a small part of investors are making their investment in capital market. Most of them are not very well aware about capital market. Women participation is also very less. These situations can be overcome when the suggestions are implemented in a right way. It is capital market which can contribute a lot in the economic growth and the prosperity of investors. So the investors should make use of this opportunity.

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Soil Properties of Jasdan Taluka in Rajkot District, Gujarat, India

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1. INTRODUCTION

SOIL:

Soil is a natural body consisting of layers (soil horizons) that are primarily composed of minerals which differ from their parent materials in their texture, structure, consistency, color, chemical, biological and other characteristics. There are 300 years to become 1 inch layer of soil. It is the unconsolidated or loose covering of fine rock particles that covers the surface of the earth. Soil is the end product of the influence of the climate (temperature, precipitation), relief (slope), organisms (flora and fauna), parent materials (original minerals), and time. In engineering terms, soil is referred to as regolith, or loose rock material that lies above the 'solid geology'. In horticulture, the term 'soil' is defined as the layer that contains organic material that influences and has been influenced by plant roots and may range in depth from centimeters to many metres.

Organisms in the soil need air and water to survive. Having these essential materials - air, water, and organic matter - makes it possible for plants, bacteria, fungi and small animals like earthworms and insects to live in the soil.

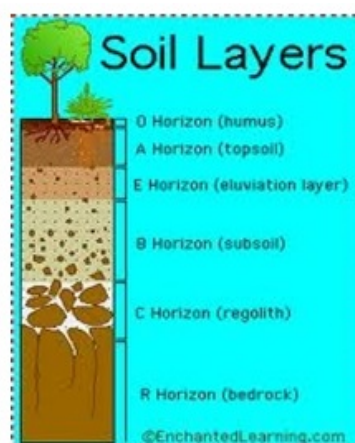
All the living things in the soil, plus essential materials that these organisms use to survive, form the soil ecosystem. Scientists study the soil ecosystem because they want to understand how organisms relate to one another and to the environment that surrounds them.

There are at least 17 essential elements required for plant growth: carbon, hydrogen, oxygen, nitrogen,

phosphorus, potassium, calcium, magnesium, sulfur, iron, manganese, zinc, copper, boron, molybdenum, chlorine, and nickel. Plants obtain carbon, hydrogen, and oxygen from air and water.

SOIL HORIZON

A *soil horizon* is a layer parallel to the soil surface, whose physical characteristics differ from the layers above and beneath. Each soil type has at least one, usually three or four horizons. Horizons are defined in most cases by obvious physical features, chiefly colour and texture. These may be described both in absolute terms (particle size distribution for texture, for instance) and in terms relative to the surrounding material.



A This is a mineral horizon formed at or near

the surface in the zone of leaching or eluviations of materials in solution or suspension, or of maximum in situ accumulation of organic matter or both. The accumulation of organic matter is usually expressed morphologically by a darkening of the surface soil (Ah), and conversely the removal of organic matter is usually expressed by a lightening of the soil color usually in the upper part of the solum (Ae). The removal of clay from the upper part of the solum (Ae) is expressed by a coarser soil texture relative to the underlying subsoil layers

B This is a mineral horizon characterized by enrichment in organic matter, sesquioxides, or clay, or by the development of soil structure; or by a change of color denoting hydrolysis, reduction, or oxidation. The accumulation in B horizons of organic matter (Bh) is evidenced usually by dark colors relative to the C horizon. Clay accumulation is indicated by finer soil textures and by clay cutans coating peds and lining pores (Bt). Soil structure developed in B horizons includes prismatic or columnar units with coatings or stainings and significant amounts of exchangeable sodium (Bn) and other changes of structure (Bm) from that of the parent material. Color changes include relatively uniform browning due to oxidation of iron (Bm), and mottling and gleying of structurally altered material associated with periodic reduction (Bg).

C This is a mineral horizon comparatively unaffected by the pedogenic processes operative in A and B, (C), except the process of gleying (Cg), and the accumulation of calcium and magnesium carbonates (Cca) and more soluble salts (Cs, Csa). Marl, diatomaceous earth, and rock no harder than 3 on Mohs' scale are considered to be C horizons.

R This is a consolidated bedrock layer that is too hard to break with the hands (> 3 on Mohs' scale) or to dig with a spade when moist and does not meet the requirements of a C horizon. The boundary between the R layer and any overlying unconsolidated material is called a lithic contact.

SOIL CHARACTERISTICS:

Soils are made up of four basic components: minerals, air, water, and organic matter. In most soils, minerals represent around 45% of the total

volume, water and air about 25% each, and from 2% to 5% organic matter. The mineral portion consists of three distinct particle sizes classified as sand, silt, or clay. Sand is the largest particle that can be considered soil. Sand is largely quartz, though other minerals are also present. Quartz contains no plant nutrients, and sand cannot hold nutrients as it is easily leached by rainfall or irrigation. Silt particles are much smaller than sand, but like sand silt is primarily quartz. The smallest of all soil particles is clay. Clays are quite different from sand or silt, and most types of clay contain appreciable amounts of plant nutrients. Clay has a large surface area resulting from the plate-like shape of the individual particles. Sandy soils are less productive than silts, while soils containing clay are the most productive and use fertilizers most effectively.

Soil texture refers to the relative proportions of sand, silt, and clay. A loam soil contains these three types of soil particles in roughly equal proportions. A sandy loam is a mixture containing a larger amount of sand and a smaller amount of clay, while a clay loam contains a larger amount of clay and a smaller amount of sand.

PHYSICAL PROPERTIES OF SOIL:

The physical properties of soils, in order of decreasing importance, are texture, structure, density, porosity, consistency, temperature, colour and resistivity. These determine the aeration of the soil and the ability of water to infiltrate and to be held in the soil. Soil texture is determined by the relative proportion of the three kinds of soil particles, called soil "separates": sand, silt, and clay. Larger soil structures called "peds" are created from the separates when iron oxides, carbonates, clay, and silica with the organic constituent humus, coat particles and cause them to adhere into larger, relatively stable secondary structures.

LAND UTILIZATION OF GUJARAT:

Gujarat has total geographical area of 19.6m ha with about 1600km of sea coast. About 10.5m ha land is cultivated out of 19.6 million hectares (Pandey et al, 1999). About 10.5% area is under forest. Gujarat ranks first in the country in the production of cotton and groundnut and second in the production of tobacco. It is dominant

in textile industry.

GEOGRAPHICAL SITUATION:

Gujarat lies on the west coast of India between 21.10 – 24.70 N latitude and 68.40 – 74.40 E longitude. Gujarat is bounded north west and north by Pakistan and Rajasthan respectively, east by Madhya Pradesh and on the south east by Maharashtra, south and west by the Indian ocean and Arabian sea.

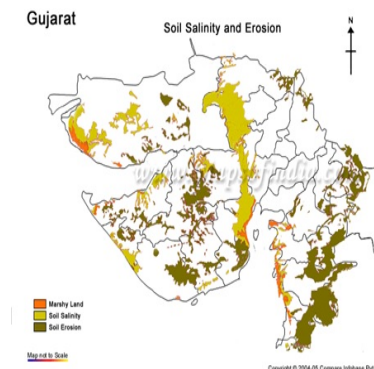
LAND UTILIZATION PATTERN

Sr.No.	Land use	(Area in m.ha)	% of area
1	Total geographic area	19.6	
2	Reporting area for land utilization statistics	18.8	100.0
3	Forest	2.0	10.5
4	Not available for cultivation	3.6	19.0
5	Other uncultivated land excluding fallow land	2.8	14.8
6	Fallow land	0.8	4.23
7	Net are sown	9.7	51.13
8	Area sown more than once	1.2	--
9	Total cropped area	10.9	--

ALLUVIAL SOIL:

These soils cover the entire northern districts, namely, Banaskantha and Mehsana except its southern part and the area of Sabarkantha bordering Kheralu and Vijapur talukas of Mehsana districts. The original alluvial material in the Banaskantha and some parts of the Mehsana districts has been overlain by the sandy material which has been brought by the winds blowing through the desert of Kutch, This sand which is impregnated with salts has imparted salinity to the areas where it has been deposited. The remnants of original parent material in small disintegrated

TYPES OF SOIL



pieces are often visible in these soils. The soils are classified as Ustipsamments and Ustifluents.

Base saturation is much less as compared to black soils. They are apparently noncalcareous as the lime is practically absent. Soil reaction is neutral to alkaline. From fertility point of view, these soils are low in available nutrients

LATERITES SOIL:

The true laterites in real sense of the term do not occur in Gujarat. However, in Dangs districts, with abundant forest vegetation and high annual precipitation of about 250 cm lateritic soils have developed. These soils are yellowish red in colour in the upper horizon. Colour changes to dark reddish brown in the lower horizons. The thickness of solum ranges from 22-40 cm. The surface horizon is moderately porous having weakly developed sub-angular blocky to crumb structure. The soil reaction is neutral to slightly acidic. These soils are highly susceptible to erosion. They are classified as Ustochrepts and Ustorthents.

BLACK SOIL:

Black soils are alternatively known as Regur soils. They are black in colour as suggested by the name (Mirani et al, 2012). The colour of the soil is black because of the presence of certain salts. However, in some places, presence of humus in the soil imparts its black colour. This soil becomes sticky when is wet owing to the high quantity of clay deposition. Black soils are generally thin and sandy in the hilly regions of the country. It does not contain adequate nitrogen but it contains

sufficient phosphorous required for the growth of the plants. Black soils can be found in the Deccan plateau.

SALINE SOIL:

Saline soils develop in the coastal plains of Kerala and Orissa. In some regions of the country, salt content is in toxic doses. Saline soils are basically black in colour. They are highly acidic.

DESERT SOIL:

These soils are basically sandy and are of light brown and reddish colour (Aghara et al, 2012).. They are of saline texture. These soils are favourable for vegetation if there is water content. These soils contain an important mineral that is nitrogen. This type of soil is found in desert regions like in Thar Desert of Rajasthan.

MOUNTAIN SOIL: Mountain soils are considered as a significant variety of soil in the Himalayan region of the country. They are mainly found in dry and cold district in the northern region of India.

STUDY AREA & METHOD



Jasdan is located at 22.03°N 71.2°E. It has an average elevation of 193 metres (633 feet). Jasdan is the biggest Taluka in Rajkot district and has 102 villages. Jasdan had a population of 80,000.

SAMPLE COLLECTION:

Soil is collected from jasdan on 24th December 2012 sample is collected by zig-zag method from 15 cm deep area. 1 kg soil sample was taken for

further analysis.

PHYSICAL CHARACTERISTICS

SOIL TEXTURE:

1. Take about 10g of air dry soil and make a paste of it in a beaker. Take a set of sieves with the following meshes. 60 mesh, 120 mesh, 250 mesh, 360 mesh, 500 mesh to a receiver (By mesh is meant the no. of orifice for one inch linear distance).
2. Pour the soil paste from the beaker over the first mesh and then with the jet of water gradually drain down the particles of smaller size. Then collect the particles over the first mesh in a evaporating dish again with the help of water. Likewise, drain down the smaller size particles with the jet of water from sieve 2 and so on every time collecting the soil fragments from over the sieve.
3. Finally filter the turbid water contained in the receiver. Oven dry and report this fraction as clay. The fraction contained over 500 mesh sieve, over 350 mesh is fine sand, over 250 is coarse sand and the fraction collected over 120 mesh is gravel and over 60 mesh is pebbles and stones.

Textural group

Size in mm

Above 2.0	Gravel
Coarse sand	0.2 to 2.0
Fine sand	0.2 to 0.2
Silt	0.002 to 0.02
Clay	Below 0.002

Water holding capacity:

Take a soil sample, allow it to dry and crush it. Take a brass or tin box with perforated bottom and weigh the box. Take a filter paper and weigh it. Now place a filter paper at the bottom of the box. Fill the box gradually with soil by tapping to ensure uniform filling. Place such a soil filled box in a petri dish containing water and allow it to remain Overnight. Weigh the container once again. Now place this container

in an oven at 105°C for about 24 hours, till constant weight is attained. Record the weight. Take a few filter papers (similar to one used in container). Dip one in water and find out the average amount of water absorbed by the filter paper.

CALCULATIONS :

Record the observations as follows.

Weight of the box

Weight of dry filter paper

Weight of wet soil + box + wet filter paper

Weight of dry soil + box + dry filter paper

Weight of wet filter paper

Calculate water holding capacity as follows

Weight of wet soil = (weight of wet soil + box + wet filter paper) – (weight of box + weight of wet filter paper).

Weight of oven dry soil = (weight of dry soil + box + dry filter paper) – (weight of box + weight of dry filter paper).

Water in soil = weight of wet soil – weight of oven dry soil

$$\text{Water holding capacity} = \frac{(\text{amount of water in the soil} \times 100)}{(\text{Weight of oven dry soil})}$$

CHEMICAL CHARACTERISTIC:

1. pH :

The soil pH is a measure of the acidity or basicity in soils. pH is defined as the negative logarithm(base10)of the activity of hydrogen ions(h+) in solution. In ranges from 0 to 14, with 7 being neutral. A pH below is 7 is acidic and above 7 is basic.

The pH value is measure by pH meter method

2. EC (Electrical Conductivity) :

Electrical conductivity is the most common measure of soil salinity and is indicative of the ability of an aqueous solution to carry an electric current.

Measurements of Electrical Conductivity are determined on a saturation extract of

soil or supernatant liquid of 1:2 soil water suspensions. Electrical conductivity is measured with the help of Electrical Conductivity Meter. The Conductivity Meter is to be calibrated and cell constant be determined with a Standard Solution of 0.7456 gm of dry potassium chloride of 1 liter of distilled water (at 25°C , this solution gives Electrical Conductivity of 1.41 mili mohs/cm)

The SI unit of conductivity is Siemens per meter (S/m) The electrical conductivity is measure by E.C. meter

3. Organic carbon:

Soil organic carbon is a complex and varied mixture of materials and makes up a small but vital part of all soils.

Organic carbon is measure by colorimeter meter with 660 mili micron filter of red color.

Calculation of organic carbon:-

Percentage of carbon = $R \times 0.011$

Where, R = model of colorimeter reading, 0.011 – graph factor

4. Phosphorus:

Phosphate is essential element for plant growth. In soil matrix phosphate is present in both forms i.e. organic form and inorganic phosphate. P fertilizes the soil and has to be release from soil from before they can be used by plants.

Phosphorus is measure by Olson method with use of photo electric colorimeter (with red color filter)

P_2O_5 kg/hector = $R \times 0.10 \times 40/5 \times 1/2 \times 2.24 \times 2.29$

Where, R = model of colorimeter riding

0.10 = graph factor

40 = 40ml sodium bicarbonate (8.5 pH)

5 = 5 ml filtrate

2 = 2 gm sample

2.24 = factor P kg/hector

2.29 = factor P_2O_5 kg/hector

= $R \times 2.05$

Potassium:

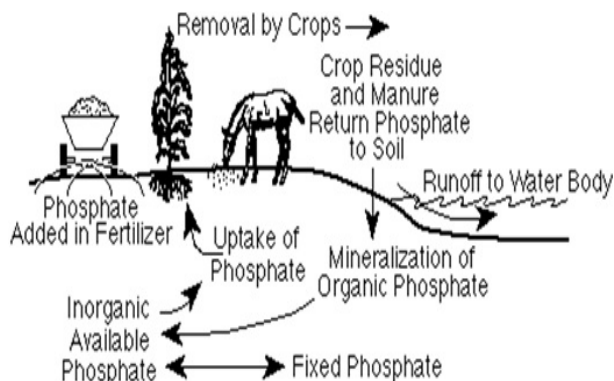
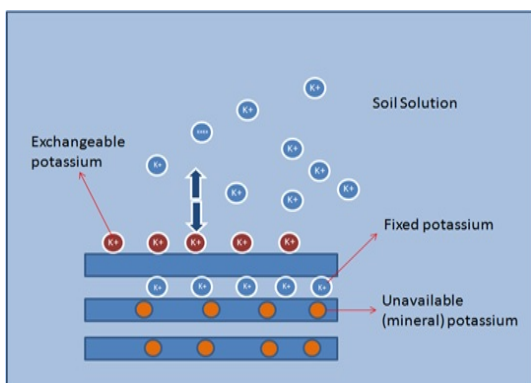


Figure : The Phosphorus Cycle

Potassium is measure by flame photo meter method

Potassium in soil is generally classified into four types:

1. Unavailable Potassium
2. Fixed potassium or Slowly Available Potassium
3. Exchangeable potassium or Readily Available Potassium
4. Soil solution potassium



Calculation:

$$K_2O\text{kg/hector} = R \times 0.36 \times 25 \times 1/5 \times 2.24 \times 1.20$$

Where, R = flame photometer
 0.36 = graph factor
 25 = 25 ml ammonium acetate solution
 5 = 5 gm of sample

$$2.24 = \text{factor-K kg/hector}$$

$$1.20 = K_2O \text{ kg/hector}$$

$$=R \times 0.36 \times 5 \times 2.24 \times 1.20 = R \times 4.83$$

Result Conclusion

Physical properties:

Soil texture:

Sieve size	percentage
50mm	25.70%
100mm	19.31%
150mm	11.84%
200mm	15.47%
240mm	6.100%
Container	21.01%

Water holding capacity	24.40 %
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Test	Available in soil	Required in soil	suggestion
pH value	8.08	-----	
E.C. (dS/m)	0.23	-----	
O.C (%)	3.65	0.5 to 0.75	Little high content
P (kg/hector)	61.28	28 to 56	Little high content
K (kg/hector)	2096.64	Above 280	Very high content

Soil is highly suitable for all type cultivars including ground nut and cotton plant varieties.

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Sylvia Plath's "Daddy": The Mummified Daddy

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"Daddy" by Sylvia Plath was penned in October 12, 1962, shortly before her death. The poem was published posthumously in *Ariel* (1965). In the form of a nursery rhyme and utilizing the holocaust as a powerful metaphor, the poem delineates the Empedoclean love the poet has for her father. Like the Bloomian anxiety of influence, she wrestles with his memories and attempts to fight off his influence. The critic George Steiner has said that, "It is a poem by which future generations will seek to know us." He has also called it, "the Guernica of modern poetry." Sylvia Plath introduced the poem as "one about a girl with an Electra complex" in a BBC Radio reading. Though Plath's father Otto Plath was a German, he was not a Nazi. The holocaust is utilized here as a metaphor as his memories haunted her like the lingering threat over the Jews in a concentration camp. The metaphor connotes a sense of claustrophobia, insecurity and sense of helplessness. The father is loved and hated, intensely remembered and desperately wanted to be forgotten, a God and a Devil, a protector and persecutor. Critics also state that the poem is a desperate attempt to attack her own religious belief as she was brought up to be a Unitarian. The father figure in "Daddy" can be compared to the massive statue that she endeavours to reconstruct in "The Colossus" or the god of the sea in "Full Fathom Five" who is "ancient, ethereal, mysterious, and powerful."

The poem begins with a declaration that the father figure no longer casts a shadow on her. The

indomitable father figure exerts his influence on her like a black shoe. The colour black connotes 'overshadowing,' and also stands for the Nazis. She is contained by the shoe that contains her and shapes her existence. It limits the thirty years of her life within its narrow confines. She barely breathes and does not defy the claustrophobic atmosphere. The poem in the form of a nursery rhyme also reminds one of the age-old "There was an Old Woman Who Lived in a Shoe". The act of sneezing is one of instant relief that if controlled can also prove to be detrimental as signified by the German word "Achoo" that also expresses anguish.

She asserts that she had had to kill the influence or the sway his memories had over her. He died before she had the time to truly hate him. She loves him so much that he cannot rid off the influence he has on her. Thus, her love for him functions as an Empedoclean paradox. He is marble-heavy, the marble balls being reminiscent of childhood. Childhood is a heavy baggage for her: a baggage full of associations with a God-like figure. In "Future of an Illusion" Freud traces God to be a cultural construct that originated from the unconditional reverence that a child has for his father. He comes across as a ghastly statue with a large grey toe as huge as San Francisco. The idea of the statue brings in a sense of towering over and being static. The ambivalence in her love for him comes across. A statue is built out of the idea of veneration but the poetess here ironically ends up hating its effect. His grey aspect foregrounds

the whole picture. Probably the 'grey Frisco seal' refers to the fire and earthquake of 1906 that left the whole of the city of San Francisco destroyed.

The father's head stands conspicuously on the 'freakish' Atlantic, the ocean that is once emblematic of life itself. The word 'freakish' signifies both unnatural and fantastic. Her father, an enemy to life, is juxtaposed against something symbolic of life, particularly since life originated in water. The 'word 'bean' means lively. Green and blue are the colors of the ocean, and are the colours generally associated with the flow of life. The Nausets were tribes that people present-day Cape Cod, Massachusetts and lived close to the sea. They were the colonist's greatest allies. For a person who had migrated from his country America, she endeavoured to locate him." Ach, du" is the German equivalent for "O, you."

The father's guttural tongue is an uninvited phenomenon in the Polish town that he inhabits. It has lost its individuality, and in spite of his commanding nature, he was asked to conform and be politically right as the war situation demanded. Otto Plath was often questioned for his pro-German sympathies during the First World War. The allusion is probably to this aspect. The word 'wars' is repeated three times to emblemize that the war was a war at the political level, social level and personal level. Otto Plath was at war with himself as individuality fought against conformity. Just as Sylvia Plath while writing the poem was at war with remembrances of her father. She says the name of the town is common when addressing a Pollack or Polish friend. A proper noun is transformed to a common noun here. Plath implies that the war that was being fought was a universal one, of man against man, and of people against their own past. Otto Plath, during the times, had emigrated to Grabow, a Polish town.

The friend is referred to by a Polish identity as was common during the times of war, and is therefore defined by his nationality. She seeks to locate her own identity in her father's, but fails to establish even that of her father's as the Polish friend informs her that there are dozen places that he belonged to or resided in diluting the experience more, or more dangerously only two - making each

country stronger leaving him divided between two strong identities. Therefore she could never say where he put his foot or established himself, or where to exactly locate his roots. And because she could never communicate with his existence, she remains stuck for she cannot judge which tongue to converse in. Critics comment on how Plath utilises a polyphonic language replete with hypocorisms, formal language, colloquial language, transliterations, and circumlocutions. One may infer that this multi-voiced language is employed to subvert the German tongue that is militaristic and rigid.

One may also note that when Sylvia Plath was born, Otto Plath was desperate for a boy. He announced on the day Sylvia Plath was born "All I want from now on is a son born two and a half years to the day." And he got what he wanted after two years. His friends toasted him stating: "The Man who gets what he wants when he wants it." Acquainted with this fact, Sylvia Plath may also have been a victim of Attention Deficit Syndrome, and this may be partly the reason for the loathing towards the father. Particularly she was left in her grandparents' care as Aurelia Plath lost her husband Otto Plath early to diabetes, and had to work full time to support her family.

The speaker likens herself to a Jew particularly since her mother Aurelia Plath had a Jewish strain in her. The image of the snare brings in a sense of deliberateness. How everything was planned and executed deviously by Destiny. The onomatopoeic words point to her intense anguish, and the sense of helplessness. She could only think and not speak and was denied the basic freedom of expression. Her father's identity has been defined by collective attributes rather than individualising traits. This is why she discovers her father in every German. The language might seem obscene to her as her father probably was abusive to the mother who was 21 years his junior. Records show him to be unpopular among his students. This probably had left a deep-seated imprint on the mind of the little girl. The impact is like an engine that is 'chuffing' her off. 'Chuff' is an onomatopoeic word, and a euphemism for a powerful expletive. The idea of 'chuffing off' also exemplifies the callous attitude of the Nazis

towards the Jews who were destroyed without any human regard. The population of the Jews were also removed, for their belief was deemed to be abnormal or deviant from the normal set of religious beliefs. Moreover, the Jews were taken to concentration camps by the Nazis in trains during the Holocaust. The train is a metaphor here for the German language due to its run-on effect, its inherent cacophony and the indelible impact it left on her. It crushes her before she can react. The speaker lists some concentration camps "Dachau, Auschwitz, Belsen." Dachau and Belsen were in Germany, and Auschwitz was in German-occupied Poland. The listing of various places point to the universality of the experience.

The Tyrol is part of the Alpine mountain region, with many snow-capped peaks. It borders Germany, in part, but is mostly between the Italian and Austrian border. Therefore Tyrol may stand for her identity that was affiliated to her German father and Austrian mother. The clear beer of Vienna stands in contrast to her mixed ancestry that also has a gypsy strain in her as opposed to the sophisticated life she was accustomed to. Her existence was a conglomeration of various identities. It was neither pure nor true as it quite often negated itself. The question of purity with reference to the Nazis may refer to the practice of ethnic cleansing that they resorted to and the question of Aryan racial purity the Nazis were obsessed with. The gypsy with the Taroc pack may use her trump card here. However, in her situation even the trump card goes against her. She utilises two negatives here to make a positive affirmation when she states: "And my Taroc pack and my Taroc pack."

She reaffirms that she has also been afraid of this larger than life figure that she herself created. 'Luftwaffe' refers to the German air force that was very much in vogue during the Second World II. In *Mr. Noon* D.H. Lawrence elaborates on the chauvinistic patriotism that permeated the nation following the wars. 'Gobbledygoo' is a language characterized by circumlocutions and jargon'. Panzer Man refers to the Nazi Panzer armoured division which specialized in sudden rapid attacks. The carnivalesque comes into play here where her multiphonic voice comes into clash with

the militaristic-masculine German language in keeping with Julia Kristeva notions of the semiotic and symbolic where the symbolic/poetic discourses seek to subvert, disrupt the authoritarian semiotic flux. The father's Aryan eye that is blue has the stamp of a true German who was perceived to be of pure and superior ancestry as compared with the Jews with the adulterated lineage. In the poem, "Little Fugue," Plath expresses the impact of her father's blue eyes. "Little Fugue".

Plath says:

I remember a blue eye,

Arranging my morning.

The moustache carries the unmistakable signature of Hitler. The "o you" that follows these lines is an interjection expressing dismay at the vindictive image. He is then defined by the Swastika, a powerful emblem associated with the Nazis denoting and connoting negativity. The four claws of the Swastika were so menacing that even the sky could not squeak through. Women, the speaker says, adored fascists as they were obsessed with the Romantic and chivalric notions associated with war and soldiers. They were programmed to be submissive. She sees the boot as a persistent symbol of oppression now. His brutish heart perfectly matched his brutish temperament.

The father also stands at the blackboard, authoritative in his teachings. The picture of her father is once removed from reality. And the picture she had in her memory is twice removed from reality. The devil is said to have cleft feet. But here the father sports it as a signature on his chin:

A cleft in your chin instead of your foot

But no less a devil for that, no not

Any less the black man who

My pretty heart was bit into two.

The idea of 'bit' again brings to play a sense of deliberateness. It also hints at the division of her schizophrenic self: "Bit my pretty red heart

in two". She says that she was ten when they buried him. At twenty, she tries to join him through suicide, in her way of 'getting back' at him or having her revenge. She imagines that if her animate being could not do the trick, her inanimate bones would certainly perform the feat. But they pulled her out of the sack and they refused to let her die, and stuck her together with glue. It also implies that the practice was artificial and could never get her back to her original shape. The broken pieces could never merge to form an organic or coherent whole. Since she cannot rejoin him in death, she constructs a model of him. Robert Philips calls it "a surrogate father." The Electra complex becomes evident as she marries a Man exactly with the same traits as her father: Ted Hughes. There is an ambiguity in the sentence: "I made a model of you. This may imply that Otto Plath was her role model. On the other hand, it may also mean that she made a duplicate of him. 'Model' is a singular word that contains the meaning 'original' as well as its opposite 'duplicate.' *Mein Kampf*, the book written by Adolf Hitler may stand as an extension of his policies here. 'Mein Kampf' literally means 'My Battle' and alludes to the struggles Otto Plath went through as he was suspected to be a spy. The rack and the screw are instruments that aid in gruesome torture. Like Hitler, not only did her father/her husband hurt women, they also relished the experience. They took care not only to kill, but destroy. Alan Williamson states: "Archetypally, Plath's father is represented either as godlike but fragmentary, protean, inaccessible.... Possibly the image stems from Plath's early anger at her father as a Prussian "autocrat"; yet her longing for him is so evident, in *The Bell Jar* and elsewhere, that one's mind is drawn more to the traditional etiology of masochism."

She goes into matrimonial ties with his person affirming "I do, I do," However, now she has ultimately learnt to kick off the incorrigible obsession with her father. She endeavours to cut off communication right at the roots. The voices cannot worm or squeeze themselves through. The word 'worm' indicating decay and stagnation, points to her current predicament. She has killed two men along with one - the father and the husband, the living and the ghost, the real and

the imaginary, the vampire and the vamp, the loved part of her father and the hated dimension. The image of Dracula projects the image of blood being sucked out or life being forced out.

In the ancient Goddess worshipping cultures, the male was often offered to the gods as he was deemed expendable since women were required for procreation. The death of a father is not mourned here, it is rather celebrated here by the villagers in a ritual, raising it from a personal level to a social level where the dictator was killed. Death occurs on two levels here: at the personal and the social, the individual and the state. This is why the villagers rejoice. Judith Kroll in "Chapters in a Mythology: The Poetry of Sylvia Plath" points out: "Whenever exorcism, or attempted exorcism, of her father or his proxy occurs it is always as a preliminary to a rebirth which also entails the expulsion of her false self." The speaker employs this ancient practice as a myth to subvert the patriarchal set up that she thrived in. It is a cause that the villagers as a collective community have succeeded in, as they mark their victory by the "dancing and stamping" in a ritualistic stance. Sylvia Plath fails to establish her own identity throughout her life, and therefore robs her father of his identity by virtue of a transferred epithet as she asserts:

Daddy, daddy, you bastard, I'm through.

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A Study on Impact of Green Marketing on Consumer Satisfaction and Environmental Safety with Special Reference to Mogral Puthur Grama Panchayath

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Abstract

Green marketing emphases on protection of long-term welfare of consumers and society by production and use of pure, useful, and high quality products without any adverse effect on the environment. Mass media have started their campaign for protecting the earth from further deterioration. Hence, it is necessary to conduct empirical research studies on strategies of green marketing and its impact on consumer satisfaction and environmental safety.

Keywords: Green marketing, Green products.

INTRODUCTION

Green marketing refers to the process of selling products and/or services based on their environmental benefits. Such a product or service may be environmentally friendly in it or produced and/or packaged in an environmentally friendly way. Green or Environmental Marketing satisfies human needs with minimal detrimental impact on the national environment. In the last decade, consumers have become more enlightened on environmental issues. Green marketing refers to selling a product or rendering services based on environmental benefit.

It came into existence in late 1980s and early 1990s. Green marketing is growing rapidly and consumers are willing to pay a lot for green product. There has been little analysis of the impact of this new market on the consumers and the environment so far. Green marketing affects all areas of our economy, it does not just lead to environmental protection but it also creates new market and job

opportunities.

STATEMENT OF PROBLEM

Green marketing encourages consumers to use eco-friendly products and manufacturers to develop more. The awareness about the products should be done through advertising so that individual buying behavior can be changed which can have an impact on the welfare of the environment.. Consumers are more likely to purchase specific items from brands that are environmentally friendly. In general, environmental marketing is more beneficial for the society and this marketing is entirely different from traditional marketing. Therefore it is important to study the impact of green marketing on consumer satisfaction and environmental safety and to make necessary recommendation based on the findings of the study.

SIGNIFICANCE OF STUDY

This study aims to explain the impact of green

marketing on consumer satisfaction and environmental safety which helps to have a clear idea on green marketing, as the research will help in understanding the impact of green marketing on consumer satisfaction and the changes occurring in our environment due to usage of green products. However, it will provide relevant material for students and others to understand similar study or it will also help further research in this area.

SCOPE OF THE STUDY

The scope of the study is confined to people living in Mogral Puthur Grama Panchayath. The present "STUDY ON IMPACT OF GREEN MARKETING ON CONSUMER SATISFACTION AND ENVIRONMENTAL SAFETY" is attempted to understand the influence of green marketing on consumer satisfaction and the changes on environment through the green products

OBJECTIVES

1. To understand the buying behaviour of consumers related to green marketing.
2. To understand the level of awareness regarding green marketing among consumers.
3. To identify the impact of green marketing on consumer satisfaction and environmental safety.

RESEARCH METHODOLOGY

Research means search for knowledge. It aims at discovering the truth. Research is a systematic and in depth study of any particular topic, subject or area of investigation backed by collection, computation and interpretation of relevant data. The research methodology used in this study is based on primary as well as secondary data.

Sampling Technique

This study makes the use of probability sampling technique, using simple random sampling. Here respondents belonging to the population have an equal chance of being selected for data collection.

Sample size

The sample size for the present study is 100.

DATA COLLECTION

The data was collected from both primary and secondary sources.

- Primary data

The main source of primary data is questionnaire. The first hand data collected through questionnaire is the main source of data for the purpose of analysis.

- Secondary data

The various secondary sources used for includes published and unpublished sources such as web-sites and books etc..

Tools for analysis

Percentage analysis, graphical presentation and tabular method are the statistical tools used for making analysis on the collected data. Percentage analysis is worked out through the following formula.

Percentage = $\frac{\text{No. of respondents}}{\text{total respondents}} \times 100$

REVIEW OF LITERATURE

Keller (1987) and **Shearer (1990)** who noticed that organizations perceive green marketing as an opportunity that can be used to achieve its objectives. Since society becomes greener, the demand for greener goods and services will rise. In order to answer these new needs, marketing will have to become greener, leading companies and other organizations towards sustainable management.

According to Philip Kotler Green Marketing" refers to holistic marketing concept wherein the production, marketing consumption and disposal of products and services happen in a manner that is less detrimental to the environment with growing awareness about the implications of global warming, non-biodegradable solid waste, harmful impact of pollutants etc., both marketers and consumers are becoming increasingly sensitive to the need for switch in to green products and services. While the shift to "green" may appear to be expensive in the short term, it will definitely prove to be indispensable and advantageous, cost-wise too, in the long run.

Joel Makower, a writer on green marketing says that In essence, there is no definition of "how good is good enough" when it comes to a product or company making green marketing claims. This lack

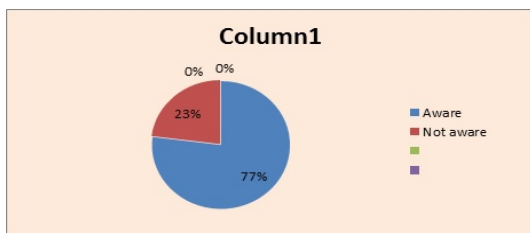
of consensus—by consumers, marketers, activists, regulators, and influential people—has slowed the growth of green products, says Makower, because companies are often reluctant to promote their green attributes, and consumers are often skeptical about claims.

DATA ANALYSIS AND INTERPRETATION

Awareness about green products

Awareness	No. of respondent	percentage
Aware	77	77
Not aware	23	23
Total	100	100

Awareness about green products



Interpretation:

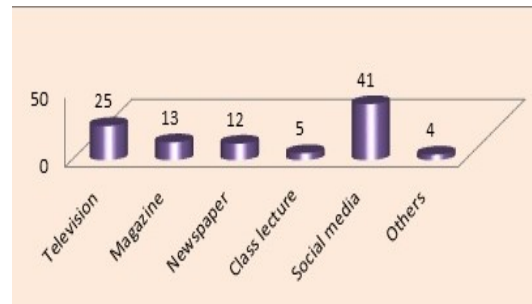
From the above table and figure, it is clear that 77% of the respondents are aware and 23% of respondents are not aware about green products.

Source of awareness about green products

Source	No .of respondent	Percentage
Television	19	25
Magazine	10	13
Newspaper	9	12
Class lecture	4	5
Social media	32	41
Others	3	4
total	77	100

Source: Primary Data

Source of awareness about green products



Interpretation :

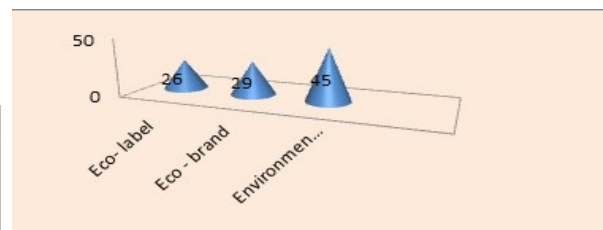
From the above table and figure, it reveals that, 41% of respondents are aware about green products throughout social media and followed by television with 25%, magazines with 13% and newspaper with 12% etc.

Considering factor while purchasing of green products

Elements	No of respondents	percentage
Eco- label	20	26
Eco - brand	22	29
Environmental advertisement	35	45
Total	77	100

Source: Primary Data

Considering factor while purchasing of green products



Interpretation:

On the basis of above table and figure it is clear that 45% of the respondents considering environmental advertisement is the major factor during the purchase of green products. Also eco label with 26% and eco brand with 29%.

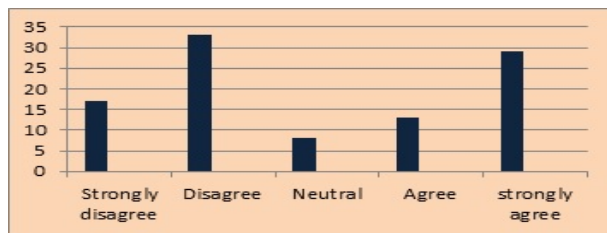
Customer’s belief in the displayed information on eco-friendly packaging

Customer’s belief in the displayed information on eco-friendly packaging

Response	No of respondents	Percentage
Strongly disagree	13	17
Disagree	25	33
Neutral	6	8
Agree	10	13
Strongly agree	23	29
Total	77	100

Source: Primary Data

Customer’s belief in the displayed information on eco-friendly packaging



Interpretation:

From the above table we can clearly see that, 29% strongly belief in displayed information on eco friendly packaging and at the same time 33% of them disagree.

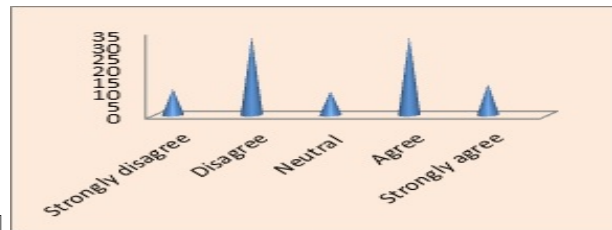
Green products are real ecological need

Response	No of respondents	Percentage
Strongly disagree	9	11
Disagree	25	33
Neutral	8	10
Agree	25	33
Strongly agree	10	13
Total	77	100

Interpretation:

From the above table and figure it is clear that 33% of the respondent agree with the opinion that green products are real ecological need and not

Green products are real ecological need

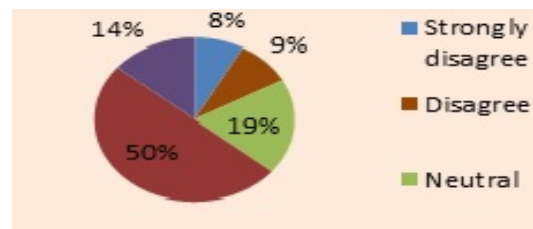


just another marketing strategy and at the same amount of respondents disagree with this opinion.

Extent of green product ability to save resources and manage waste

Response	No of respondents	Percentage
Strongly disagree	6	8
Disagree	7	9
Neutral	15	19
Agree	38	50
Strongly agree	11	14
Total	77	100

Extent of green product ability to save resources and manage waste



Interpretation: From the table we can find 50% of the respondents agree that green products are helping to save resources and manage waste. At the same time 13% strongly agree, 9% of them strongly disagree.

FINDINGS

1. The study reveals that more than half of the respondents are aware of the green product and some respondents are not aware.
2. Green marketing has positive impact on customer satisfaction and environmental safety

- through providing environmental friendly products with quality.
3. The main buying motive in purchase of green product is to protect and save environment.
 4. Social media is the main source of awareness and followed by television, magazine and newspaper.
 5. Majority of the respondents have belief in the concept of green marketing.
 6. Most of the consumers are considering environmental advertisement as a factor for purchasing green products. Some of the consumers are also looking to the eco brands and eco labels.
 7. It is found that most of the respondents are satisfied with the usage of green products compared to other products availing in the market.
 8. It is found that comparatively larger part of consumers say, there is the no availability of green features in the product during purchase.
 9. Most of the consumers are not ready to pay more for green products and only small numbers of the consumers are ready to pay more.
 10. The main reason for the willingness to pay more for green products is due to the environmental protection responsibility. Potential increase of product value and good quality also make influence in the rest of the consumers.
 11. Green products are real ecological need and at the same time it is a marketing strategy.
 12. Half of the respondent believes that green features are helping to save resources and manage waste.
 13. The study shows that lack of availability or unease of access is a major reason for low popularity and demand of green products.
 14. It is found that comparatively larger part of consumers say that green marketing activities are good at addressing environmental issues.
 15. The study reveals that that 39
 16. Majority of respondent said that green marketing and its advertisement is a good source of information.
 17. More than half of the respondent prefer green product and recommend the same to their friends and family.
 18. The study found that green marketing is a headline today because of the reason that green marketing is a strategy adopted by company in order to overcome its competitors.

SUGGESTIONS

1. It is recommended to use appropriate channels of communication to create adequate awareness of green products to consumers including the radio, social media, print media, and outdoor publicity.
2. It is found that very less percentage of the marketing messages from green campaigns are entirely true. So there is need for standardization to authenticate these claims.
3. Add more green features in the products such as attractive eco-packets, eco-label, green stickers etc. should be included more. So that companies can attract the consumers at large.
4. Green marketing is still in its infancy and a lot of research is to be done on green marketing to fully explore its potential.
5. The consumers need to be made more aware about the merits green products. For this, consumers need to be educated.
6. For effective and efficient implementation of this concept of green marketing, the government should play major role.
7. The price of green products is high. So, try to reduce the price of the products effectively because people are not ready to pay premium amount to these products.

CONCLUSION

Green marketing assumes even more importance and relevance in developing countries like India. Thus an environmental committed organization may not only produce goods that have reduced

their detrimental impact on the environmental, they may also be able to pressure their suppliers to behave in a more environmentally “responsible” fashion. Final consumers and industrial buyers also have the ability to pressure organizations to integrate the environmental into their corporate culture and thus ensure all organizations minimize the detrimental environmental impact of their activities.

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Determination of Gel Content of Polyacrylamide Hydrogels Prepared by Various Methods

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Abstract

The polymerisation of acrylamide was carried out by various methods. The conditions for synthesising various hydrogels with and without using cross linking agent and exposure to different energy sources like thermal, microwave and UV has been optimized. The effect of preparation conditions on the gel content of the gels has been studied.

Keywords: Hydrogels, irradiation, crosslinking, gel content.

1. INTRODUCTION

1.1. POLYACRYLAMIDE HYDROGELS

The term hydrogel is referred to a material currently in the swollen state but upon drying, the swollen network of the hydrogel collapses due to the high surface tension of water rendering a xerogel or a dry gel. The overall shape of the hydrogel is preserved during the swelling and shrinking process. Thus, hydrogels by definition are three-dimensional swollen networked structures. A wide variety of natural materials of both, plant and animal origins, chemically modified naturally occurring materials and synthetic polymeric materials are included in this definition [1].

Acrylamide (or acrylic amide) is a chemical compound with the chemical formula C_3H_5NO . Its IUPAC name is prop-2-enamide. Polyacrylamide (poly(2-propenamide) or poly(1-carbamoylethylene), abbreviated as PAM is a polymer formed from acrylamide subunits. It can be synthesized as a simple linear-chain structure or cross-linked, typically using N,N'-methylenebisacrylamide as a cross linking agent. One of the largest uses for polyacrylamide is to

flocculate solids in a liquid. High viscosity aqueous solutions can be generated with low concentrations of polyacrylamide polymers, and these can be injected to improve the economics of conventional water flooding [2].

1.2. MICROWAVE IRRADIATION

Microwaves are a form of electromagnetic radiation with wavelengths ranging from one meter to one millimeter; with frequencies between 300MHz (100cm) and 300GHz (0.1cm). Microwaves are extremely widely used in modern technology. They are used for point-to-point communication links, wireless networks, microwave radio relay networks, radar, satellite and spacecraft communication, medical diathermy and cancer treatment, remote sensing, radio astronomy, particle accelerators, spectroscopy, industrial heating, collision avoidance systems, garage door openers and key less entry systems, and for cooking food in microwave ovens. Nowadays microwaves are used for the synthesis of polymers [3].

1.3. ULTRAVIOLET IRRADIATION

Ultraviolet (UV) is electromagnetic radiation with a wavelength from 10nm to 400nm, shorter than that of visible light but longer than X-rays. UV radiation is present in sunlight constituting about 10% of the total light output of the sun. Although long-wavelength ultraviolet is not considered ionizing radiation because its photons lack the energy to ionize atoms, it can cause chemical reactions and causes many substances to glow or fluoresce. Consequently, UV's chemical and biological effects are greater than simple heating effects, and many practical applications of UV radiation derive from its interactions with organic molecules [4].

1.4. GEL CONTENT

Gel content determines how a polymeric gel performs in service. It is a measure of cross-linking between polymers and also it is a critical property across many applications. In the present work preparation of polyacrylamide gels by various methods was carried out. The gel content of the gels were studied as a function of the cross linking agent as well as on exposure to different forms of energies.

2. EXPERIMENTAL

2.1. PREPARATION OF POLYACRYLAMIDE HYDROGELS

Polymeric gels were prepared by the procedure described below. The reaction mixture (10ml) containing the monomer acrylamide(AAM) and a fixed amount of N,N-methylenebisacrylamide (MBA) Potassium Persulphate (KPS) were made in distilled water, with the composition as indicated in Table 1. The gels were prepared with and without adding the cross linking agent. The polymerization was carried out in test tubes suspended in a water bath at 60°C for 4 hours in the thermal method. In other methods, the polymerization was carried out in the test tubes suspended in a water bath within 10 minutes in a microwave oven and 2 days in a UV chamber. The resulting transparent gels were taken out of the test tubes, cut into small pieces, and then washed with distilled water to remove water-soluble ingredients

and, finally, dried in a vacuum oven at 50°C for a period of 24hrs.

Table 1. Preparation of polyacrylamide hydrogels

Sl.No	Gel Code	AAM (g)	KPS (g)	MBA (g)	Source of Energy
1	SAAS1	1.5	0.33	0	Thermal
2	SAAS2	1.5	0.33	0.05	Thermal
3	SAAS3	1.5	0.33	0	Microwave
4	SAAS4	1.5	0.33	0.05	Microwave
5	SAAS5	1.5	0.33	0	UV
6	SAAS6	1.5	0.33	0.05	UV

2.2. GEL CONTENT

After preparation, the gels were washed and dried in a vacuum oven at 50°C. The dried gels were weighed and then immersed in water for 48hrs to remove the soluble components such as unreacted monomers. The swollen hydrogels were again dried at 50°C to constant weight. The % gel content was determined gravimetrically using the following equation [5],

$$GelContent = \frac{W_o}{W_i} \times 100$$

Where W_i W_o are the weights of the gels before and after extraction.

Table 2. Details of Gel content of Polyacrylamide hydrogels

Sl. No	Gel code	Weight of initial dry gel (g)	Weight of final dry gel (g)	Gel content (%)
1	SAAS2	1.5271	1.4626	95.7763
2	SAAS3	0.9345	0.5687	60.8561
3	SAAS4	1.4763	1.3899	94.1475
4	SAAS5	1.4108	0.7180	50.8931
5	SAAS6	1.8487	1.7142	92.7246

3. CONCLUSIONS

The objective of this work was to prepare polyacrylamide hydrogel by various methods. The polymerisation of acrylamide was carried out with and without using a cross linking agent and on exposure to different energy sources like thermal, microwave, and UV. The major findings of the work are, Gel formation is not effective without a cross

linking agent in the thermal method. Gels that are prepared with cross linking agents give maximum yield in thermal, microwave, and UV methods. The gel SAAS2 shows maximum gel content. This is mainly due to the small amount of cross linking agents. The gel SAAS5 shows minimum gel content. This indicates the need for a small amount of cross linking agent during exposure to UV irradiation.

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Estimation of Protein in *Leiognathus equulus* (Leiognathidae) collected from Madakkara Harbor, Nilesishwar, Kasaragod, Kerala, India

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Abstract

ABSTRACT Fish is a high-protein and low-fat food. It is one among the cheaply available protein source. In this study, the locally available fishes were observed and the total protein content of the fish, *Leiognathus equulus* was carried out to analyze the quality of meat so as to determine the nutritional as well as edible value of the species. The percentage of protein content in fish varied from 5 to 9%. The protein composition of the fish can be affected by external (exogenous) factors, such as fluctuations in the environmental conditions (temperature and food availability), or by internal (endogenous) factors, such as metabolic and physiological activities. This study will help in comparing the nutrition profile of the fish *Leiognathus equulus* collected from Madakkara harbour near Nilesishwar.

Key words: *Leiognathus equulus*, *Leiognathidae*, protein estimation etc.

INTRODUCTION

Fishes constitute one of the most important and plentiful sources of animal protein for maintenance of healthy body (Andrew, 2001). They are used as a preferred food by human beings. The nutritive value of fishes is equal to or even higher than that of poultry, mutton, beef and pork (Shukla and Upadhyay, 1997). From pre-historic period, fishes have been used as protein rich diet for human beings. In country like India, the intake of meat and milk is low, so fish has special importance as a supplement to ill-balanced cereal diets. Fish is rich in a variety of organic and inorganic constituents. The organic constituents include proteins, lipids and vitamins. The inorganic constituents are water and minerals. The high biological value of fish protein is because they contain considerable quantities of almost all essential amino acids required for man. Fish protein can be used therefore to complement the amino acid pattern and improve the overall protein quality of mixed

diet.

In recent years the nutritional importance of aquatic food has increased substantially because of scientifically recognized beneficial effects of eating aquatic food, fats and oil. Fish contributes enormously to the supply of both macro and micro nutrients in our diet (Sujatha et al, 2013).

Malnutrition is a general term that indicates a lack of some or all nutritional elements necessary for human health. Protein energy malnutrition-the lack of enough protein and food that provides energy which all the basic food groups provide is the most lethal form of malnutrition. Fish protein contains all the essential amino acids in required proportions and hence a high nutritional value, which contribute to their high biological value. A larger percentage of consumers do eat fish because of its availability, flavouring and palatability while fewer do so because of its nutritional value. In this project we have made an attempt to estimate the amount of total protein in *Leiognathus equ-*

ulus which is locally available at cheap cost and widely consumed by the people in the coastal areas.

MATERIALS AND METHODS

COLLECTION OF SPECIMEN

The live adults of *Leiognathus equulus*, fish belonging to the class actinopterygii were collected from Madakkara fishing harbour (Kasargod, Kerala, India, 12.2177 N, 75.1286 E) an intertidal region of Kavumchira river. The fishes were collected during low tide (morning). About 15 live fishes were collected from local fishermen of the harbor. Soon after collection the fishes were brought to laboratory and maintained in plastic trays.

ESTIMATION OF PROTEIN

Measured the weight of glass slides and petry dishes that are required for the estimation of protein. The fishes were first measured for their length and width using a tag. The total weight of the fishes were measured using an electronic balance. Seven of them which were approximately equal in size and weight were selected for the estimation of protein. Protein content of the fishes was determined by Biuret method. The tissue was dissected out, weighed and homogenized. The dissected tissue was homogenized using mortar and pistol. For proper homogenization NaOH was added as the diluting agent. Then the sample was transferred to clean capped centrifugation tubes. For analysis, the precipitate was collected by centrifugation at 3000 rpm for 15 minutes and transferred to a test tube. This was used as the protein sample for quantitative analysis. Aliquots of 0.5ml and 1ml and its duplicates of the sample were taken in test tubes and each was made up to 4ml using distilled water. To each test tube 6ml biuret reagent was added. The mixture was shaken well. The test tubes were incubated at room temperature for about 20 minutes, for optimal colour development. After colour development colorimetry was done at 540nm. BSA (Bovine Serum Albumine) was used as the standard.

OBSERVATION

In this study, we observed eleven locally available fishes. They were::

Channa striata, *Sillago sihama*, *Catla catla*, *Sardinella logiceps*, *Mugil cephalus*, *Rasbora*, *Puntius fasciatus*, *Secutor insidiator*, *Gerres filamentosus*, *Rastrelliger kanagurata* and *Leiognathus equulus*. Among these, *Leiognathus equulus* was found to be the most abundant species.

RESULTS

TABLE 1: Optical Density of BSA (Standard 4 mg/ml)

Concentration (ml)	Optical Density (OD)
0.2	0.02
0.4	0.07
0.6	0.06
0.8	0.07
1	1.00

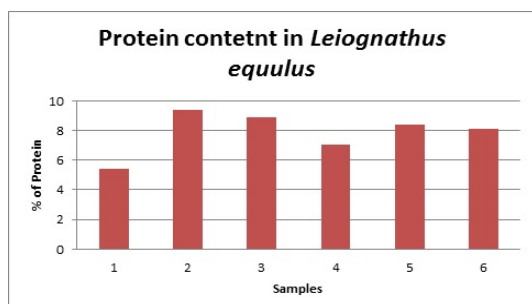
TABLE 2: Measurements of *Leiognathus equulus*

Sl. No.	TOTAL FISH WEIGHT (in g)	TISSUE WEIGHT (in g)
1	23.031	0.733
2	23.343	0.966
3	22.926	0.885
4	20.569	0.859
5	19.508	0.77
6	17.986	0.878

TABLE 3: Protein content in *Leiognathus equulus*

Sl. No.	Fish weight (in g)	Dilution Volume	Protein content in the sample	Protein present in 100 g body weight
1	23.031	11.5	1.254	5.44
2	23.343	11.5	2.191	9.39
3	22.926	11.5	2.04	8.89
4	20.569	11.5	1.45	7.04
5	19.508	11.5	1.63	8.37
6	17.986	7	1.45	8.09

Fig. 1: Graphical representation of Protein content in *Leiognathus equulus* (in g) in 100g body weight



DISCUSSION

Fishes are considered as the protein supplement food of common man, which is cheaper than the other protein supplements. The biochemical profiling of fishes helps to understand their nutritive value. In the present study, we have concentrated on some of the locally available fishes which are usually consumed by the people in this area.

Leiognathus equulus is one of the most available fish in Nileshtar. The present investigation shows that, this species contains 7.87 ± 1.43 mg protein per 100 g body weight. i.e., 5 to 9% protein is present.

Reports show that, the amount of protein in fish muscle is usually somewhere between 15 and 20 per cent, but values lower than 15 per cent or as high as 28 per cent are occasionally met with in some species.

Protein content can be correlated with the phases of maturity and spawning when the gonads were ripe and decline during post spawning period (Parulekar and Bal, 1969; Das, 1978). Fish protein contains all the essential amino acids in required proportions and hence has a high nutritional value, which contribute to their high biological value. A larger percentage of consumers do eat fish because of its availability, flavoring and palatability while fewer do so because of its nutritive value (Devi and Sarojnalini, 2013).

This species belongs to the family Leognathidae. Previous studies shows that, most of the species of this family are commercially important for their abundance, although they contribute comparatively less amount of protein (Jaya et al., 2018). Two essential amino acids called lysine and methionine are generally found in high concentrations

in fish proteins, in contrast to cereal proteins. Fish protein provides a good combination of amino acids which is highly suited to man's nutritional requirements and compares favourably with that provided by meat, milk and eggs (FAO, 2005; Sujatha et al., 2013).

Biochemical studies are very important from the nutritional point of view. They are precursors of other nitrogen compounds (enzymes, hormones, slurry, neurotransmitters, cofactors, etc.) and constitute an important energy source (Sudhakar et al., 2011; Suganthi et al, 2015).

As per the result obtained in the Lipid estimation of *Leiognathus equulus* in the same lab, the fish contains 160 – 240 mg of lipid content in 100 g body weight.

From these observations and discussions, we can conclude that, *Leiognathus equulus* is a preferable fish, that can be included in the diet because of its low lipid content and its comparatively higher protein content and its availability.

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Theyyam: A Reading as Religious and Power discourse

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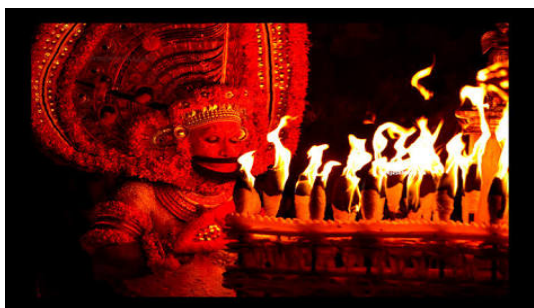
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Among the various performative art forms in Kerala, theyyam is said to be the most popular and richest among Hindus. Theyyam the traditional art form, which provides religious bliss to the devotees and also serves as sacred ritual for all kinds of people in Kerala's multicultural diverse society. Edward B.Tylor, a famous anthropologist in his work, *Primitive Culture* (1871) defines the term 'culture' as, "that complex whole which includes knowledge, belief, art, orals, law, custom, any other capabilities and habits acquired by man as a member of society". As a Folk Culture genre theyyam accommodates learned dance, traditionally transmitted songs, colourful costumes and eloquent dialogues to make it vivid to create a ritualistic ambiance among the audience. Thus it is the culturally transmitted ritualistic tradition which we identify as the most powerful symbol of north Malabar folk tradition.

In theyyam, power works in a political manner according to the structure of both the performing and the patriarchal communities. As every art form is a manifestation of the same period, in the theyyam performances too reflected the then prevailing social system and social structure of North Malabar region. Every folk art form is a recreation of the past along with the tradition. Here the organising community is the upper class and the performing community is the lower class according to the class divisions persist in Kerala over a period of years. There was a dichotomy between the pure and the polluted which apparently

discriminated the Brahmins and the untouchables as a constructed system in India over centuries. This reflected in the ritualistic performances too. During the early medieval period, Kerala society had three main class divisions. They are Brahmin, non-Brahmin and Paniyalar respectively. As Namboothiris took charge of the diverse agricultural field and other land property they assumed greater powers and supremacy in the succeeding period. Other communities are at the bottom level of economic growth and thereby under the bottom part of ritual scale. Simultaneously with the construction of the avarnas (low class), the ritual decentering and religious discrimination also increased. Even Nairs were at the bottom level of the Hindu cast system but assumed to be savarnas (high class) during 19th century after showing excellence in martial art and they gained social status and economy. They took control over the Kazhakams or the land and they provided money for social activities in general. Thus the history of caste system in Kerala is significant in the construction of the regional performance. The subjugation and suppression by the dominant minor upper caste is noteworthy in the formation of new strata in theyyams. The insignificant and the deprived of power in the society, that is the avarnas (low caste) are recreated their aspirations and protest in the form of theyyams. They are trying to represent their own spiritual and mythical believes by identifying them with the god, spirits or their ancestors. Marginalisation leads to insecurity, injustice and exploitation among their



Kathivanoor Veeran theyyam - Photo Courtesy Google

community. They are away from the centres and placed in periphery over centuries. After years of suppression they began protesting by asserting their self-esteem and rights through myths, stories and folktales in the form of performances. The chronicles of their suffering and discrimination regarding their right to worship is fulfilled through the creation of their own Gods and Goddesses in the margin of Indian history.

One of the interesting facts with the theyyam performance is the play of the element of power which operates between the higher and lower in the arena of patriarchy. While considering theyyam as an institution, the lower caste is taking power over the upper caste with their divinity only during their performance. Soon after the performance starts, the then untouchable people transforms into a symbol of God. During the performance the man God pay attention to the problems and worries of the common men endured during their life time. Then the performer God sings the thottam songs with some persons who assist dances, acts in harmony to the myth and asks the whereabouts of the common men by suggesting some solutions to their problems. Thus there is a circular motion of power runs through the play of the performances.

The life of the performer is highly contradictory one where the untouchable becomes the God for a day or for some days in a feudal social system built with inequality, subjugation and caste discrimination. The once deprived man god assumes positive vigour to pacify the whole humans for some hours. They recreate it as a carnival or a festival by burning the tensions and turmoils where their mind and body stay rejuvenated. The elements of

power start circulating from the upper caste to the lower caste and vice versa. The upper caste people may touch the feet of the theyyam by considering him as the care taker and life giver. But still the patronage system that controls and aids the festival is not changing their hierarchical attitude. Just after the performance the performing caste are subjected to be under the earlier primitive form. The recentering of the lower caste people in to a lofty social position for a small period of time is reversed into the decentering of them in to the old oppressed lower status. This continues for years as a system of oppression without any change. But again we read the subaltern performances as the symbols of the silent protests constructed over a period of time against the patriarchy. But in the course of time the protest has been sufficiently accommodated as a hidden agenda postulated by the upper caste to keep the subaltern or the law caste people in the prescribed system. The performer is wielding the power though there is a hidden hierarchical tension around. The upper class people never undertake the performing rituals but they control the communities which are in charge of the rituals. Except a few days of the whole year the subjugated are revealed as marginalised community themselves. The present condition of the religion and rituals in Kerala are not in a favourable position to accept a whole hearted change in the power structure scenario. When it comes in exception some of the castes in Kerala including thiyayas, Vaniya, Maniyani and so on, the situation is different. Even they are the other backward communities they take a distinction from the scheduled tribe and scheduled caste regarding their rituals. Apart from the tharavadu, the other backward castes have their own shrines like temples and kaavus. Some of the rituals are undertaken by the community members by themselves and for some other occasion they seek help from the performing family members. Thus the structural transformation in Kerala over different periods is remarkable due to its diversity and cultural richness.

If we consider every theyyam performance as a 'text' and also as a cultural discourse, where the personification of heroes, heroines and victims occurs there must be the simultaneous construction of power and knowledge within it. Foucault



Muchilottu Bagavathi theyyam photo courtesy Google

postulates that power will always rely on the ignorance of its agents and power works silently over the subjugated. Foucault was trying to investigate what kind of descriptions of world, people and things have been discursively conveyed as the "other" in the name of the "orient" and "subaltern". However Foucault's concept of power is much apt in considering, construction of the existing system of theyyam society in Kerala. He believed that institutions are the away of freezing particular relations of power so that certain number of people is advantaged. Different dimensions of power play can be attributed to theyyam performances. Another is the above discussed hierarchical position of the communities in constructing a performance.

Another dimension regarding the power structure is the internal struggles that we could read from the myths and legends of the thottam songs. The myths and legendary stories regarding theyyam are directing us to some of the hero figures in wars. Some of them identified as human beings and the rest as the spirits having their direct entry from the realm of god. Some of the war heroes among the legendary myths who later turned to theyyams are Kathivannur veeran, Padaveeran, Malaveeran, Puthiyaramban, Kolachan daivam and Padumaala Nair. Some other theyyams according to the myths who showed magic and other metaphysical excellence includes Kshetrapalakan, Vayanattukulavan, Thekkan Kariyathan, Baali and Oorpazhassi.

Some goddess performances such as Muchilottu Bagavathi Theyyam and Makkam Pothi are representing a feminist perspective. Another pow-

erful theyyam performance is Kathivannurveeran Theyyam which visualizes family life and emotional turmoil of common men. Muchilottu Bagavathi theyyam deals with the story of a virgin lady turned to be Goddess of wrath against the command of the patriarchy. The myth of Kathivannurveeran Theyyam represents the family life of a legendary hero named Mandhappan. He was born and brought up in a Thiyya caste family who is interested in kalarividya or martial art, instead of toddy taping that is his familial job. The awkward behaviour of the son made Mandhappan's father angry, and later on he left his own home and stayed in his uncle's house, where he fell in love with a girl, Chemmarathi and married her. The married life of the hero was not a happy one and later fed up with the family life he went for war against the Kodakans troop. But the desolated Chemmarathi was started worrying of him. Mandhappan was killed in the battlefield. Soon after, the heartbroken Chemmarathi ended her life by jumping into a heap of fire in which her husband's body was cremated. The hero of this story turned as a Theyyam, named Kativannur veeran. This myth can be a depiction of history where the themes like wars, the learning of martial arts and the practice of Sati (the practice in which widow suicide in her husband pyre) portrayed. There is a hidden power structure constructed by the performance upon the viewers' mindset and that creates a cathartic effect upon the viewers. According to Foucault the psychological entity of the author (the creator) of the art work and the way of the organising texts (theyyam) are two different things and need to be treated separately. Thus the distribution of power in different layers is noteworthy in analysis of any discourses.

Recent studies about the power structure of any race and class includes the elements like identity, habit, diaspora, hybridity etc. Through course of time the myths, stories and thottam songs in theyyam had undergone massive changes. But the power structure remains the same as the feudal reminiscence in Kerala is an important matter in which contemporary studies have to commence on. Thus the ritual art form theyyam and the power play in the same discourse are noteworthy in the current cultural studies scenario.

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“The Reflective Factors of Cultural Comparison in Fixing Roots in the Absence of Proper Route: A Representative Study of the Novel *Mangoes on the Maple Tree*”

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The very title of the work *Mangoes on the Maple Tree* by Uma Parameswaran appears quite fascinating. Mangoes and Maple appear to be phonemically similar but geographically different. They are deliberate symbols that embody two distinctly different lands and cultures. Strangely enough, those who taste one breed of the fruit mentioned will be reluctant to accept the other as it comes up contrary to their taste and instinct. Thus we build up a deeper significance of the title itself as symbolising two contrary cultures, people with altered temperaments, attitudes, outlook, likes and dislikes.

Parameswaran illustrates the intricate issues connected with the existence of the diaspora against the backdrops of the desire to return home. She is at loss as to the subject whether she should present the problems of the immigrants with a sense of pity and sorrow or to circumvent the challenges to present the joyous and satisfied platform of life enjoyed by the immigrants now. Effective strategies of communication, fulfilment of the desirable requisites of profession, adaptation to the changed climatic and environmental conditions are all essential for fruitful conditioning abroad. Assimilation and integration with the host culture alone can help the diaspora feel at home and get rid of the yearning for what has been left behind. New conditions in an alien country have to be

met confidently and courageously by taking daring choices in life. One should not loiter around the shadow of past experiences there; instead one has to dwell successfully within the dreams and realities of the present. The Indians often find it difficult to adapt closely since they get repeatedly haunted by the grip of their home tradition in terms of food habits, dress codes, linguistic expressions, religious observances and other matters.

Parameswaran takes the readers to the needs and demands of multi-cultural societies in which food exercises a dominant role in the formulation and definition of the culture of a land. The novel provides a carefully analytical mind with situations that cater for identical thinking. For instance, Jayant, one of the characters in the work tries to entertain his friends at home by serving mango juice. He does not prefer maple to mangoes on the ground that the food he decides should reflect the culture of his home land. His family, Bhaves, is concerned intimately with the instinct of the projection of social consciousness associated with the constituent elements of his homeland the culture of his own country.

The work comprises many situations connected with the various influence of racism experienced by the diaspora in a land of extreme unfamiliarity and newness. There are ample number of

situations touchingly portrayed in the work that disclose colour prejudice deep-rooted among many natives of Canada who are unwilling to accept the land of the migrants and their culture. It is cruelly painful to watch such a prejudice growing strong even among small children. The scene in which Jyoti visits Romana at her home and the consequent development of the emergence of two white boys projects the blackness of racism in white background. The two white boys who call on Jyoti and Romana under the pretext of collecting pledges for the school band feel obstructed on hearing that their parents are out and there is nobody at home. The following discourse between the Indian girls and the Canadian boys strongly projects the evils of racism. One boy mocked to his companion "Nobody's home. What you see ain't people, them's ghosts" (95). The white boys laughed wickedly and turned away. Jyoti felt terribly annoyed on hearing the vulgar comment of one of the boys, 'Paki house'. She opened the door and chased the boys in her socks. One boy threw a ball of muddy snow at the window and the other was about to follow him as Jyoti came out before him. She caught him by the collar and dragged him into the house, angrily bursting, "Did you say something" (95). The expression 'Paki' causes severe disturbance to the Indian girls and clearly brings out the evils of racism that create social, cultural and psychological distraction to the diaspora. Even after the passage of many years, such a feel of discrimination exercises strong and unyielding hold on the diaspora and it is the offshoot of colour prejudice. The word 'paki' has multiple dimensions of significance and brings out a feel of abject mortification in the minds of the Indian diaspora in Canada, almost identical to the sensation felt by the Indians in South Africa on hearing the nick name 'nigger'. The term is symbolic of extreme racist abuse which cannot be spared as overheard; it has to be dealt seriously as a dark hit on national consciousness and identity. It is an evidence of the inherent enmity of the white natives towards foreigners and the diaspora in general and should be considered a major concern in the present study which deserves considerable analysis in the light of the emotional conflicts experienced by Indian diaspora in Canada.

Factors like language, race, colour, social and

cultural issues appear to have posed hurdles in the path of root fixing. The solution that can be projected as a bold attempt is to disconnect completely from India and Indianism and assimilate perfectly into the life patterns and culture of the land of adoption. The novel depicts the inclination of Sharad Bhavé and family to get disconnected from homeland connections and merge into absolute cultural demands of Canada. This sort of an analysis is possible under the perspective of the present study on the realization that Canada is a land that welcomes all cultures and diverse social elements.

Concern over fixing roots in a strange and unfamiliar land evokes every now and then in the work. The very title, *Mangoes on the Maple Tree*, is suggestive of this urge of fixing roots in the absence of proper route. The Indian fascination for rivers, mountains, centres of worship, distinct food varieties, and obsession with the native language and vegetation of the country is projected significantly in the work. All these are deeply attached to the development of a national consciousness and culture. The best illustration can be cited in the words of Jayant, "Roots, son, roots. I often think of our plantain trees back home....It is a symbol of continuity and usefulness. You know how every part of the plantain tree is put to good use. Roots are so important. Can we really grow roots here?" (22). Sharad and Veejala, the brother and sister, express their difference regarding the attitudes towards the home country which is connected with the concept of roots. They defend the thought of being back home and integrate with the atmosphere there. They are afraid of beginning a new life contrary to what has been conditioned in the land of settlement. The best instance for such a line of thinking comes up in the scene where Veejala tries to comfort her daughter Priti who longs to go to India, even though she does not know much about the country. Veejala takes pain to convince Priti "Canada is home to you and one can have only one home at a given time. So, let's not get confused as to what's what" (36). Sharad is eager to refute such a line of thinking because he is more conscious of his national and cultural roots. He says, "I think children should know about their heritage. It gives them something to fall back upon" (36). Veejala cannot approve of

his sentiments for home country, tradition and culture. After all what matters important to her is the development of the skill to move around on one's own feet. She considers over-flown thoughts about the home country as a disturbing crutch or a weight on their back. Her argument specifically brings out the confrontation of thought related to roots. "All that weight on our backs. We have to strike roots here. I know that, you know that, but we sure have a devil of time doing it. Let's not mess up anything for the kids" (36). The past is important so far as the concerns over roots are considered. Sharad is worried over a sense of identity and pride that one has to build up in a land that's not one's own. The discussion takes us to the realization that it's rather difficult for the diaspora to cope with the present unless he gets rid of the clutches of the past. Romanticising the past can result in a toxic experience to the settler, liable to distort his comfort and flexibility of existence in another land. Sharad appears to be concerned more with the matter of making money against his worries over the issue of proper adaptation in a land where he searches for roots in vain. His effort to correlate the consciousness of other members related to him on the concept of root fixing does not succeed. Factors like language, race, colour, social and cultural issues appear to have posed hurdles in the path of root fixing. The solution that can be projected as a bold attempt is to disconnect completely from India and Indianism and assimilate perfectly into the life patterns and culture of the land of adoption.

The novel depicts the inclination of Sharad Bhavne and family to get disconnected from homeland connections and merge into absolute cultural demands of Canada. This sort of an analysis is possible under the perspective of the present study on the realization that Canada is a land that welcomes all cultures and diverse social elements. The constraint of the diaspora to mix and mingle freely with the born citizens of the migrated land reflects itself in the characterisation of Sharad who struggles to find rapport with his Canadian friends. His wife, Savitri, marks a difference in attitude with her husband. She always recognizes herself with her deep-rooted native values and tradition, in spite of her long settlement in Canada. She is never able to detach herself from the Indian

Culture and sticks to her characteristic ways of life in a country of difference. Sharad, at times, makes his willingness to return to India but cannot help fulfilling it. He is subjected to an uncertain disorientation which makes him difficult to explain his real belongingness.

The human tendency of migration to far and distant lands in order to ensure existence is as old as human history itself. The literature of the migrant always reflects the ardent attempts of characters to condition themselves with alien lands and get their roots deeply fixed in them. Canada is one among the big countries of North American continent. Since the land lies close to the Arctic province, most of the places will always be covered up in thick snow. The name Canada is closely in tune with 'Canata', which means 'Centre of Migration'. The study focus on stories akin to Canadian life background. The characters highlighted are those who migrated to this country from Kerala with multiple purposes such as employment, marriage and the like. They try to adapt themselves to the new life circumstances or else they pretend to have adapted it. The fluctuation in relationships, emotional imbalance connected with nostalgia is the prime concern of the novel.

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