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From the Editor's Desk

It gives us immense pleasure in presenting the fifth edition of Carmel Bloom. The vision which took root in the previous years has been watered and nurtured to yield better fruits. The scope of the journal encompasses the learning and research endeavours of scholars from various disciplines, namely English, Chemistry, Sociology, Mathematics, Botany, Vocational Studies and Commerce.

Research is, undoubtedly, an unending pursuit and requires refinement and polishing, and this journal purports to offer an avenue for scholars and students to present their research findings. We want to take this opportunity to thank our contributors, editors, faculty members for helping us to materialize Carmel Bloom.

CONTENTS

Mechanical Properties of Banana Fiber Reinforced Phenol Formaldehyde Composites: Effect of Fiber Length.....	1
<i>Athira M. C</i>	
A Sociological Study on Newly Implemented Agricultural Schemes of Government and Its Impact on Farmers (Special Reference To Mala Panchayat).....	15
<i>Dilna T. S</i>	
Evaluation of Preliminary Phytochemical, Antibacterial and Blood Coagulative Properties of <i>Alternanthera Brasiliana</i> (L.) Kuntze	33
<i>Anjali E. R and Hadikka Sherin V. A</i>	
Counter Narratives on Gender Stereotypes: A Study of Select Indian Advertisements.....	43
<i>Athira K. S and Neeva Babu</i>	
Preliminary Phytochemical Analysis and Antimicrobial Activity of <i>Acrostichum Aureum</i> Linn.....	63
<i>Silpa Sahajan and Sujitha C.S</i>	
Postcolonial Resistance: An Appraisal of <i>Heart of Darkness</i> and <i>Cry, the Beloved Country</i>.....	72
<i>Rachana K.U</i>	
A Study on Women Entrepreneurs: Motivational and Challenging Factors.....	82
<i>Anjana Varghese</i>	
A Study on the Role of Microfinance in Women Empowerment with Reference to Chalakudy Municipality.....	90
<i>Aleena Babu, Anjali K. D , Claudia P. R</i>	

MECHANICAL PROPERTIES OF BANANA FIBER REINFORCED PHENOL FORMALDEHYDE COMPOSITES: EFFECT OF FIBER LENGTH

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ABSTRACT

Natural fibers have important advantages such as low density, appropriate stiffness, mechanical properties, high disposability and renewability. Moreover, they are recyclable and biodegradable. In the last few years, the depletion of petroleum resources, the increasing awareness towards the environment and great concern for the greenhouse effect have stimulated the automotive, construction, and nautical packing industries to look for sustainable materials that can replace conventional synthetic polymeric fibers. In reference to these issues, 'green' composites made of renewable agricultural and forestry feedstock represent a suitable alternative to synthetic fiber reinforced composites. Natural fiber is considered as one of the environmentally friendly materials which have good properties compared to synthetic fibers¹ and banana fiber has done effective contribution to this.

Key Words: Natural Fiber vs. Synthetic Fiber, Banana Fiber Reinforced PF Composites, Tensile Strength, Fiber Length

INTRODUCTION

Natural fiber-based composites are under intensive study due to their eco-friendly nature and peculiar properties. The advantage of natural fiber is their continuous supply, easy and safe handling and biodegradable nature.

Banana fibers obtained from the stem of banana plant have been characterized for their diameter variability and their mechanical properties, with a stress on fracture morphology. Natural fibers present important advantages such as low density, appropriate stiffness, mechanical properties and high disposability and renewability. Moreover, they are recyclable and biodegradable.

Banana fiber is a natural fiber which has a wide range of uses in handicraft product developments such as mat, rope, and twines, but only 10% of its pseudo stem is being used for making products and remaining is waste or used as fertilizer. As it has properties like weatherproof, UV protection (because of lignin content), moisture absorption, anti-oxidant and bio degradable etc., it can be used to make variety of products that help farmers economically and have wide scope to create new market. Recent studies have indicated that banana fiber possesses a lot of advantageous physical and chemical properties which can be used as a very good raw material for the textile and packaging industry.

MATERIALS AND METHODS

Initially the banana fibers are dried under the hot sun for more than 24 hours to remove the moisture. The fiber layers are washed in the acetone thinner before they are fabricated. Banana fibers are then chopped to the desired length dried in an air oven at 70⁰ C for half an hour.

5 gm of the cleaned fibers are arranged randomly in the mould in the form of mats and, then it is completely filled with the PF resin. The resin gets mixed with the fiber and air gaps formed between layers during fabrication are removed by gently squeezing. The mixture is kept in oven until dry. After the resin gets dried up, the composites are fabricated using compression moulding (CM) method at 100°C about 45 minutes. An optimum pressure of 1kg/cm² is maintained. Simultaneously vacuum is applied by releasing the pressure. The resin spreads through the mould and impregnates the fiber by pushing the air if any left in the mould. Thus, the resulting composite has low void content and better interfacial adhesion.

CHARACTERIZATION TECHNIQUES

Mechanical Properties of Banana Fiber Reinforced Phenol Formaldehyde Composites:

- a. Effect of fiber length on the stress strain behavior of banana fiber reinforced PF composites: Following graphs 1, 2, 3, 4,

5 shows the stress strain characteristics of banana fiber reinforced phenol formaldehyde composite of varying lengths.

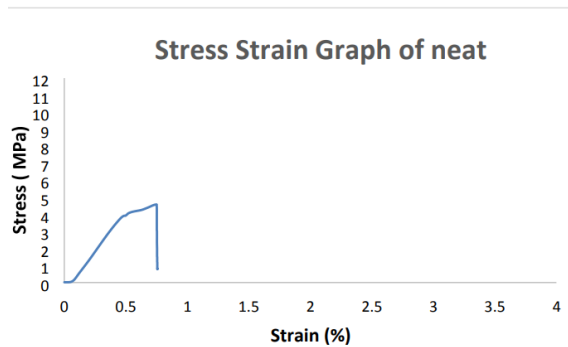


Fig.1 stress strain behavior of neat sample

RESULTS AND DISCUSSIONS

Figure 1 shows the stress- strain graph of the neat sample. Initially it is elastic in nature and the neat sample shows more stiffness. Later it undergoes brittle fracture.

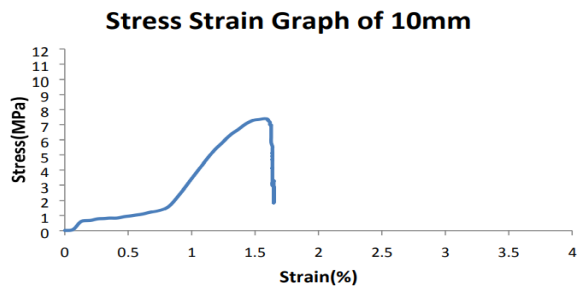


Fig. 2 stress strain behavior of banana reinforced PF composite of 10mm.

Figure 2 shows the stress-strain graph of 10mm banana fiber reinforced PF composite. Initially it is inelastic in nature and it is amorphous in nature too. It is more ductile in character, stress increases.

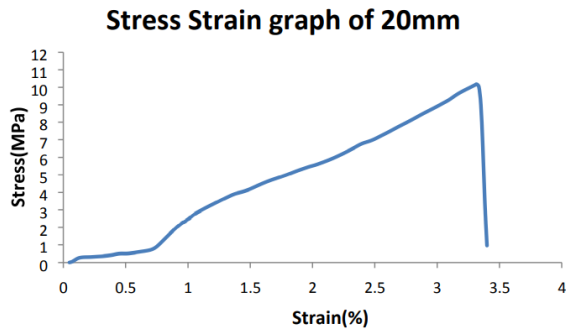


Fig. 3 stress strain behavior of banana fiber reinforced PF composite of 20mm

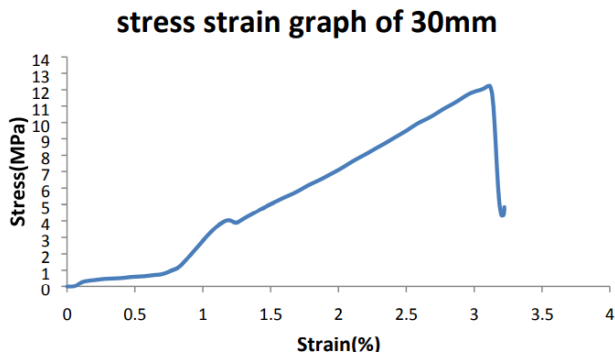


Fig. 4 stress strain behavior of banana fiber reinforced composite of 30mm

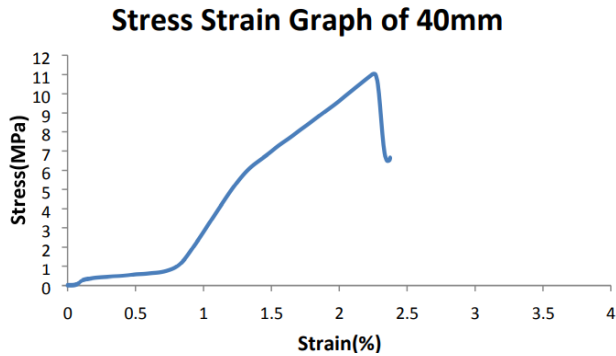


Fig.5 stress strain behavior of banana fiber reinforced PF composite of 40mm

The figures of 20, 30 and 40mm banana fiber reinforced PF composites are similar in nature. Effective stress transfer occurs in 30mm banana fiber reinforced PF composite. Strong bonding between the fiber surface and matrix material ensures great transfer of stress from the matrix to the fiber component. The fibers are well dispersed to maximize fiber surface area in contact with matrix. 30mm banana fiber reinforced PF composite has the maximum stress transfer ability.

Figure 5 shows the stress- strain graph of 40mm banana fiber reinforced PF composite. It can be explained on the basis of effect of fiber length. As length of fiber increases, curling and entanglement of fibers occurs. Fiber- matrix interaction decreases and fiber-fiber interaction increases. It leads to creation of voids in the composite. There is less transfer of stress from the matrix to fiber component as length of fiber increases.

Tensile strength of the composites gives a measure of the ability of a material to withstand forces that tend to pull it apart and this determines to what extent the material stretches before breaking. The stress-strain curve of the neat sample shows a brittle nature. In the case of composites, at first there is a linear deformation and there after a nonlinear behavior was observed. This deviation from linearity accounts for the decreased brittleness of the composite. This is due to the increased fiber – polymer interaction than fiber-fiber interaction. To gain maximum level of stress in the fiber, the fiber length must be at least equal to the critical fiber length.

I. Effect of tensile strength on banana fiber reinforced PF composites:

Length(mm)	Tensile strength (MPa)
0	4.58
10	7.41
20	11.60
30	12.21
40	11.02

Table 1: Tensile strength of banana PF composite

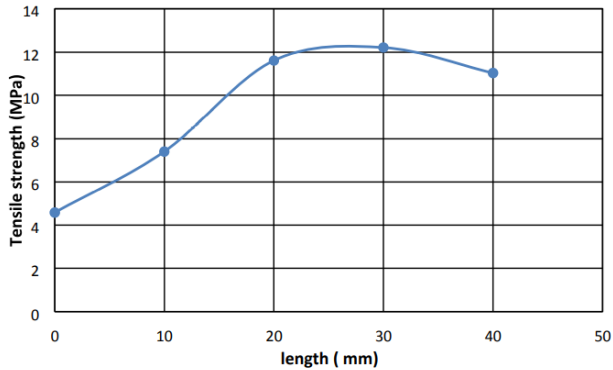


Fig.6 Effect of tensile strength on banana fiber reinforced PF composite

From the figure, it is clear that the increase of banana fiber length improves the tensile strength of composites in 10, 20, 30mm owing to better tensile strength. The strong interface region can transfer the maximum load from the matrix to fiber surface. A definite fiber length is required for the effective transfer of stress between fiber and matrix.

II. Effect of elongation at break on banana fiber reinforced PF composites:

Length (mm)	Elongation at break (%)
0	0.83
10	1.71
20	3.31
30	3.91
40	2.25

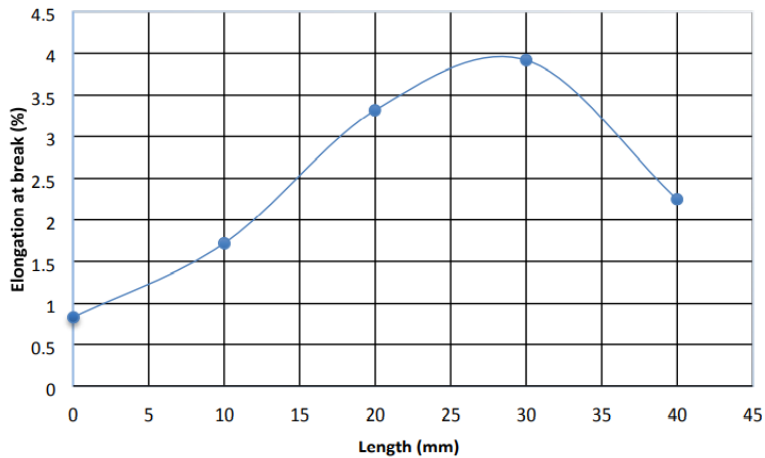


Fig.7 Effect of elongation at break on banana fiber reinforced PF composite

Maximum value of elongation at break is observed for composite prepared from 30 mm fiber length. The deformation of fiber in a composite is dependent on fiber length because of the difference in stress distribution within the composite. In 40mm banana fiber reinforced composite, as length of fiber increases, it leads to entanglement, agglomeration and curling of the fiber. This decreases the opportunity for contact and bonding of matrix with the fiber.

III. Effect of fracture mechanism on banana fiber reinforced PF composites:

PF fiber composites are stronger as compared to that of other natural fiber reinforced polymer composites. The fracture

mechanism differs based on the length of fiber added. Fiber pullout mechanism is one of the failure mechanism in fiber reinforced composite material. Due to this the bond between fiber PF is low, strength and force of attraction decreases. When the fiber pullout mechanism decreases the composite becomes stronger. Hence the composite of 30mm is stronger and its fiber pullout mechanism is low compared to other composites.

In 10mm, 20mm and 40mm banana fiber reinforced PF composite, fiber pullout occurs due to the weaker interface between fiber and matrix and it decreases the interfacial adhesion. As the interface is weak, effective load distribution is not achieved and mechanical properties of the composite are impaired.

In 30mm banana fiber reinforced PF composite, fiber pullout doesn't occur. This is due to the strong interface between fiber and matrix and the interfacial adhesion increases. The strong interface assure that composite is able to bear load even after several fibers are broken because the load can be transferred to the intact portions of broken as well as unbroken fibers.

CONCLUSION

Phenolic resins are excellent synthetic polymers used from early times due to the excellent properties like ease of moulding, good stability, chemical and weather resistance,

electrical insulation, and low water uptake. The reinforcement of banana fiber enhances the properties of PF resin. The mechanical properties of banana fiber, PF resin composites fabricated by CM techniques were analyzed as a function of fiber length.

Utilization of banana fiber will lead to the formation of a new composite product. Tensile properties of the banana fiber/PF composites were investigated as a function of fiber length. All these mechanical properties showed improvement upon reinforcing with the banana fiber. The elongation, brittle nature and buckling characteristics of PF resin were considerably improved by incorporating banana fiber. Effect of fiber length on stress strain behavior shows that, for neat sample there is a brittle nature. The plasticizing effect increases in fiber-filled composites due to the presence of cellulosic fiber. 30mm banana reinforced PF composite has the maximum stress transfer ability. Effect of tensile strength gets increased with fiber length, and the maximum value is for 30mm banana fiber reinforced PF composite and it is the optimized length for effective reinforcement. Maximum value of elongation at break is observed for composite prepared from 30mm fiber length. As the length of fiber increase i.e. for 40mm it leads to agglomeration, entanglement and curling of the fiber. In fracture mechanism, fiber pullout occurs due to weaker interface between fiber and interface and it decrease the interfacial adhesion. Fiber pullout mechanism is one of the failure mechanism in fiber reinforced

composite material. composite of 30mm is stronger and have low fiber pullout compared to other composites. The mechanical properties of the composites show very good improvement upon the addition of the fiber. The maximum tensile properties were observed at 30 mm fiber length. However, for the best balance of mechanical properties, the optimum fiber length is considered. Compared to other natural fiber reinforced PF composites, banana fiber/PF composites show excellent properties.

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**A SOCIOLOGICAL STUDY ON NEWLY
IMPLEMENTED AGRICULTURAL SCHEMES OF
GOVERNMENT AND ITS IMPACT ON FARMERS
(SPECIAL REFERENCE TO MALA PANCHAYAT)**

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ABSTRACT

Agricultural policy of a country is mostly designed by the Government for raising agricultural production and productivity and also for raising the level of income and standard of living of farmers within a definite time frame. Thus, the agricultural schemes formulated by the government aims towards the all round and comprehensive development of the agricultural sector. This study tries to examine about socio – economic conditions, awareness and effectiveness of newly implemented agriculture schemes and its benefits of farmers.

Key Words: Agriculture, Scheme, Technology, Environment, Socio – economic condition

INTRODUCTION

Agriculture helps to meet the basic needs of human and their civilization by providing food, clothing, shelters, medicine and recreation. Hence, agriculture is the most important enterprise in the world. It is a productive unit where the free gifts

of nature namely land, light, air, temperature and rain water etc., are integrated into single primary unit indispensable for human beings. Secondary productive units namely animals including livestock, birds and insects, feed on these primary units and provide concentrated products such as meat, milk, wool, eggs, honey, silk and lac. Agriculture provides food, feed, fiber, fuel, furniture, raw materials and materials for and from factories; provides a free fare and fresh environment, abundant food for driving out famine; favors friendship by eliminating fights. Satisfactory agricultural production brings peace, prosperity, harmony, health and wealth to individuals of a nation by driving away distrust, discord and anarchy. It helps to elevate the community consisting of different castes and class leading to a better social, cultural, political and economic life.

Agricultural development is multidirectional having galloping speed and rapid spread with respect to time and space. After green revolution, farmers started using improved cultural practices and agricultural inputs in intensive cropping systems with laborer intensive programmers to enhance the production potential per unit land, time and input. It provided suitable environment to all these improved genotypes to foster and manifest their yield potential in newer areas and seasons. Agriculture consists of growing plants and rearing animals in order to yield, produce and thus it helps to maintain a biological equilibrium in nature. This study mainly focuses on Mala Grama

Panchayat and the socio-economic condition of farmers. The core area of this study is the awareness and effectiveness of the newly implemented agricultural schemes.

RESEARCH DESIGN AND OBJECTIVES

A research design is a systematic plan prepared for directing a research study. The nature of design related in this study is descriptive research design. It is more specific and focus on particular aspects or dimensions of the problem studied. Variables are properties or characteristics of some events, object or person that can take on different values or amount when conducting research. The study uses both independent and dependent variable. The present study concerns with the major independent variables such as age, sex, religion, education, and agriculture schemes. The dependent variables are method of cultivation, impact of agricultural schemes, and income. The universe of this study constitutes farmers in Mala Panchayat at Thrissur District. 50 samples were selected by using Simple Random Sampling method.

OBJECTIVES

1. To find out the socio – economic condition of farmers
2. To identify the awareness of newly implemented agricultural schemes
3. To find out the effectiveness of newly implemented agricultural schemes

I. Socio-Economic Conditions of the Farmers

A farmer is a person engaged in agriculture, raising living organisms for food or raw materials. A farmer might own the farmed land or might work as a laborer on a land owned by others, but in advanced economies, a farmer is usually a farm owner, while employees of the farm are known as farm workers, or farmhands. Farmers in the State are subject to much greater risk in recent plan periods. The frequency and severity of risks in agriculture have increased on account of climate variability and this has been accompanied by much greater variability of world prices.

Socio-economic status is the position which the individual farmer occupies with reference to the prevailing average standards, material possession, and social participation. Through organic farming, the farmers save the money which they had earlier spent on chemical pesticides and fertilizers and also get yield nearly equal to the previous yield. Further, there is no chemical residue on produce as they do not use chemical pesticides. These may be the possible reasons for medium level of socio-economic status of organic farming farmers.

Table 1.15 Age Wise Satisfaction of Economic Condition

Economic condition	Age				Total
	30-40	40-50	50-60	60 above	
Fully satisfied	2 (50%)	1 (8.3%)	1 (7.1%)	1 (5%)	5 (10%)
Satisfied	1 (25%)	6 (50%)	8 (57.1%)	15 (75%)	30 (60%)
Not satisfied	1 (25%)	5 (41.7%)	5 (35.8%)	4 (20%)	15 (30%)
Total	4 (8%)	12 (24%)	14 (28%)	20 (40%)	50 (100%)

This table shows the age wise satisfaction of economic condition. In this study, 60 percentage of the respondents are satisfied with their economic condition, in which 75 percentage are within the age group 60 and above, 57.1 percentage are from the age group 50-60, 50 percentage are from the age group 40-50 and 25 percentage are from the age group 30-40.

In this study, 30 percentage of the respondents are not satisfied with their economic condition, in which 41.7 percentage are within the age group 40-50, 35.8 percentage are from the age

group 50-60, 20 percentage are from the age group 60 and above and 25 percentage are from the age group 30-40.

In this study. 10 percentage of the respondents are fully satisfied with their economic condition. 50 percentage are within the age group 30-40. 8.3 percentage are from the age group 40-50. 7.1 percentage are from the age group 50-60 and 5 percentage are from the age group 60 and above. Thus, the study showcases that majority of the respondents are satisfied with their economic condition.

Table 1.2 Gender Wise Distribution and Time Period of Working Field

Time period (In hours)	Sex		Total
	Male	Female	
1-5	4 (8.9%)	2 (40%)	6 (12%)
5-10	12 (26.7%)	2 (40%)	14 (28%)
10 above	29 (64.4%)	1 (20%)	30 (60%)
Total	45 (90%)	5 (10%)	50 (100%)

The above table shows the gender wise distribution and time period of working field. Out of the respondents, 60 percentages are working 10 hours and above in which 64.4 percentage are males and 20 percentage are female. In this study 28 percentage of the respondents are working 5-10 hours in with 40 percentage are female and 26.7 percentage are male. 12 percentage are working 1-5 hours in which 40 percentage are female and 8.9 percentage are male. Thus, a majority of the respondents work for 10 hours and above.

The socio-economic condition is measured based on the facilities and convenience enjoyed by them. Now the farmers have a chance at better socio-economic life. The standard of living of people has also improved. The govt. of Kerala has introduced various welfare programmers in the coastal area, though the implementation is not done effectively. In Kerala, the growth performance of the agriculture and allied sectors has been fluctuating across the plan period. The above study shows the gradual growth in agriculture and allied sectors.

2. Awareness of Newly Implemented Agriculture Schemes

A Scheme is a large-scale systematic plan or arrangement for attaining some particular object or putting a particular idea into effect. Kerala govt. has introduced so many schemes and policies for the farmers. These schemes and programs are really helpful for them to fulfill their basic needs. These schemes aim to provide insurance coverage and financial

support to the farmers in the event of crops failure as a result of natural calamities, pests and diseases and also to encourage farmers to adopt progressive farming practices, high value inputs and higher technology in agriculture.

Table 2.1 Agricultural Schemes

Sl. no	Schemes name	Aware and available		Aware and not available		Not aware but available		Not aware and not available		Total	
		F	P	F	P	F	P	F	P	F	P
4.1	National Agricultural Insurance Scheme	5	10	-	-	45	90	-	-	50	100
4.2	Krishonnati Yojana	-	-	15	30	-	-	35	70	50	100
4.3	Initiative for Increasing Flow of Credit	-	-	40	80	-	-	10	20	50	100
4.4	Pradhan Mantra Fasal Bima Yojana	-	-	-	-	15	30	35	70	50	100
4.5	Paramparaat Krishi Vikas Yojana	15	30	-	-	10	20	25	50	50	100

4.6	Krishi Kalian Cess	-	-	-	-	-	-	50	100	50	100
4.7	SHM Special Package Scheme	30	60	-	-	20	40	-	-	50	100
4.8	SHM Midh Scheme	35	70	-	-	15	30	-	-	50	100
4.9	Rashtriya Krishi Vikas Yojana	30	60	-	-	20	40	-	-	50	100
4.10	Pradhan Mantra Krishi Sinchayee Yojana	25	50	-	-	25	50	-	-	50	100

National Agricultural Insurance Scheme: The above table (2.1) shows the National agricultural insurance scheme. 90 percentage of the respondents says that they are not aware of the National Agricultural Insurance Scheme and 10 percentage of them are aware of the scheme and its availability.

Krishonnati Yojana: This table (2.2) shows that 70 percentage of the respondents are not aware of Krishonnati Yojana and is

not available. 30 percentage of the respondents are aware of Krishonnati Yojana but it is not available.

Initiative for Increasing Flow of Credit: This table (2.3) reveals that 80 percentage of the respondents says that they are aware of the Initiative for Increasing Flow of Credit but it is not available and 20 percentage of them says that they are not aware of the Initiative for Increasing Flow of Credit and it is not available.

Pradhan Mantra Fasal Bima Yojana: The above table (2.4) indicates that 70 percentage of the respondents says that they are not aware Pradhan Mantra Fasal Bima Yojana and it is not available and 30 percentage of them says that they are not aware of Pradhan Mantra Fasal Bima Yojana but it is available.

Paramparagat Krishi Vikas Yojana: The above table (2.5) reveals that 50 percentage of the respondents says that they are not aware of Paramparagat Krishi Vikas Yojana and it is not available. 30 percentage of them says that they are aware of Paramparagat Krishi Vikas Yojana and it is available and 10 percentage of them says that they are not aware of the Paramparakat Krishi Vikas Yojana but it is available.

Krishi Kalian Cess: The above table (2.6) shows that 100 percentage of the respondents says that they are not aware of Krishi Kalian Cess and it is not available.

SHM Special Package Scheme: The above table (2.7) shows that 60 percentage of the respondents are aware of SHM Special Package Scheme and it is available. 40 percentage of them says that they are not aware of SHM Special Package Scheme but it is available.

SHM Midh Scheme: The above table (2.8) indicates that 70 percentage of the respondents says that they are aware of SHM Midh Scheme and it is available and 30 percentage of them says that they are not aware of SHM Midh Scheme but it is available.

Rashtriya Krishi Vikas Yojana: The above table (2.9) shows that 60 percentage of the respondents says that they are aware of Rashtriya Krishi Vikas Yojana and it is available and 40 percentage of them says that they are not aware of Rashtriya Krishi Vikas Yojana but it is available.

Pradhan Mantra Krishi Sinchayee Yojana: The above table (4.10) indicates that 50 percentage of the respondents says that they are aware of Pradhan Mantra Krishi Sinchayee Yojana and it is available and 50 percentage of them says that they are not aware of Pradhan Mantra Krishi Sinchayee Yojana but it is available.

Many of the farmers have the awareness of different schemes provided by the govt. but they do not know about the desired schemes for the particular item that they cultivate and

also, they have less knowledge of the scheme names provided by the Government.

3. Effectiveness of Newly Implemented Agriculture Schemes

Each scheme/program introduced by the government has a specific aim such as educational purpose, scientific approaches in agriculture, improve technical knowledge and the like. The schemes mainly focus on the financial requirements, agriculture tools, getting high productivity seeds, lands for cultivation and some other agriculture needs.

Table 3.3 Education and Schemes for Improvement in Technical Knowledge

Improvement in Technical Knowledge	Education			Total
	Primary	Secondary	Graduate	
Yes	34 (87.1%)	5 (62.5%)	2 (66.7%)	40 (80%)
No	5 (12.9%)	3 (37.5%)	1 (33.3%)	10 (20%)
Total	39 (78%)	8 (16%)	3 (6%)	50 (100%)

Out of the respondents, 80 percentages say that they have gained improvement in technical knowledge. In which 87.1 percentage have primary education; 66.7 percentage are graduates and 62.5 percentage have secondary education. In this

study, 20 percentage of the respondents say that they have no improvement in technical knowledge. In this category, 37.5 percentage have secondary education; 33.3 percentage are graduates and 12.9 percentage have primary education.

Government of Kerala is giving more priority for welfare of the farmers. In this regard, it is implementing several farmer welfare schemes to revitalize agriculture sector and to improve their economic conditions. Therefore, the government has rolled out new initiatives, schemes, programs and plans to benefit all the farmers. In this study majority of the farmers have got the benefits of these schemes and have improved their productivity based on that. These schemes have also helped to improve their technical knowledge and gain technical expertise in some agriculture methods. Sometimes they get financial benefits also.

CONCLUSION

The study aimed to explore the present conditions of the farmers in Kerala. The study mainly focused on randomly selected 50 respondents in Mala panchayat from Trissur district. The primary data were collected through interview schedule and secondary data from books, journals etc. The first objective of this study was to analyze the socio-economic conditions of the farmers and the second objective focused on farmers' awareness of newly implemented agriculture schemes. The third objective was to understand the effectiveness of the newly implemented agriculture schemes.

Agriculture plays a crucial role in the life of an economy. It is the backbone of our economic system. Agriculture is the cultivation of land and breeding of animals and plants to provide food, fiber, medicinal plants and other products to sustain and enhance life. Agriculture not only provides food and raw material but also employment opportunities to a very large proportion of population.

In our economy (Kerala), agriculture plays a huge role in financial and cultural aspects. It also helps in the formation of a society with healthy and wealthy. Thus, it is important to give more attention to agriculture and allied sectors. However, in the recent years, the new generation have shown little interest in agriculture and other related sectors.

FINDINGS

- ❖ Majority of the farmers belonged to above 60 age group
- ❖ Most of the people engaged in agriculture are men.
- ❖ Majority of farmers have only primary education.
- ❖ Most of the farmers are not much financially sound because they get less income from their agriculture.
- ❖ Majority of the farmers have only one major source of income, i.e., agriculture
- ❖ Though majority of farmers' economic status of family is APL, considering their living condition and other matters, they are not supposed to be treated as an APL category.

- ❖ Majority of the respondents say that agricultural schemes help to improve their economic condition.
- ❖ Majority of the farmers know about the various schemes provided by Govt. But the respondents say that sometime they have problems while applying for agricultural schemes
- ❖ Majority of the respondents say that they get support from Govt. for agriculture purposes
- ❖ Financial benefit from the agriculture schemes is very fluctuating
- ❖ One of the most important benefits from these schemes is that the farmers get to improve their technical knowledge.
- ❖ There are irregular variations in production cost and the quality of production.
- ❖ Majority of the farmers say that agricultural schemes reduce the production cost.
- ❖ Using the modern agriculture machinery can reduce the efforts of farmers.
- ❖ Most of the farmers get financial help from the Government.

SUGGESTIONS

- Agriculture programs must be launched by the Govt. based on the socio-economic status of farmers.
- The government should give awareness classes to the farmers about the newly introduced technologies.

- The Govt. agencies should become more active in the remote villages which are essential for the development of farmers in the remote villages.
- Create insurance plans for farmers and all their cultivated item
- The Govt. must provide awareness classes about the agricultural schemes and their related information.
- The employees should have primary knowledge of the schemes.

CONCLUSION

Agriculture is the cultivation of land, breeding of animals, plants to provide food, fiber, medicinal plants and other products to sustain and enhance life. Agricultural policy of a country is mostly designed by the Government for raising agricultural production and productivity and also for raising the level of income and standard of living of farmers within a definite time frame. These schemes are formulated for all round and comprehensive development of the agricultural sector.

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**EVALUATION OF PRELIMINARY
PHYTOCHEMICAL, ANTIBACTERIAL AND BLOOD
COAGULATIVE PROPERTIES OF
ALTERNANTHERABRASILIANA (L.) KUNTZE**

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ABSTRACT

Alternantherabrasiliana (L.) Kuntze is a flowering plant of the family Amaranthaceae with medicinal properties. The study was carried out to evaluate the phytochemical, antibacterial and blood coagulative properties of the plant. Preliminary phytochemical analysis of the aqueous extract of the leaves revealed the presence of carbohydrates, protein, amino acids, reducing sugar, tannin, saponin, phenols, terpenoids, steroids and flavonoids. Antibacterial activity was screened by using agar well diffusion method against pathogenic bacteria *Staphylococcus aureus*, *Pseudomonas aeruginosa* and *Escherichia coli*. Plant extract showed significant blood coagulating property than normal clotting in human blood and the highest antibacterial activity was shown against *S. aureus*

Key Words: Alternanthera brasiliiana (L.) Kuntze, Agar Well Diffusion, Phytochemical, Antibacterial and Blood Coagulative Property

INTRODUCTION

Since ancient times, plants have been exemplary source of medicine. Generations of skilled herbal practitioners, researchers and scholars have refined and tested the vast science of herbology, producing thousands of plant-based remedies that are safe and effective (Jahan, 2016; Hefferon, 2012; Ross, 2013). Antibiotics are one of our most important weapons in fighting bacterial infections and have greatly benefited the health-related quality of human life since their introduction (Bhalodia and Shukla, 2011). However, with the ‘antibiotic era’, mankind is now faced with the global problem of emerging resistance in virtually all pathogens (Peterson and Dalhoff, 2004). Blood coagulation is an important mechanism in human body. Many plants have certain compounds which can initiate blood coagulation (Seong and Matzinger, 2004; Gokeret *al.*, 2008; Smith *et al.*, 2006). *Alternanthera brasiliana* (L.) Kuntze, belongs to the family Amaranthaceae. The plant is popularly used in Brazilian folk medicine and it has analgesic and anti-inflammatory activities (De Souza *et al.*, 1998).

MATERIALS AND METHODS

Plant Collection and Extraction: Fresh leaves of *A. brasiliana* were collected from the regions of Kodakara, Thrissur district, Kerala and they underwent shade drying. 10 gm of powdered dried leaves were dissolved in 200 ml of distilled water and then kept in

water bath at 50°C for 30 minutes. Then it was cooled to room temperature for 24 hours. The solution was filtered with the help of Whatman filter paper and the extract was used for further analysis.

Phytochemical Analysis: Qualitative phytochemical analysis of aqueous extract was performed by suitable reagents for the detection of major chemical groups as per the method suggested by Harborne.

Antimicrobial Screening: *Staphylococcus aureus*, *Pseudomonas aeruginosa* and *Escherichia coli* were the bacterial strains selected for the study of antimicrobial activity. The bacterial cultures were clinical isolates, obtained from Poly Clinic Pvt Ltd, Thrissur. The standard antibiotic used was gentamicin. The media used for bacterial assay were Muller Hinton agar and nutrient broth. The plant extract was examined to detect its antibacterial property against pathogenic strains by agar well diffusion method. The culture suspensions from the nutrient broth were swabbed on the media using streak plate method. Wells were labeled as -ve, control and extract. Leaf extracts were dispensed into the wells and incubated at 37°C for 24 hours. The zone of inhibition was calculated by measuring the diameter of the inhibition zone around the well including the well diameter.

Blood Coagulant Activity: Blood samples were collected in aseptic condition from healthy human volunteer of age between 18-50 years, not suffering from any cardiovascular disease,

coagulation disorders and not recently using non-steroidal anti-inflammatory drugs. Smokers, pregnant women, women on oral contraceptive and children were also excluded from the study. The hemostatic activity of aqueous extract was studied on clotting time (CT) of blood, by using Lee-White method. For the same, venous blood was collected from volunteers in a clean and dry slide without the addition of an anticoagulant and the time required for clotting was noted (normal clotting time is 5-12 min). Primarily, all slides were screened for the effect on clotting time (CT) of blood samples obtained from the healthy subject. Likewise, CT was recorded for all the samples with the addition of little amount of leaf extract.

RESULTS AND DISCUSSION

Preliminary phytochemical analysis of *A. brasiliiana* aqueous leaf extracts revealed the presence of constituents which are known to exhibit medicinal as well as physiological activities. It revealed the presence of tannins, saponins, phenols, flavonoids, terpenoids, steroid, proteins, amino acid, carbohydrates and reducing sugar (Table 1). Alkaloid was not detected. The aqueous extract showed varying degrees of antibacterial activity against all the three bacteria. Aqueous extract exhibited highest inhibition zone (15mm) against *S. aureus*. Aqueous extract had equal to the zone of inhibition of standard in *P. aeruginosa*(12mm). Minimum zone of inhibition (10mm) was observed against *E. coli* (Table 2).

Negative control was not showed any antibacterial activity (Fig.1). A few other species of *Alternanthera* have previously been shown to possess antibacterial properties and is mainly due to the presence of flavonoids (Silva *et al.*, 2011). Normal human blood clotting time is 4-5 minutes. Experiment done with different types of blood groups such as A +ve, A-ve, B +ve, B-ve, O +ve, O-ve, AB+ve and AB-ve, the aqueous extract faster the blood clotting time approximately 2-3 minutes (Table 3). The power of the hemostatic sap is explained by the strong presence of tannins and flavonoids (Klotoe *et al.*, 2012). So, the plant extract is very useful as coagulant in bleeding diseases and wounds.

Table 1: Phytochemical analysis of aqueous extract of *A. brasiliiana*

Tests performed	Occurrence
Carbohydrates	+
Reducing sugar	+
Amino acid	+
Protein	+
Terpenoids	+
Steroid	+
Saponins	+
Phenols	+
Flavonoids	+
Tannins	+
Alkaloids	-

Table 2: Antibacterial activity of the aqueous extracts against selected pathogens

Tested organisms	Gentamicin (+ve control)	Aqueous extract	Water (-ve control)
<i>Staphylococcus aureus</i>	12mm	15mm	0mm
<i>Pseudomonas aeruginosa</i>	12mm	12mm	0mm
<i>Escherichia coli</i>	12mm	10mm	0mm

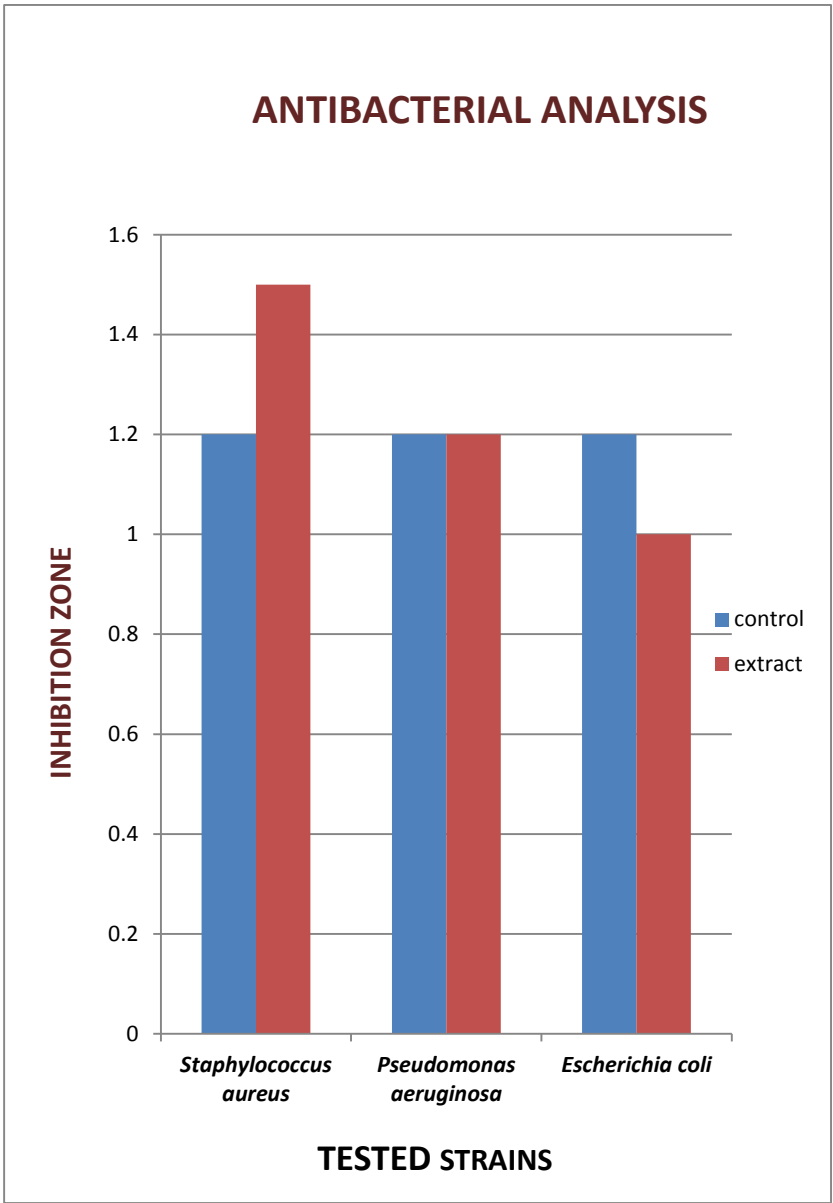


Fig.1: Antibacterial activity of *A. brasiliensis* against selected microbes

Table 3: Blood coagulative property of leaf extract compare with normal clotting time

Blood group	Normal time taken for coagulation (minutes)	Time taken for clotting after the application of extract (minutes)
A+ve	4	2
A-ve	4	2
B+ve	4	2
B-ve	4	2
O+ve	4	2
O-ve	4	2
AB+ve	4	2
AB-ve	4	2

CONCLUSION

The results displayed in this study confirm and strengthen the ethno pharmacological indication of *A. brasiliana* as antibacterial. The therapeutic efficacy of these plants depends upon the quality of chemical constituents. These phytochemicals are important bioactive compounds with antioxidant, anti-inflammatory and antibacterial properties. Thus, these plants can be exploited to find out effective alternative to synthetic drugs. The study of the plant extract reinforces the potential of plants used in hemostasis. This offers interesting perspectives in therapy, because the plant extract could be used as local hemostatic in

coagulation disorders. Advanced researches in the field of phytochemical and pharmacological studies shall open new pharmacological avenues for these plants.

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COUNTER NARRATIVES ON GENDER STEREOTYPES: A STUDY OF SELECT INDIAN ADVERTISEMENTS

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ABSTRACT

The 20th century witnessed an upsurge of a number of radical movements and theories, namely feminism, gender studies, postmodern and poststructuralist theories, all of which questioned the prior and present eras' foundational concepts on identity, gender and sexuality - the widely held rationale behind the patriarchal, hetero-normative definitions and homophobic tendencies got countered. Consequently, gender got identified as performative, sexuality as existing in a continuum and identity as fluid. The radical claims of a number of feminist and queer theoreticians including Foucault, Beauvoir, Butler, Sedgwick and the like, in its turn impacted the rise of 'alternative or counter gender/sexual performances', that gradually got disseminated through diverse media. The present study aims to analyze the narratives and counter narratives on gender roles and stereotypes as portrayed in the Indian advertisements.

Key Words: Gender Performance, Gender Bias, Heteronormativity, Homophobia

A sound grasp of gender or what constitutes a male and a female is claimed to be an influential factor in shaping one's life. However, the implications of the term have changed over time or across cultures/contexts owing to its 'constructed' nature. Gender is often taken as a yardstick in our society for discerning the quality/quantity of education, employment, care, ownership of assets, income and the like accorded to one. No matter how unscientific such constructions are, it goes without saying that they have fed and strengthened the hegemonic rule of a patriarchal and hetero-normative social order.

Unlike the regressive and timeworn representations of gender and the ascribed roles, there has emerged a number of brands advertising their products with more socially relevant messages, often advocating open deliberations on those muted realities including gender stereotypes, patriarchy, orthodox marriage practices, taboos on menstruation, along with rights and acceptance denied to the LGBTQ community.

In a primarily patriarchal culture, woman becomes the frustrated lot, subservient to the man, and relegated to the home space. Her proposed occupations involve being a mother, wife, secretary, teacher, nurse or someone who fulfils other traditionally feminine occupations. Women are often underrepresented in spheres of decision making, receives lower wages for similar work, have less access to productive assets like education, skills, property, employment and the like and they

often end up as targeted victims of domestic/ sexual violence. Ironically, an essentially patriarchal, hetero-normative attitude still prevails in India even as we preach of progressive thoughts. Differences are thus grudgingly accepted.

The Indian ads and commercials, even with its wide reach among the masses, often consolidate these biased and unsound perceptions on gender roles. Ads on same-sex relationship or featuring the lives of transgender/transsexuals were also non-existent for a period of time. However, the last few years have witnessed a perceptible change in this scenario. The Indian ads of the period have tried to address a number of gender stereotypes through their counter narratives, acknowledging and often appraising the differences.

The “Share the Load” ad campaign of *Ariel*, released in 2016 and 2019 respectively, addresses the gender inequality in domestic space that demarcates the household chores as a woman’s duty alone. The prejudice of household inequality is being passed down from generation to the next so much so that a mother and a wife are taken for granted. Domestic space has always been understood as the woman’s sole active space. Even within the progressive households of today’s India, there is often a difference in the way sons and daughters are being raised. Daughters who are brought up to be strong, independent and confident to excel in all fields, however become the primary caretakers at home once married which in-turn impacts their

career aspirations and performance at work. *Ariel*, India's leading detergent brand, counters these representations, endorsing the cause of equality within the household. The 2016 ad pictures a father figure who realizes the gravity of the wrong example he, like many other fathers, have set at home because of which his own daughter, who grew up seeing her mother doing the domestic chores unaided by her father, does the same in her home once married. She is a working mother and a wife, who returns from work to continue the hectic and unappreciated chores at home. The 2019 ad opens to another sad reality where a married daughter reveals to her mother how she had to give up her job, because her husband is not equipped to help her with the heaping household duties. The choice was hers to make. *Ariel* points to the discrepancy in the ways we raise our children, inculcating in them a flawed grasp on what gender roles they are expected to play in a society. Making laundry the face of the movement against this inequality that exists in Indian households, *Ariel* urges men, particularly fathers, to share the load with their wives and prompts mothers to teach their sons to lend their hand, and set the right example. Learning household chores should be understood as part of acquiring a basic life skill and not as a task assigned to one particular gender.



Deliberations on menstruation are almost a taboo in India owing to the common myth of the ‘impure woman’. Menstruation, in many parts of India, is still considered to be dirty and impure. In many religions, women are advised not to offer prayers or enter holy places, touch sacred objects and take part in religious rituals. A woman on her period is dissuaded from conducting her daily routine, and must be ‘purified’ before she is allowed to return to daily chores. She is urged not to run, play, or, in some cases, even go outside, and enter kitchen, as her ‘uncleanliness’ can contaminate food. She is introduced to numerous ‘don’ts’ that curtail her freedom of movement, affects her emotional state, mentality and even health. Most of the cultural norms and religious taboos on menstruation are based on illogical beliefs and superstitions that associate this natural body process with evil spirits, shame or embarrassment surrounding sexual reproduction. Studies, particularly conducted in rural India, reveals that there is a pronounced lack of awareness among adolescent girls about menstrual health and hygiene; older women refuse to speak on the same and both men and women lack a sound understanding of the human body. Questioning the

myths on menstruation, P&G *Whisper* launched its ad campaign “Touch the Pickle” in 2014. This engaging ad featuring a teenage girl who plays, runs, and even touches the pickle jar was the talk of the time. The ad’s narrative does not only address the numerous instances of gender disparity, its reach has been perceptible, what with more than 2.9 million women pledging to touch the pickle jar, according to AdAge. The ad that was disseminated via social media resulted in open deliberations about the myth on menstruation and encouraged women from different communities to question period related myths and taboos, even sharing their testimonials. The ad aimed to help women overcome their sense of shame and posed a challenge to the longstanding misconception about menstruation as an abominable curse and a matter of shame than naturally necessitated by the body.

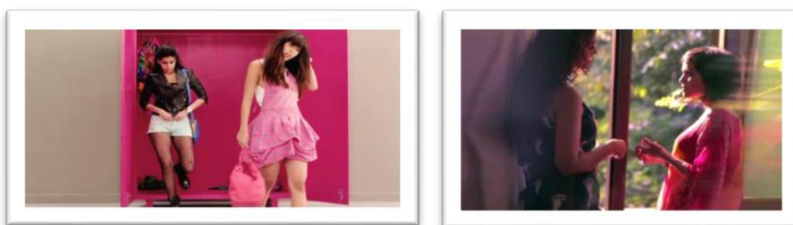


‘Compulsory heterosexuality’, as identified by the feminist intellectual Adrienne Rich, is more of a ‘political institution’ mandating the subordination of women and obliterating the possibility of alternative sexual experiences. The

society insists each individual to assume a particular gender and sexual orientation. Thus, homosexuality gets closeted and is treated as an aberration. However, over the past decade, the LGBTQ community has gained more visibility in public sphere owing to the rise of queer theory in the 1990s. The sexual liberation of the 1950s and 60s, the resultant destabilization of hetero-normative definitions on sexuality, and the socio-political implications of gay/lesbian activism have helped to dismantle the foundations of a hetero-sexual culture world-wide. Queer activism that grew steadily in the last decades fought many impediments in the form of rigid conventions, social and familial, moralist discourses, lack of consistent legal support and visibility in media. Their lived-in experience often involves ostracism, censure, violence and denial. Though recent years saw a measured acceptance of their 'differences', in nations including India, same-sex relationships are still considered objectionable.

Queerness rarely assumes a tangible presence in mainstream media, and even if it does, the representations gear towards stereotypes. However, a number of ad campaigns released in India in the last few years have tried to revise this perception and normalize the differences on screen. "Come Out of the Closet" (2013) by *Fastrack* featuring two women straightening their clothes as they emerge together from a closet, leaving much to the imagination of the viewer, followed by a

more relatable ad campaign, “The Visit” #Bold is Beautiful (2015) by *Myntra Anouk*, featuring a lesbian couple preparing to meet the parents of one of them, for they do not want to hide their relationship any more, are two note-worthy ads that address the taboo of same sex relationship. They have taken a bold move, the former more edgy in nature and the latter, more subtle, making a statement on a reality conventionally considered a taboo. These ads, targeting the youth, advocate the need to be more inclusive of differences. Rather than prescribing a way of living, they voice the pertinence of living an uninhibited life, urging the youth to challenge the ‘constructed labels’ on gender, sexuality and identity.



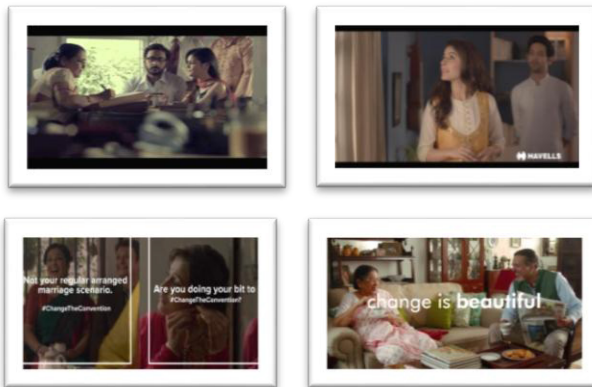
Queer theoreticians, principally Sedgwick and Butler, argue against strict binary demarcation of gender as they have identified the possibility of other genders existing in its own natural space. They argue against the intense homophobic attitudes emerging at times from a certain anxiety and fear of the ‘Other’, the ‘unknown’ that inhibit the acceptance of anything other than heterosexual. Transgenders, better known as *hijras* in India, embrace a sense of gender different from what has been

assigned to them at birth. Their nonconformity to accepted gender definitions has often resulted in denial of acceptance and basic rights, despite having a long-standing history that can be traced from antiquity. The *Vicks* brand that has always stood for family care, in 2017 released their ad campaign “TouchofCare”, promoting a more progressive stance on gender roles. The ad features the true story of the transgender activist, Gauri Sawant, who against all odds raised an orphaned girl on her own. The ad’s emotional appeal touches the core of its viewers for whom the brand has redefined the definition of family and motherhood. The ad is not advocating motherhood as understood by the society. Motherhood is associated with care and not merely the biological process of giving birth. The voice-over shown from the perspective of the girl protagonist relates the tale of her foster mother’s affection, played by Sawant whose identity is unveiled only at the close of the visual narrative. Set against the domestic backdrop depicting the everyday exchange between a mother and child, the ‘revealing moment’ of Sawant as the mother comes as transformative for the viewers as they are compelled to think beyond their fixations on binary understanding of masculine and feminine. Breaking free of stereotypes, the ad consciously deliberates on the idea of being a ‘mother’, outside its restrictive sense as the biological call of woman, thereby acknowledging gender as performative in nature.



Marriage and family in India are institutions perceived as active spheres where man assumes autonomy and woman dependence. This is a transparent reality that often goes unquestioned, despite of the fact that women are coming out of their shell and carving a niche for themselves. A swift look through the marriage norms practiced in India in the name of culture reveals that they more than often exclusively favor men - the privilege accorded to the guy and his family to see and assess the prospective bride, her house, assets, culinary skills and if need be, her education; the woman taking the name of her husband, marking a shift in ‘ownership’ from that of her father to her husband; the question of dowry and expectations about mothering. A number of brands have come forward, having realized their role in changing these conventions and positing a better outlook for the society. The *Havells* Fan ad- “Winds of Change” (2013) where a man is shown taking his wife’s surname after marriage much to the surprise of the female registrar and the 2017 ad of the same brand where a woman makes a visit to her soon-to-be husband’s house to check if both the guy and his home suits her taste are thus instances of counter narratives on

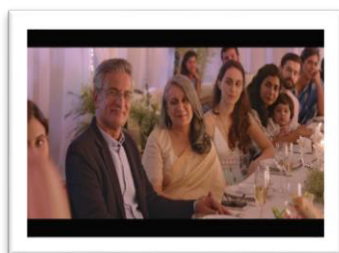
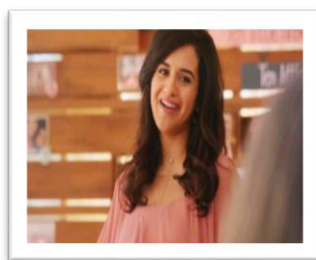
gender stereotypes. BIBA'S "Change the Convention" #Change is Beautiful (2015), introduces a father quizzing his prospective son-in-law about his culinary skills, for it is not the woman's task alone to master, but a basic life skill men need to learn too and "Change the Conversation" #Change is Beautiful (2016) features another father who realizes how retrogressive the idea of asking dowry is when a family entrust their daughter to his care, taking a stand on social iniquity. What is different about these ads is how the need for change is spoken about by the men in them.



An educated, employed woman is an asset to the family and society at large. She is not a property to be owned by man but has a mind of her own. She has the capacity to juggle between work and home and would look effortless in doing so. Her aspirations and dreams therefore matter too. Ironically a woman's work is productive only when it is outside the home space- a sphere that is taken to be an active domain of men. An educated woman, a woman with a mind, an opinion and above all

self-standing and earning used to be a rare sight at one point in the history of our nation. This woman may be a common sight now in India, primarily in the urban India, owing the radical initiatives commenced by many such women, solely and in groups. She is however often looked down by her male counterparts as a weaker link and less productive than them. They may have to stand up to the ‘orthodox’ mentality of the society that wonders what a woman needs to do with a degree when her first and only priority should be taking care of her husband, who had been till then taken care of by his mother and giving birth to many, if God willing, to sons, who can also be taken care of by her. The Irony lies in how these men are dependent on ‘being taken care of’ by their women or mothers, when they often claim it to be the other way around. *BIBA’S* “Change for Progress” ad in “Change is Beautiful” series address this rigid mindset of society. The ad features an uncle in conversation with a guy, surrounded by his female cousins, posing a question that is often raised at women regarding the worth of pursuing higher studies when he is supposed to settle down and take care of the family. The question renders the guy perplexed as he/viewer understands how odd it sounds to be asked so. This ingenious ad is a take on the gender disparity often exercised when it comes to educating the daughter. Similarly, *Titan Raga’s* “Mom by Choice”, part of “Her Life Her Choice” ad series (2017), delivers a stance on what motherhood

should be. 'Mother' is a term typically associated with care and sacrifice. Without compromising on the former element, the ad under study proposes a refreshing view on how being a mother should be one's choice and not a sacrifice - an obligation expected to be satisfied by a married woman. The ad that portrays a mother-to-be, praising her own mother for setting an example, raising her in ways thought unconventional by the society and pursuing her career and studies even at the age of 45. Unlike the commonplace representation of a mother who waits at home for her children and husband to be back, for whom her entire world revolves around them, this ad celebrates the strong women, and reminds women around to not give up their aspirations and set a good example for their daughters.



Owing a career renders women more autonomy, access to legal protection, control of assets and less prone to domestic

violence. Yet she is not free from gender bias at workplace. Breaking the stereotypes about working women, “Best at Work” (2016) ad campaign of *Mia*, a sub-brand of *Tanishq* Jewelry, depicts the lives of six women who confronts the taunts and bias at their workplace, yet choose to move on, delivering their best at work. She remains unflustered in the face of male chauvinistic attitude because it is ‘the last thing on her mind’. The ad, picturing the changed/empowered women, speaks from the perspective of women and addresses the consumer on a personal level, so does *TitanRaga*’s “Her Life Her Choice” that came out in 2014. The latter ad is a salutation to the female protagonist who made the bold choice of leaving behind her man who was unsupportive of her aspirations, only to find herself standing on her feet in time. Her confrontation with the past love, years later, as a professionally successful woman, serves as a further affirmation of the right decision she had made. Similarly, “The Calling” # Bold is Beautiful (2015) by *Myntra Anouk* addresses pregnancy-based bias at work place. Pregnancy is implicitly deemed to render a woman handicap at least at work place, where her reliability as a potential contributor to the work is put to doubt. The ad however portrays a pregnant woman, whose industry is not appreciated, despite of the invaluable contributions she has rendered and the promotion she rightfully deserves is granted to a male colleague. The ad challenges the societal conviction that pregnancy marks the end of one’s career

and the character in the ad, self-assured, takes the bold decision to start her own enterprise.



Children are often unconsciously schooled on gender and gender roles in the families and society at large. They are ingrained at a very young age with dos and don'ts regarding gender roles prescribed by a patriarchal head. Thus, boys are not expected to cry for it is a feminine attribute; boys don't wear pink for it is too girlish; boys are given GI Joe action figure or a hot wheels track set to play with while girl child play with Barbie and doll house; boys are told tales of superheroes and girls, fairytales, and even the games they play get demarcated based on gender. *Flipkart's* 'Gen E' campaign breaks these gender stereotypes foregrounding the relevance of raising children as equals so that when they grow up, they will treat each other as equals. This claim is made from the perspective of children, both boys and girls, who seem to

display more wisdom and openness to the idea of growing up as equals and doing away with the whole lessons on gender bias taught to them by adults. This campaign has effectively addressed a matter of gravity, thereby challenging the adult populace to change their perception and set ideals on gender which alone is the root cause why each generation grows with an erroneous attitude.



Advertisements, being one of the most influential media among many, have relied on the much-deliberated gender norms that necessitate men to embrace certain dominant roles and women to assume more submissive parts. Brands either endorse the gender prejudice practiced in the name of culture or challenge the same giving a revisionist reading on gender stereotypes. Unlike the ads that offer a cliché/biased representation of gender roles, the 16 advertisements taken for study presents refreshing and progressive rendition of the same. ‘Celebrating differences’ often become the catchword of most known brands as they advertise not just their products but also promote novel ways to approach and appreciate diverse facets of actuality. Thus, these advertisements under study serve as influential disseminators of

social and cultural meanings, challenging the prevailing socio-cultural norms and offering more progressive/inclusive practices.

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**PRELIMINARY PHYTOCHEMICAL ANALYSIS
AND ANTIMICROBIAL ACTIVITY OF
ACROSTICHUM AUREUM Linn.**

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ABSTRACT

Acrostichum aureum L is a medicinally and therapeutically important member of the family Pteridophyta. The study was carried out to investigate the antimicrobial activity and phytochemical compounds present in *Acrostichum aureum* Linn. The methanol and aqueous extract from dried leaves of *A. aureum* were tested against *Pseudomonas aeruginosa*, *Staphylococcus aureus*, *Escherichia coli* and *Candida albicans*. The phytochemical analysis revealed the presence of proteins, glycosides, terpenoids, saponins, steroids and flavonoids. The antimicrobial activity was tested by agar well diffusion method and it showed maximum zone of inhibition against *Pseudomonas aeruginosa* and *Staphylococcus aureus* when compared to *Escherichia coli* and *Candida albicans*. The plant showed considerable anti-bacterial activity and phytochemicals and hence it can be used in several systems of medicines for a variety of ailments.

Key Words: Acrostichum aureum L, Agar Well Diffusion, Phytochemical and Antimicrobial Property

INTRODUCTION

Pteridophyta has been well known for its medicinal and therapeutic importance in plant based novel drug therapy. Many species of this plant division are highly ignored and are determined to have potential secondary metabolites that act against various diseases (Raja et al., 2012). The limited knowledge of the medicinal plants for disease control and their weed habitat makes these ferns to be destroyed by human (Sofowara, 1993). This species is the only mangrove plant that is distributed pantropically (Stewart and Popp, 1987). *Acrostichum aureum* Linn. belongs to the family Pteridaceae, a large terrestrial plant observed in flooded areas during rainy season and at high tides, its association with mangroves and it is common in Kerala (Gleason and Cook, 1926; Lamberts, 1969). Whole plant is used as an anthelmintic and styptic, also used as a worm remedy and as an astringent in hemorrhage. Widespread use of antibiotics caused significant increase in antibiotic resistance of bacteria. Currently, these multidrug resistant bacteria have been emerging as one of the most important hospital and community pathogens worldwide. The emergence of these resistant bacteria has caused a major concern and thus the urgent need for new antibacterial agents (Thomas, 2012). The plant extract of *Acrostichum aureum* was themed to phytochemical and pharmacological exploration to determine

antioxidant, and analgesic activity to afford an appropriate guide, that may be used in future investigation.

MATERIALS AND METHODS

Preparation of Dry Plant Extract: *A. aureum* were collected from Elthuruthu, Kodungallur. Collected plants were shade dried for nearly two months to remove the moisture. 5 gm of powdered plant was mixed with each solvent (methanol and distilled water) and incubated for 24 hours at room temperature. The extract was centrifuged at 5000 rpm at room temperature and supernatant were collected.

Phytochemical Screening: Preliminary phytochemical screening has been carried out in large number of ferns (Talukdar *et al.*, 2011). The crude samples were subjected to phytochemical screening for the presence of alkaloid, phenolics, triterpenoids, flavonoids, proteins, glycosides, saponins, tannins, steroid using the method of Harborne.

Antimicrobial Study: Antimicrobial activity was studied by using agar well diffusion method. Dry leaf extracts on methanol and distilled water were used as sample solution. The test organisms were collected from the culture collection of the Poly Clinic, Thrissur. These include *Staphylococcus aureus*, *Pseudomonas aeruginosa* and *Escherichia coli* and *Candida albicans* collected from Al Ameen College, Aluva. The bacteria were sub-cultured on nutrient agar slants, incubated at 37⁰ C for

24 hour and stored at 4⁰C in the refrigerator to maintain the stock culture. The two drops of plant extract solutions different solvents (methanol, distilled water) were pipetted in to the well in sterilized environment using micropipettes. The plates were labeled, covered and incubated at 37⁰C for 24 hours. After incubation period the plates were examined and the diameter of the zone of inhibition was measured in mm. Gentamicin was used as standard in antimicrobial study.

RESULT AND DISCUSSION

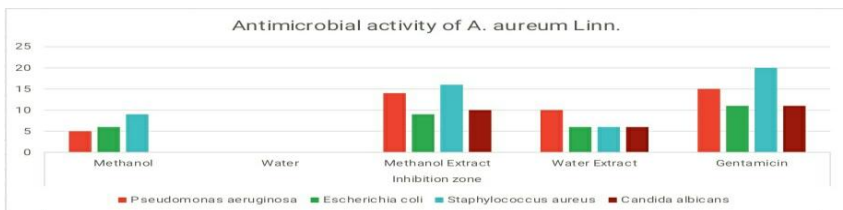
Preliminary phytochemical screening of *A. aureum* showed the presence of glycosides, proteins, terpenoids, saponins, phenols, flavonoids and steroids in methanolic extracts and glycosides, proteins, saponins, flavonoids in water extract.

Tests performed	Methanol extract	Water extract
Carbohydrate	-	-
Protein and Amino acid	+	+
Alkaloid	-	-
Saponins	+	+
Flavonoids	+	+
Phenols	+	+
Glycosides	+	+
Coumarins	+	+
Terpenes	+	+
Steroids	-	-
Tannins	-	-

Table 1: Phytochemical screening of *Acrostichum aureum* Linn.

Microbes used	Inhibition Zone (mm)				
	Methanol	Water	Methanol Extract	Water Extract	Gentamicin
<i>Pseudomonas aeruginosa</i>	5	0	14	10	15
<i>Escherichia coli</i>	6	0	9	6	11
<i>Staphylococcus aureus</i>	9	0	16	6	20
<i>Candida albicans</i>	0	0	10	6	11

Table 2: Antimicrobial activity of the dry extract of *Acrostichum aureum* Linn.



Phytochemicals present in the medicinal plant material were helpful in determining the quality and purity of a drug. The average yield during successive extraction of *A. aureum* plant with 2 different solvents was tabulated as table No.1. As seen in Table 1, it was observed that the preliminary phytochemical screening of *A. aureum* showed the presence of proteins, glycosides, steroids, terpenoids, phenols, saponins and flavonoids in methanolic extract, while the water extract showed the presence of proteins, glycosides, steroids, terpenoids, saponins and flavonoids. The study validated the antimicrobial property of the leaves towards one of the clinically important multidrug resistant strains *Pseudomonas aeruginosa*, *Staphylococcus aureus*, *Escherichia coli*, *Candida albicans*. Phenols play an important role in the metabolism of pteridophytes as in disease resistance of the plant (Vyas and Sharma, 1988).

The plant possesses antimicrobial principles, soluble in methanol, which hinder the growth and multiplication of some multi drug resistant bacterial strains. In view of the analysis, the fronds of *A. aureum* can be recommended as source for isolating and characterizing new antibacterial drugs for modern medicine.

According to Raja and Ravindranadh (2014) Herbal medicines are the major remedy in traditional system of medicine and they are used in medical practices since antiquity. In addition to its ancient historical uses, *A. aureum* is used in several systems of medicines for a variety of ailments.

CONCLUSION

In the present study, it can be concluded that the observed antimicrobial activity could be due to the phytochemicals present in the extract. Natural from plant source have attracted considerable attention due to their versatility and it has been reported that the plants produce diverse types of secondary metabolites with diverse biological activity and application. Hence, identification of such compounds in *A. aureum* offers us an opportunity to exploit them for plant protection besides its use as folk medicines mainly in skin diseases. This study may help in developing plant-based formulations for eco-friendly management of plant pathogens in view of the increasing antimicrobial resistance. *A. aureum* is employed to treat pharyngitis, chest pains, hypertrophy, purgative and medicament. Further studies are therefore suggested to ascertain their pharmacological activities. Furthermore, isolation, purification and characterization of the phytochemicals found will make interesting studies.

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**POSTCOLONIAL RESISTANCE: AN APPRAISAL
OF *HEART OF DARKNESS* AND *CRY, THE BELOVED
COUNTRY***

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ABSTRACT

The objective of this paper is to explore excerpts of post-colonial resistance in the works *Heart of Darkness* by Joseph Conrad and *Cry, the Beloved Country* by Alan Paton. Postcolonialism is the academic study of the cultural legacy of colonialism and imperialism focusing on the consequences of control and exploitation of colonized people and their lands. Post-colonialism is a critical analysis of the history, culture, literature, and discourse of European imperial power. The term postcolonial study is preferred because it represents an ideological response to colonialist thought rather than simply describing a system that comes after colonialism.

Key Words: Postcolonialism, Resistance, Subaltern, Hybridity

Post colonialism encompasses a wide variety of approaches and theoreticians may not always agree on a common set of definitions. On a simple level it may seek through anthropological study to build a better understanding of colonial life from the point of view of the colonized people, based on the assumption that the

colonial rulers are unreliable narrators.

The term postcolonial has gained significant currency in contemporary literary and cultural theory and the basic claim implied by the use of the term in relation to literature is twofold. Postcolonialism emerged as a reaction to the domination of the world by European colonizers and the Universalist claims of the enlightenment. In the continents of Asia, Africa, Australia and South America for more than four hundred years European colonization directly or indirectly dominated. Colonizers judged every cultural codification - literature, art, music, food-habits, learning, languages, mythologies and everything from the standard European perspective. Thus, imperialism assumed the role of a modernizing tool. The Whites or Europeans became the standard to evaluate those of the 'Other'. This claim of authority on the basis of Euro-centralism was rejected by the post colonialist theorists.

We can analyze the colonial aspects such as subalternity, colonial language and hybridity in both *Heart of Darkness* and *Cry, the Beloved Country*. The Italian Marxist theorist Antonio Gramsci used the term 'subaltern' in the contemporary sense for first time in his work *The Prison Notebooks* to denote socially subordinated groups who lacked the unity and organization of those in power. Subaltern are those groups in society who are subjected to hegemony of ruling classes. The subaltern classes may include peasants, working class and other groups who are denied hegemonic power.

Gramsci was interested in the historiography of the subaltern classes. Gramsci claimed that the history of subaltern classes was complex just as history of dominant classes, even though history of the latter is formally accepted as official. According to Gramsci, the history of subaltern is fragmented or episodic. They had fewer chances at control/ power or see to the representation of themselves in the history. They lacked access to social and cultural institutions. Only a permanent victory on Whites could break the pattern of subordination and that did not occur immediately.

The term 'subaltern' has been adapted to postcolonial studies from the work of the subaltern studies group of historians. They aimed at promoting a systematic discussion of subaltern themes in South Asian studies. One of the clear differences between elite and subaltern lies in the nature of their political mobilization; mobilization of elite was going on vertically by the adaptation of British parliamentary institutions. But the subaltern relied on traditional organization of kinship and class associations. Despite great diversity among subaltern group, one different feature was the notion of resistance to elite domination. The concept of subaltern was to cut across any kinds of political and cultural binaries such as colonization vs. nationalism, imperialism vs. indigenous cultural expression etc. Notion of subalternity in postcolonial studies became prominent while Gayatri Spivak posed a question "Can Subaltern Speak?", through her essay titled the

same. She critiqued the assumptions of the subaltern studies. Her first criticism was against the Gramscian claim of subaltern autonomy, and points out that Ramachandra Guha had essentially pointed out diversity, heterogeneity and overlapping nature of subaltern groups. She asked why 'people' or 'subaltern' is identified by its difference from that of elite class.

The identity of subaltern was problematized while it is analyzed with difference from that of dominant class. Their specific nature and degree of deviation are discussed in relation with elite class which prevents them from establishing their own identity. Spivak also moves on to elaborate the problems of category of subaltern by looking at gendered subjects. Spivak concluded by saying that the subaltern can speak only if they have a dominant language or dominant voice. Their mode of representation through literature is appropriated so that their marginal voice is to be heard. We can find direct examples for the presentation of subaltern in the novel *Heart of Darkness* by Joseph Conrad and *Cry, the Beloved Country* by Alan Paton. In *Heart of Darkness*, during the journey of Marlow from the outer station to the central station and finally up the river to inner station, he witness natives being exploited at the hands of Whites, sees scenes of torture, brutality and near slavery.

While starting the narration of his journey to the fellow beings Marlow describes the life of natives in deep forests. He says, "All that mysterious life of the wilderness that stirs in the forest, in the jungles, in the hearts of wildmen."(7) Here the word

'wild men' directly quotes natives and their savage life. The Whites who pictured themselves as civilized and superior among the natives conquered them among the African forests in order to take away their wealthy resources. To quote Marlow, "they were not colonialists, their administration was merely a squeeze and nothing more."(7) In the text Africans are presented as weaker and their identity being more vulnerable. Marlow says whites have nothing to boast of since their "strength is just an accident arising from the weakness of others."(7) Through the text *Heart of Darkness* we are able to witness how subaltern is being represented in the eyes of White through both the white narrator Marlow as well as the writer Conrad. To quote Marlow, "the conquest of earth, which mostly means by taking it away from those who have a different complexion or slightly flatter noses than ourselves, is not a pretty thing when you look in to it too much."(83) While Marlow reached African soil, he saw a devastating scene with a slight shudder of the soil under his feet. He saw slowly dying black natives, they were not enemies or criminals but they were nothing earthly now, nothing but black shadows of disease and starvation. Fed on unfamiliar food, they sickened, became inefficient and were allowed to crawl the rest of their life. Marlow sees black young boys working for the company dying at their young ages with bones reclined at full length. He says it's hard to tell with them if they were young. The look of the company accountant at the station is sharply contrasted with the looks of the young natives.

Presenting both at the same space shows out how natives are being portrayed as savage and white as elegant. In *Heart of Darkness*, we see the subaltern classes, those that are prevented from speaking and are oppressed by colonizers' gaze. The title itself pointed towards a place of darkness that lacks civilized people. The inhabitants of Congo are the 'Other' from the colonial point of view.

Cry, the Beloved Country is a novel on an African reverent named Stephen Kumalo. He took part in a journey into Johannesburg, an African city in order to restore his breaking family tribe. His brother, sister and son had left to city long ago and didn't return. While he travels, he faces the fear of unknown, faced by every black man during the period of colonization. During his travel, he witnesses many situations through which he realizes the actual conditions of his people suffering from colonization. We see the inner conflict of a subaltern who is able to understand that his wealth is being taken away by the White.

The Novel contain an instance in which Kumalo, the black priest sits with whites in order to have his dinner- "There he met many priests, both white and black and they sat down after grace and ate together. He was a bit nervous of many plates and knives and forks, but watched what others did, and used the things like wise."(37) Here we see subaltern with a confused identity, trying to imitate even the food culture of Whites.

While Stephen Kumalo discovers that his son has

committed a sin against White community his thoughts are likewise; "His son has gone astray in the great city, where so many others had gone astray before him and where many others would go astray after him, until there was found some great secret that as yet no man has discovered. But that he should kill a man, a Whiteman!" (78) Killing a White was such a big sin or crime that a Black could commit. Here we see that the Whites identity is deemed more valuable and overpower the Black identity. We also come across Kumalo preferring 'white collars' which denotes that White's identity has been followed by the Blacks because they think it's more valuable than theirs.

Kumalo's wife who remains silent on every decision taken by husband symbolizes the plight of Black women who remain silent. There is a situation when, "she sat down at his table, and put her head on it, and was silent, with the patient suffering of Black women, with the suffering of oxygen, with the suffering of any that are mute."(95) It shows the double marginalization faced by the Black women, one because she is a woman and other because she is black. The situation can be analyzed with reference to Spivak's question on whether a subaltern woman can talk. A number of instances find treatment in the novel in which Blacks as subaltern class are suppressed and are unable to mend their culture breaking out.

In the context of colonialism and post colonialism, language has often become a site for both colonization and resistance. In

particular, a return to the original indigenous language is often advocated since the language was suppressed by colonizing forces. The use of European languages is a much-debated issue among postcolonial authors. In *Heart of Darkness* by Joseph Conrad, we see the use of language by a colonizer and in *Cry, the Beloved Country* by Alan Paton we see use of language as a means against colonization and a weapon of resistance.

Throughout *Heart of Darkness*, Joseph Conrad focuses on a language which takes us back to the thoughts of the colonial days. The words and facts presented by writer seem to have divorced from meaning at times. In the novel segmentation of language occurs and writer is using frame narrative which includes analysis of the written word. Throughout the novel we encounter juxtaposition of modern language with the raw language from Africa.

Through *Heart of Darkness*, we witness the act of colonization and imperialism working over the Black Africans through the eyes of a white colonizer. Marlow begins and ends the tale in a lotus position, evoking the concept of mind over matter. We see emotions crowding up in his minds over him because he was one white colonizer. Marlow sometimes loses his composure due to his inability to convey meaning through words. May be this is the same issue suffered by Conrad's mind while he was writing the novel.

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A STUDY ON WOMEN ENTREPRENEURS: MOTIVATIONAL AND CHALLENGING FACTORS

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ABSTRACT

Entrepreneurial Development has been considered as one of the key drivers for socio economic growth and it also provides millions of job opportunities, offers a variety of consumer goods and service enhances national prosperity and competitiveness. Women have some strong desirable qualities relevant to entrepreneurship such as their ability to manage details, dedication to work, tolerance and kindness towards the people. It is a misconception that women cannot be good managers. Countries focus on female entrepreneurship development by demonstrating that financial assistance can lead to reduce fertility and an increase in the economic growth of the country. Women's entrepreneurship is a phenomenon that has a tremendous impact on employment and the global business environment. Women entrepreneurs may be defined as the women or a group of women who commerce and operate a business venture.

Key Words: Entrepreneurship, Financial Stability, Women Empowerment

INTRODUCTION

Entrepreneurship is seen as a key to economic development in many countries across the world. An entrepreneur is a person who envisages new opportunities, new techniques, new products and coordinates all other activities. No one in this world is the boss of his own, except entrepreneurs who are regarded as the most value adding people to the society.

A women entrepreneur has much function. They should explore the prospects of starting new enterprise, undertake risks, introduce new innovations, coordinate, administer and control business and provide effective leadership in all aspects of business. Enrichment of women entrepreneurship are the means of healthy nation. Engaging in entrepreneurship provides women, a platform of income generation, to uplift their social status, to work against existing gender bias, and contribute to the betterment of society. This study is confined to the women entrepreneurs mainly engaged in four type of enterprises such as agricultural, manufacturing, trading and services-based industries in Kodakara panchayath. It is an area endowed with several facilities conducive to the growth of women entrepreneurs.

Women perform an important role in building the backbone of a nation's economy. They have the will to establish and manage enterprises of their own. These qualities and strengths of women are to be tapped into productive channels.

But simultaneous creation and development of small business among women is difficult task. The economic status of woman is now accepted as an indication of the society's stage of development. Women, especially rural women, are vital development agents who play a significant role in the economic development of nation, but they should have an equal access to productive resources, opportunities and public services. It has also been realized in the last few years that the widespread poverty and stunted economic growth can be overcome only by gainful and sustainable economic participation of women.

Entrepreneurship plays an imperative role in the growth of any society. Development of entrepreneurship culture and qualitative business development services are the major requirements for industrial growth. Entrepreneurship emerges from an individual's creative spirit into long term business ownership, employment creation, capital formation and economic security. Entrepreneurial skills are essential for industrialization and for alleviation of mass unemployment and poverty.

As technology speeds up lives, women are an emerging economic force which cannot be neglected by the policy makers. The world's modern democratic economy depends on the participation of both sexes. Irene Natividad has observed that "Global markets and women are not often used in the same

sentence, but increasingly, statistics show that women have economic clout most visibly as entrepreneurs and most powerfully as consumers”. Today, women in advanced market economies own more than 25% of all businesses and women-owned business in Africa, Asia, Eastern Europe, and Latin America are growing rapidly. In some regions of the world, transformation to market economy, women entrepreneurs are a growing trend. However, in India, the actual participation of women in income generating activities is quite unsatisfactory, as only eight per cent of the small scale-manufacturing units are owned and operated by women.

OBJECTIVES OF THE STUDY

1. To measure the degree of motivating factors influencing the women entrepreneurs
2. To measure the challenges faced by the women entrepreneurs
3. To study the socio-economic background of the women entrepreneurs
4. To assess the awareness level among women entrepreneurs regarding the government scheme and programmes

FINDINGS

1. Most of the respondents are in the category of the age between 40-50.
2. Majority of respondents have qualified degree and post-graduation.
3. Most of the respondents are married.
4. Majority of respondents are from nuclear family.
5. Majority of respondents' family monthly income come between 0-20,000.
6. Respondents are mainly engaged in trading sector.
7. Most of respondents are sole proprietors.
8. Majority of respondents use their own fund for business purpose.
9. Most of the respondents' major reason to start business is to generate income for their own family. The other two important reasons are to be self-dependent and upgrade social status.
10. Majority of respondents are most satisfied with the Sthree Shakthi Financial Schemes by Government.
11. Getting motivation from family to optimize on capabilities, high profit margin, the growing demand for the product/ services are the most influencing factors to women entrepreneurs.
12. Low self-esteem, difficulty in taking up family responsibilities, difficulty to raise the fund, competition and

customer complaints are the most challenging factors to women entrepreneurs.

13. There is low positive correlation between age and the type of industry.
14. There is no significant association between marital status and getting motivation from family.
15. There is no significant association between education and difficulty in technology up gradation.

SUGGESTIONS

1. Vocational training to be extended to women community that enables them to understand the production process and production management.
2. The government should take measures to spread information about the schemes and activities which are provided for the development of women.
3. The procedure of getting finance should be simple.
4. Women entrepreneurs should be provided collateral free loan as they have no asset.
5. Government should provide support to marketing product or services in the toughest competition scenario through exhibition and supermarket.

CONCLUSION

This research attempts to measure the degree of motivating factors that influences the women entrepreneurs and to analyse the challenges faced by them. Women entrepreneurs are those women who think of a business enterprise, initiate it, organise and combine the factors for production, operate the enterprise, undertake risk and handle economic uncertainties involved in running a business enterprise. It is evident that promotion of women entrepreneurship motivates the future generation of women and it will also solve tomorrow's unemployment problems. The study revealed that most of the women entrepreneurs are qualified and in the age between 40-50. They are mainly engaged in trading sector. There are many motivating and challenging factors that come under categories such as family, psychology, finance and environment. Getting motivation from family is the highest motivating factor of the women entrepreneurs. Difficulty to raise fund is the most challenging factor. The main reason to start their business is to generate income for their family and it is suggested that vocational training should be extended to women community so that they understand the production process and production management. The government should take measures to spread information about the schemes & activities and should provide collateral free loan as women so not own any asset.

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A STUDY ON THE ROLE OF MICROFINANCE IN WOMEN EMPOWERMENT WITH REFERENCE TO CHALAKUDY MUNICIPALITY

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ABSTRACT

Microfinance is emerging as a powerful instrument for the empowerment of women. This has been successful not only in meeting financial needs of the rural poor women but also strengthen collective self-help capacities of the poor women, leading to their empowerment. This study examined the role of microfinance institutions with respect to economic empowerment in Chalakudy area.

Key Words: Microfinance, Women Empowerment, Self-Help Groups

INTRODUCTION

Microfinance has emerged as a major hope for the millions of rural/urban poor for dealing with ‘poverty and dignity’. United Nations has set Millennium Development Goals in 2000 and one of the goals is to halve the proportion of people suffering from poverty and hunger by 2015 (N. Jeyeseelan,

2004). Under this context, microfinance is emerging as a poverty reduction and women empowerment tool. The concept of Self-Help Groups (SHGs) is the most exciting discovery in the context of microfinance.

STATEMENT OF THE PROBLEM

In olden days women were restricted to take part in any social activities and not given roles in decision making in her family. The situation was even more worsening in rural and remote areas. Now the situation has changed. In today's scenario more women are engaged in income generating activities. This is because of NGOs and other financial institution which have come forward to provide microfinance to poor women. They believe that a woman is the small credit risk and often benefits the whole family. The main aim of microfinance is to empower women. This study focuses more on the empowerment of rural women who participates in the microfinance.

OBJECTIVES

The objectives of the study are:

1. To study the functioning of Self-Help Groups in Chalakudy area
2. To examine the problems of women members of Self-Help Groups

3. To offer suggestions for the betterment of women through microfinance

RESEARCH METHODOLOGY

The study focused on women entrepreneurs in Chalakudy area of Thrissur district of Kerala. Both primary and secondary data was used for the study. Primary data was collected using well-structured questionnaire. A sample size of 15 respondents was taken for the study. Self-Help Groups in rural areas of Chalakudy were also taken for the study. Convenience sampling method was adopted for collecting data. The Secondary data was collected from different sources like concerned authorities and officials, internet, various published books, magazines and thesis.

TOOLS OF DATA ANALYSIS

For analysis and interpretation of data tables, percentage analysis and various charts like bar diagram, pie charts etc. are used in this study.

LIMITATIONS OF STUDY

1. The study is limited to rural areas of Chalakudy of Thrissur district of Kerala state. Hence the output of this study may not be applicable to the remaining areas of Thrissur district.

2. As the data required for the study was collected from the sample respondents, the chance of personal bias cannot be ruled out.
3. Lack of cooperation from the respondents

DEFINITION

The term microfinance has been defined by Marguerite S. Robinson as ‘small scale financial services for both credits and deposits that are provided to people who farm or fish or herd, operates small or micro enterprises, where goods are produced, recycled, repaired or traded; provide services, work for wages or commissions, gain income from renting out small amounts of land vehicles, draft animals or machinery and tools to individuals and local groups in developing countries, in both rural and urban areas’.

FINDINGS OF THE STUDY

Major findings of the study include:

- Most of the respondents (40%) are in the age group of 40-45 years and the education level of most of the respondents (47%) fall under average level
- Most self-helping groups depend upon microfinancing groups. The SHGs mainly focus on food related programs like canteen, dairy products.

- Most of the respondents have received training from different district missions and panchayath.
- Most of the respondents depend on government agencies for marketing their products.
- SHGs help to increase their yearly income. The respondents repay their loan sum once in a month.
- Most of the respondents earn a better profit but most of the respondents meet high monthly expenditure.
- Most of the respondents repay their loans before the due date and the general issue faced by the respondents was the conflict between the members.

SUGGESTIONS OF THE STUDY

- There should be more fund allocation on market development in order to provide an effective platform for marketing of the SHG products
- The problem of inadequate loan amount had made it difficult to achieve the standard set for the development process of SHG
- It is suggested that motivational campaign may be conducted for cultivating saving habit in the minds of the members.

- Education plays a crucial role in the development of the affairs of the business. So better educational facilities must be ensured for SHG members and their families.

CONCLUSION

The present research is an attempt to study the empowerment of rural women through Self-Help Groups in Thrissur District. Several development programs have had their share in bringing about change and development in the lives of poor women. The contribution from the government being inadequate is not stopping them to advance their cost-of-living adjustments. The change in the lifestyle of the members of Kudumbashree has changed with respect to the condition before they joined the Kudumbashree. The continuous effort of the members has paved their way to achieve their goals

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