ISSN No: 2454-1516

Dec 2016, Vol-2 No-4

Peer Reviewed Journal

Shodh Darpan

An International Research Journal

December 2016, Vol. 2 No. – 4, ISSN No. : 2454-1516

SHODH DARPAN

(A Quarterly International Research Journal)

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EDITORIAL

It is with great pride and enthusiasm that we bring out the fourth issue of Volume-II of the journal "Shodh Darpan". I would like to place on record my appreciation for the enormous effort and positive response that the researchers, students and practitioners have made in contributing to the publishing of the present issue.

The journal recognizes the contributions for expanding and enriching theory, research and practice in various disciplines and encourages submission of research papers, review papers, research communications from researchers, students and practitioners in all fields. We are a group in progress actively seeking ideas from campus and community in terms of structure, goals, and vision. We remain open to where we are going and how we will get there. As we look at this journal, it is important to keep in mind that it represents the collective thinking of a group of innovative individuals who I am privileged to work with. We want it to look different, to be different, to be a journal that, will be as dynamic as the work going on in all disciplines, a rarity in academic publishing.

I must give special thanks to the researchers, reviewers, members of editorial board and committee members who had the vision to embark on this project. I look forward to our journey together as we develop "Shodh Darpan" into its fullest potential.

- Sushil Kumar Sahu

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CONTENTS

Plight of Tribal Women Workers in Unorganized Sector

Ms. Nadia Ahad[1], Prof. Pratibha J. Mishra[2]

Abstract

India has all along followed a proactive policy in the matter of labour Policy. India has evolved in response to specific needs of situation to suit requirements of planned economic development and social justice and a two-fold objective namely maintaining industrial peace and promoting the welfare of labour. The unorganized sector of the economy is primarily labour intensive but less rewarding to the workers in compensation to their efforts put in production. The characteristics of the unorganized labour are specified by the Second Commission on Labour (2002) as self employed persons involved in jobs, agriculture workers, migrant labours, casual and contract workers and home-based artisans. The nature of the employment relationship is the key determinant factor of unorganized labour.

The unorganized labour accounted for more than percent of the total workforce according to census 2001. The majority of women workers come under this category and is employed in the rural areas. Among the rural women workers, 87 percent are employed in agriculture as labourers and cultivators. In urban areas, 80 percent are employed in household industries, petty traders, domestic servants and workers in the cottage industries. Though women constitute a significant part of workforce, they lag behind men and they are neglected section of the society. Moreover, it is an established fact that women bear a disproportionately heavy burden of work than men as they have to contribute more time in the care economy that is the domestic work. The unorganized is most vulnerable, ignored and diverse. Women in unorganized sector constitute a sizable number so it is important to study their problems and prospects. The present study is

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based on the primary data conducted in Baster district of Chhattisgarh which examine the socio-economic conditions and various problems of unorganized women workers.

Introduction

The Constitution of India guarantees equality of opportunity in employment and directs the state to secure equal rights for livelihood, equal pay for equal work as well as just and human conditions of work for all. Despite the concerned efforts of the state, the economic status of women is lagging far behind their male counterparts. Women work the most; paradoxically they earn the least in life. The additional social responsibility shouldered by them, their subordinate status in society, patriarchal family set up, socio-economic backwardness, proneness for occupation in the unorganized sector with low productivity and marginalization in employment opportunities account for their poor or low earning capacity. A majority of women work in unorganized sectors for low wages due to low level skills, illiteracy, ignorance and surplus labour and thus face high level of exploitation. This hampers their bargaining power for higher wages and any opportunities for further development.

The term unorganized sector was first used by Hart in 1971 who described the unorganized sector as that part of urban labour force, which falls outside the organized labour market. In the unorganized sector, work situations are not in official record and working conditions are not protected by law. So the problems of female workers in unorganized sector are not properly known. It has been pointed out by Hart that one of the major problems is that working conditions are worst.

That optimistic vision of economic transition did not match what was actually happening in the world. In the late 1960s and 1970s, a large section of the population in the developing countries was suffering from poverty and working outside the organized sector in activities that were later broadly termed as “unorganized”. Due to population growth and urban migration, the active labour force was growing at a much faster rate than availability of jobs in the organized sector. The focus of development policies was gradually shifting from pure economic to growth with equity and the eradication of

poverty. Interest was, thus generated in sectors outside the organized economy that was providing a livelihood to a large section of the poor. Hence, the concept of the unorganized sector was born. In defining the unorganized sector, self- employed with or without family labour and microenterprises with less than five workers, is also included.

In analyzing the contribution of the unorganized sector, emphasis is placed on the pervasive importance of the link between organized and unorganized activities that are not confined to particular occupations or even economic activities.

Problems of Women Workers in Unorganized Sectors

A large number of women from rural areas migrate to cities and towns all over India. Most of these women and girls are illiterate and unskilled. They work in inhuman conditions in cities as their living standard is extremely poor. A large number of these women are being exploited by middlemen, contractors, construction companies and other type of employers. Many of these women and girls work as housemaids, construction area and brick kiln, where their working hours extend up to 14 hour a day. A large number of migrant women become victims of financial and sexual exploitation. Gradually, many women and girls lose contact with kith and kins back home and become alienated from their culture and roots.

It is a recognized fact that there is still no society in the world in which women workers enjoy the same opportunities as men. The women unorganized sector are facing so many problems. According to the 2001 census about 96 percent of women workers in India are in unorganized sector. The rise of female participating in unorganized sector is due to the compulsion and employer's preferences for female employee. Their ignorance, illiteracy and poverty have added fuel to their woes all the more. Women are considered the human resource of choice for the unorganized sector because they lack education and training and are amenable to accept lower wages for equal work due to gender casting.

The unorganized sector is characterized by the several factors such as wage discrimination, no limit for minimum wages, long hours of work, lack of job security, lack

of legislative cover, lack of minimum facilities at work place, heavy physical work and ill treatment, physical exploitation by the employers. A proper study shall bring out the problems of women workers in unorganized sector and their attitude towards employment. The present study is an attempt in this direction.

Scope of the Study

The study is an attempt to understand the women workers attitude towards their employment conditions in unorganized sector.

Objectives

The study has been undertaken with the following main objectives:

1. To study the socio economic conditions of women workers in unorganized sector.
2. To analyze the problem faced by women workers of the study area.
3. To suggest measures for overcoming the problems of women workers in unorganized sector.

Methodology

The present study is empirical one. Survey method was employed to collect the data from women workers. A well conceived and structural interview schedule was prepared for collecting the primary data. To study the plight of women workers of unorganized sectors, 120 samples were selected through the convenient sampling method. Fieldwork for the present study was carried out personally by the research. Secondary data has been collected from the articles, journals and the books.

Socio-Economic Background of the Women Workers

S. No.	Age in years	No. of women workers	Percentage
1	Below 20	18	15.0
2	20-30	48	40.0
3	30-40	34	28.3
4	Above 40	20	16.7
	Total	120	100.0

Table 1.1 : Age-wise Classification of the Women Workers

The table reveals the age group of the women respondents. It is clear from the table that the majority of women workers (40%) belong to the age group of 20 to 30 years, 28.3 percent workers belong to the age group of 30 to 40 years, 16.7 percent workers are above the 40 years and the remaining 15 percentage women workers are below 20 years.

S.No.	Educational level	No. of women workers	Percentage
1.	Illiterate	76	63.3
2.	Primary school	32	26.7
3.	Middle school	10	8.3
4.	High school	02	1.7
	Total	120	100

Table 1.2 : Education –wise Classification of Women Workers

It is evident from table that the majority of the respondents (63.3%) are illiterate while 32 have primary school education, 10 respondents (8.3%) have middle school education and 2 respondents have high school education only. Thus, it is clear that the educational status of the most of the respondents is very poor.

S. No.	Marital status	No. of women workers	Percentage
1.	Married	97	80.8
2.	Unmarried	23	19.2
	Total	120	100.0

Table 1.3 : Marital Status of Women Workers

Table reveals that 80.8 percent of women worker are married while only 10.2 percent respondents are unmarried.

S. No.	No. of children	No. of women workers	Percentage
1.	1 to 2	13	13.4
2.	3 to 4	53	54.6
3.	More than 4	26	26.8
4.	No children	05	5.2
	Total	97	100.0

Table 1.4 : No. of Children of Women Workers

*Only 97 women workers (97/120) are married.

Majority of the women workers (54.6%) have 3 to 4 children, 26.8 percent have more than 4 children, 13.4 percent respondents have 1 to 2 children and 5.2 women worker have no children.

S. No.	Earning members (including the respondent)	No. of women workers	Percentage
1.	One	06	5
2.	Two	25	20.8
3.	Three	57	47.5
4.	More than three	32	26.7
		120	100

Table 1.5 : No. of Earning Members in the Family of Women Workers

It is found that (47.5 %) of the women worker have three earning members in their family, 26.7 percent workers have more than three earning members in their family, 20.8 percent of respondents have two earning members while only 5 percent women workers have 1 earning member in their family. The male members of their families were mostly drivers, carpenters, construction workers and scavengers.

S. No.	Income (in rupees)	No. of women workers	Percentage
1	Below 2500	13	10.8
2	2500-4000	33	27.5
3	4000-5500	62	51.7
4	Above 5500	12	10.0
	Total		100.0

Table 1.6 : Family Income of Women Workers (per month)

It is clearly evident from table that 51.7 percent women workers have a family income of Rs 4000 to Rs 5500, 27.5 percent workers have a family income of Rs 2500 to 4000, 10.8 percent workers have a family income below Rupees 2500 and only 10 percent women workers have family income above 5500 Rupees. The women workers in unorganized sectors felt that they find it highly difficult to run their family with such a meager income.

Some of them are single earners in their family who entirely depend on the income from unorganized sector.

S. No.	Age in years	No. of women workers	Percentage
1.	Schedule Tribe	99	82.5
2.	Schedule Caste	13	10.8
3.	Other Backward Class	08	6.7
	Total	120	100.0

1.7 : Caste-wise Classification of Women Workers

Baster, the land of tribes and about 70% of the total population of Bastar comprises tribals, which is 26.76% of the total tribal population of Chhattisgarh. It is clear from the table 1.7 that majority (82.5 %) of women workers belong to schedule tribe, only 10.8 percent of women workers belong to schedule caste while 6.7 percent respondents are from other backward class.

Problems of Women Workers

S. No.	Duration of employment	No. of women workers	Percentage
1.	Less than 3 months	15	12.5
2.	3 to 6 months	36	30.0
3.	6 to 9 months	42	35.0
4	More than 9 months	27	22.5
	Total		100.0

Table 2.1 : Duration of the Employment of Women Workers (in months)

It is clearly evident from the table that 35 percent women workers get employment from 6 to 9 months, 30 percent workers can get the work from 3 to 6 months, 22.5 percent women workers can get employment more than 9 months and 12. 5 percent women workers can get the employment less than 3 months.

S. No.	Type of residence	No. of women workers	Percentage
1.	Own house	11	9.2
2.	Rented House	109	90.8
	Total	120	100

Table 2.2 : Type of Residence of the Women Workers

Table shows that 90. 8 percent women workers reside in rented house and only 9.2 percent women workers reside in their own house. The house rent takes away a considerable portion of their income and leaves a little residual income to meet other necessities.

S. No	Working Hours	No. of women workers	Percentage
1.	9 hours	36	30.0
2.	9-10 hours	58	48.3
3.	More than 10 hours	26	21.7
	Total	120	100.0

Table 2.3 : Numbers of Hours Worked by the Women Workers

Table highlights the working hours of women workers. 48.3 percent women workers have to work 9 to 10 hours, 30 percents workers have to work up to 9 hours while 21.7 workers have to work more than 10 hours. According to unorganized sector worker's Bill, 2002, the working hours are defined as 9 hours a day. It further says that every worker shall be entitled a weekly holiday, casual or sick leave and 15 days earned leave in a year. However in most of the workers in unorganized sector are to work for more hours.

S. No	Monthly Income	No. of women workers	Percentage
1.	Below 2500	24	20.0
2.	2500-3000	81	67.5
3.	3500-4000	11	9.2
	Above 4000	04	3.3
	Total	120	100.0

Table 2.4 : Monthly Income of Women Workers

Table shows that 67.5 percent of the women workers earn Rupees 2500-3000 per month, 20 percent of women workers earn below Rupees 2500, 9.2 percent workers earn between 3500 to 4000 Rupees per month while only 3.3 percent women workers earn above Rupees 4000 per month. In fact, most of the workers stated that they seldom get

their wages timely. One of the severe problems that is being faced by the workers of unorganized sector is that they are not given wages what they deserve.

S. No.	Expenditure	Percentage of Monthly Income
1.	House Rent	28.6
2.	Grocery	41.9
3.	Clothing	2.0
4.	Loan repayment	10.0
5.	Education	9.5
6.	Health	2.0
7.	Savings	0.8
8.	Repair of house	1.0
9.	Festival	2.0
10.	Miscellaneous	2.2
	Total	100.0

Table : 2.5 Expenditure Pattern of the Women Workers (Per Month)

*The expenditure of each women worker is converted into percentages and averages are taken for each expenditure.

Table 2.5 shows that women workers spend 41.9 percent of their monthly income on grocery items, 28.6 percent of their income for paying the house rent, 10 percent on loan repayment, 9.5 percent on education, 2 percent on their income spend on health and clothing and festival, 1 percent on the repair of their house and save only 0.8 percent (average) of their income.

S. No	Disease	No. of women workers	Percentage
1.	Back pain/body pain	21	17.5
2.	Skin Diseases	5	4.1
3.	Anemia	37	30.8
4.	Bronchitis	18	15.0
5.	Indigestion	14	11.7
6.	Other diseases	11	9.2
7.	No Disease	14	11.7
	Total	120	100.0

Table : 2.6 Occupational Diseases of Domestic Workers

Occupational diseases pose a serious problem to the women workers. The polluted environment and unhygienic work place affecting not just the flora and fauna but also workers of unorganized sectors. Majority of women workers suffer from anemia, back pain, body pain and various diseases. The women workers in unorganized sector generally do not eat rich food. Though they work hard, they eat only one or two times a day. This affects their health to a great extent (Table 2.6)

S. No.	Working condition	No. of women workers	Percentage
1.	Less Hygiene Prevails	35	29.2
2.	Old machines	37	30.8
3.	Insecurity	48	40.0
	Total	120	100.0

Table 2.7 : Working Condition of Women Workers

The above table shows the various factors that affecting the working conditions. 40 percent women believe that insecurity is the reason, (30.8 %) women workers believe that old machines are affecting the working condition while 29.3 percent women said that less hygiene prevails.

S. No.	Harassment of women workers	No. of women workers	Percentage of women workers
1.	Sexual Harassment	42	41.7
2.	Financial Harassment	28	23.3
3.	Caste harassment	50	35.0
	Total	120	100.0

Table : 2.8 Harassment of Women Workers

The above table reveals the various kinds of harassment and exploitation faced by women workers in unorganized sector. 41.7 percent women workers are sexually harassed while 23.3 percent women workers feel that they face the financial harassment and 35 percent respondents said that they are exploited on the basis of their caste.

S. No.	Problems	Satisfied	%	Not Satisfied	%	Total	Percentage
1.	Job security	32	26.7	88	73.3	120	100
2.	Work duration	36	30.0	84	70.0	120	100
3.	Wages	23	19.2	97	80.8	120	100
4.	Leave facility	26	21.7	94	78.3	120	100
5.	Medical facility	28	23.3	92	76.7	120	100

Table 2.9 : Problem of Women Workers (Level of Satisfaction)

It is clearly evident from Table 2.9 that majority (73.3%) of women workers are not as far as job security is concerned. The worker could not entirely rely on their monthly income. They fear that they would be terminated at any time without notice.

Long duration of work is a crucial problem for 70 percent of women workers as shown in Table 2.9. Majority of women workers said that they have no stipulated working hours. Irrespective of day or night, they have to discharge any type of work assigned to them. In fact long duration of work spoils the health of the workers.

The unorganized women workers are paid very low wages. According to the study 97 percent of women workers are not satisfied with their income. Furthermore there is no leave facility if they are on leave their employers deduct the wages of that day.

As shown in Table 2.9 that 78.3 percent women workers don't get leave facility. Sometimes the workers are either terminated or get deduction of their wages even if they take leave for genuine reasons. Besides whenever the workers return after taking casual leave, the employer assigns lot of work to them. Hence, lack of leave facility is the biggest problem before them.

The women workers in unorganized sector pay the medical expenses (if any) from their own pockets. Only few employers reimburse such expenses. Though some of them get treatment in Government hospital but they are not satisfied. In case of life threatening diseases the workers borrow money from the employers, relatives to get treated in

private hospitals. Hence huge debt accumulates before they recovered from the disease. As such lack of medical facility seems to be a great problem for 76.7 percent workers (Table 2.9).

Suggestions

The empowerment of women is the major concern of the present day. The efforts of the government to improve the condition of women workers are praiseworthy but due to corrupt practices of the functionaries, the beneficiaries are not capable to utilize the programmes meant for their betterment. In order to improve the condition of unorganized women workers some of the suggestions are recommended.

1. Women workers should be educated and make them aware about their rights and legislative provisions.
2. Effective steps should be taken to reflect the duty of the government and society to protect the rights of women workers in unorganized sectors.
3. The legislations, which prevent all forms of discriminations and guarantee equal job opportunities, should be strictly enacted and implemented.
4. Women workers must be motivated to utilize the existing programmes of their welfare.
5. Necessary amendments are required to be made in labour laws.
6. Women workers leaders must be included in the policy formulation and other decision making processes relating to their welfare.
7. To ensure full employment to the women workers the government must come forward with certain job oriented training and skill programmes to generate local self employment.
8. The workers have to work for very long hours. This need to be regulated and not to exceed 8 hours per day. The government must take some sincere attempts to regulate working hours of the women in unorganized sectors.
9. To fight against harassment and exploitation the women workers must be encouraged to form groups.

10. There should be proper regulation of unorganized sector industries, which ensure job security, healthy work environment and at least minimum wages, maternity and child care benefits.

Conclusion

Even though, the unorganized sector has been the most vulnerable and ignored sector in India, it holds an inevitable place in Indian economy. Thus, there is no exaggeration in saying that the backbone of Indian workforce is the unorganized sector. The unorganized women workers development should be viewed as an issue in social development to be seen as an essential component in every dimension of development. In order to get empowerment the government and the social workers may contribute significant role in making women workers capable, self reliant and well organized. It is worthwhile to create the awakening among unorganized women so that they can come up by taking care themselves. There is urgent need to give top priority to the issues and problems of the workers of unorganized sector.

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Review Article

Costus Igneus (Insulin Plant)

Reacha Shriwas[1]

Abstract

Costus igneus nak also known as fiery costus or Insulin plant. This is a recent introduction to India as an herbal cure for diabetes. It is widely grown in gardens as ornamental plant and also run wild in many places. Costus igneus is a traditional medicinal herb with various well known pharmacological actions such as antidiabetic,hypolipidemic, antioxidant, antibacterial, antifungal, antiviral, antifertility, anti -inflammatory, antituberculosis etc. It's way of consumption is easy. It has many nutrients and phytochemical compounds also. It has many pharmalogical activities. It has significance of study about cure. This review article for its antibacterial or antifungal property, which is more important to study about skin infections.

Key words

STZ- induced, antipyretic, harborne method, disc diffusion method, Herbal medicine, Antidiabetic, Rhizome

Introduction

Costus igneus nak also known as fiery costus, Step ladder or Spiral flag or Insulin plant, is native to South and Central America. This is a recent introduction to India from America as an herbal cure for diabetes and hence commonly called as 'insulin plant. It is widely grown in gardens as ornamental plant in South India and also run wild in many places. [A review on insulin plant (costus igneus Nak), medknow publications, additional article information, by Prakash K. Hegde, Harini A. Rao, and Prasanna N. Rao.Pharmacogn Rev. 2014]It is grown on tropical environment condition. [A review on insulin plant (costus

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igneus Nak), medknow publications, additional article information, by Prakash K. Hegde, Harini A. Rao, and Prasanna N. Rao.Pharmacogn Rev. 2014]

It is a perennial, upright, spreading plant reaching about two feet tall,with the tallest stems.Leaves are simple,large, smooth, dark green leaves spirally stems arranged around.Beautiful orange flowers are produced in the warm months.Fruits are inconspicuous**.**Costus igneus plant grow very quickly.Propagation of this plant by stem cutting. It needs sunshine but also grows in slightly shady areas.

It does not have a problem with pests and disease.[A review on insulin plant (costus igneus Nak), medknow publications, additional article information, by Prakash K. Hegde, Harini A. Rao, and Prasanna N. Rao.Pharmacogn Rev. 2014]

The plant belongs to the family Costaceae. The Costaceae was first raised to the rank of family by Nakai on the basis of spirally arranged leaves and rhizomes being free from aromatic essential oils. [A review on insulin plant (costus igneus Nak), medknow publications, additional article information, by Prakash K. Hegde, Harini A. Rao, and Prasanna N. Rao.Pharmacogn Rev. 2014]

Several anatomical and morphological features support this isolated position including well developed aerial shoot with distinct, rigid, and commonly branched stems. The leaves are inserted in a low spiral with divergences. The **family Costaceae consists of four genera** and approximately **200 species**. The genus Costus is the largest in the family with about 150 species that are mainly tropical in distribution.

Costus igneus a **medicinal plant is a magic cure for diabetes**. Its leaves help to build up insulin in the human body so it is commonly known as insulin plant in India. This plant was grown in America and is becoming popular India because of its medicinal chemicals. It is now accepted and used

widely as an ayurvedic medicinal herb. **It is used in skin infection also but less work on it.**

Consumption of leaves are believed to lower blood glucose levels and diabetics who consumed the leaves of this plant did report a fall in their blood glucose levels [jcdr.net ,A J shetty, PARAMPALLI S.M, BHANDARKAR R, KOTIAN S, effect of the insulin plant.]But rather than it is **used also in skin problems like fungal infection.**Costus igneus is a **traditional medicinal herb** with various well known pharmacological actions such as **antidiabetic, hypolipidemic, antioxidant, antibacterial, antifungal, antiviral, antifertility, anti-inflammatory, antituberculosis etc.**

Review of Literature

Insulin plant cures Super effective – Diabetes, skin problem

Effective – Ascaris asthma, Bronchitis [herbpathy.com/uses-and-benefits-of-insulin-plant-Cid4821] In traditional medicine it is also used to promotes longevity, treats rash, reduces fever, treats asthma, treats bronchitis, eliminates intestinal worms. [Herbpathy.com/uses-and-benefits-of-insulin-plant-Cid4821]

Action of insulin plant cost effective – antidiabetic

Effective – antibacterial, antiseptic, carminative, diuretic, stimulant, stomachic, tonic, vermifuge. [Herbpathy.com/uses-and-benefits-of-insulin-plant-Cid4821]. Phytochemical study of insulin plant**,** is rich in protein, iron and antioxidant components such as ascorbic acid, alfa-tocopherol, beta-carotene, terpinoids, steroids, flavanoids.

Nutrients in insulin plant -Corosolic acid flavanoids, reducing sugar, sapogenin, saponins, tannins, alkaloids. [Herbpathy.com/uses-and-benefits-of-insulin-plant-Cid4821]

Way of Consumption/ Use -

(1) For Skin Problem

Crush the leaves gently and make a paste, than spread it on the infected skin or white spot on skin. In the beginning, will little bit itching but after sometimes it will not. Slowly it cures infection and skin shows normally like the same.

(2) For diabetes

Take a leaf and consume and chew well. Its juice treat has effectively provided glycaemic control in diabetics; the dose of insulin could be reduced to half Blood sugar levels.

(3) Side effects or Cautions

Consumption of insulin plant should be avoided by pregnant or lactating women. [Herbpathy.com/uses-and-benefits-of-insulin-plant-Cid4821]

(4) Pharmacological activities

Costus igneus had been documented as an antidiabetic plant (insulin plant) in India Ayurvedic literature. It is more effective in diabetes.

[International journal of current research in biosciences and plant biology. 2016
Ravindra B. Malabadi et. Al.]

Diuretics, either alone or in combination with other drugs are valuable in the treatment of hypertension, congestive heart failure, as cites and pulmonary edema. Diuresis has 2 components: increase in urine (water secretion) and a net loss of solutes (i.e. electrolytes) in the urine. 2 widely used diuretics, thiazides and furosemide, have been associated with a number of adverse effects such as electrolytic imbalance, metabolic alterations, development of new onset diabetes, activation os the rennin angiotensin neuroendocrine systems and impairment of sexual function. [International journal of current research in biosciences and plant biology 2016, Ravindra B. Malabadi et. Al.]

A study of secondary metabolite of costus igneus has been confirmed. It has been exploited for the extraction of an important bioactive metabolite diosgenin. [International journal of current research in biosciences and plant biology 2016), Ravindra B. Malabadi et. Al.]

The leaf and rhizome extract juice of costus igneus were used with sugarcane juice along with other herbs to cure jaundice and other related liver diseases. [International journal of current research in biosciences and plant biology. 2016), Ravindra B. Malabadi et. Al.]

Phytochemical evaluation of medicinal plants is one of the basic tools in the ethanobotanical study. High performance thin layer chromatography (HPTLC) has been

emerged as an important tool for the qualitative and semi quantitative phytochemical analysis of herbal drugs and formulation. [International journal of current research in biosciences and plant biology 2016), Ravindra B. Malabadi et. Al.]

Helminthiasis or worm infestation is one of the most common diseases in the developing countries and also considered as the most serious public health concern in the world. It is more effective as an antihelmintic drug.

[International journal of current research in biosciences and plant biology.

2016), Ravindra B. Malabadi et. Al.]

In another study, the antimicrobial activity and qualitative phytochemical evaluation of costus igneus has been reported. Antimicrobial activity was evaluated by “disc diffusion method” and qualitative phytochemical constituents were analyzed by “harborne method.” [International journal of current research in biosciences and plant biology 2016), Ravindra B. Malabadi et. Al.]

Some experimental studies supported the claim that extract of methanolic and ethyl acetate extracts of roots have anticancer activities.

[International journal of current research in biosciences and plant biology.2016, Ravindra B. Malabadi et. Al.]

A study was conducted to investigate the genotoxic and/or antigenotoxic effect of aqueous extract of the medicinal plant, which is used frequently for the treatment of various disorders in “Saudi Arabia”. [International journal of current research in biosciences and plant biologyonline. 2016) , Ravindra B. Malabadi et. Al.]

The ethanolic extract of the rhizome of costus igneus possesses anti-inflammatory and antipyretic properties. [International journal of current research in biosciences and plant biology 2016) , Ravindra B. Malabadi et. Al.]

A mixture of saponin isolated from the rhizomes of costus sps. Effectively protected against pregnancy (experiment on rats). [International journal of current research in biosciences and plant biology 2016), Ravindra B. Malabadi et. Al.]

The effect of freeze dried rhizome juice of costus sps. On body weight, liver and kidney of normal and STZ- induced diabetic rats were studied. Plant derived antioxidants play a very important role in alleviating problems related to oxidative stress. [International

journal of current research in biosciences and plant biology 2016), Ravindra B. Malabadi et. Al.]

The rhizome extracts of three costus sps. (Costus igneus, costus pictus and costus specious) for their antibacterial activity against gram positive bacteria bacillus subtilis, staphylococcus aureus and gram negative bacteria e.coli, pseudomonas aeruginosa. It inhibits their growth. [International journal of current research in biosciences and plant biology 2016), Ravindra B. Malabadi et. Al.]

Observation and Significance of study

Costus igneus (insulin plant) is a traditional ayurvedic plant and also a wild plant which is found in tropical area. In some place it also grown as an ornamental plant.It is very important to study as a medicinal plant because it is very useful. It is most effective in some diseases like diabetes and skin infection as a anti diabetic and antibacterial and anti fungal.

It's consumption is very easier.It has no side effects or less.Many researches or experiments have done on its anti diabetic property but some small works on skin infection problems.

Conclusion

This review supports the therapeutic potential of the leaves in diabetes and skin infection. These results have to be evaluated and revalidated by clinical trials. In this review in studied its role in diseases, containing nutrients and compounds and many things. It is very useful as medicine and no side effects only have some precautions. Its improvements in future gives new effective drug for many diseases or disorders. This is very good start to research on it for skin infection. Because it has many works on diabetes but now it is time to go for research new property of cure of it.

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Gender Discrimination and Feminist Perspectives for Women Empowerment

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Abstract

Gender discrimination continues to be an enormous problem within Indian society. Traditional patriarchal norms have relegated women to secondary status within the household and workplace. This drastically affects women's health, financial status, education, and political involvement. Women are commonly married young, quickly become mothers, and are then burdened by stringent domestic and financial responsibilities. The gender inequality exists among every region, social class and prevents the growth of Indian economy from improving the lives of Indian people. The reality of gender inequality in India is very complex and diversified, because it exists in every field like education, employment opportunities, income, health, cultural issues, social issues, economic issues etc.

The feminist approach to social work is based on the assumption that the problems of clients are not within the female psych, but within our societal structure, which is patriarchal and oppressive to women. This approach is based on the belief that, in a patriarchal culture, men have advantages, which preclude equality for women. Therefore, the goal of this perspective is to create a society that is equal for both men and women.

Feminist social workers link women's personal experiences to expected sex-role norms, oppressive social structures and discriminary practices. Feminist social workers often quote the slogan "the personal is political" to illustrate the idea that an individual's unique experience can only be understood by referencing the political, social, cultural and economic contexts in which it occurred.

In the present study, an attempt has been made to highlight the multi-dimensional context of gender inequalities prevalent in Indian society and suggest feminist social work

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intervention methods for reducing this gender inequality and to promote the dignified position for Indian women.

Introduction

Many attempts have been made in India to increase women's socio-economic status (United Nations, 1997). Critics argue that income generation alone does not increase the economic equality of women in India. Amartya Sen (1999) argued that economic discrimination is a much "broader concept" than economic status and a complex relationship exists between culture and economic status of poor women in India. Although income generation is just one factor, the India Development Report (Parikh & Radhakrishna, 2002) stressed that economic growth is necessary to alleviate poverty. Socio-economic forces combine to greatly influence the development of poor women in India. Given that culture permeates all aspects of life in India, a critical cultural and feminist perspective may enhance understanding of the complex nature of economic development.

The relationship between gender and discrimination is complex. The different roles and behaviours of females and males, children as well as adults, are shaped and reinforced by gender norms within society. These are social expectations that define appropriate behaviour for women and men (e.g. in some societies, being male is associated with taking risks, being tough and aggressive and having multiple sexual partners). Differences in gender roles and behaviours often create inequalities, whereby one gender becomes empowered to the disadvantage of the other. Thus, in many societies, women are viewed as subordinate to men and have a lower social status, allowing men control over, and greater decision-making power than, women. Gender inequalities have a large and wide-ranging impact on society. For example, they can contribute to gender inequities in health and access to health care, opportunities for employment and promotion, levels of income, political participation and representation and education.

History of Gender Inequality in India

If we highlight ancient India, an Indian woman was in the position of high esteem and was pronounced by the word of maata (mother) or Devi (goddess) in the Vedas and Upanishads. Same as Manu Smriti, woman was considered as a precious being and in the early Vedic age, girls were looked after with care. Then practice of polygamy deteriorated the position of woman and in the medieval period, the practices of purdha system, dowry system, and sati system came into being. But with the passage of time, the status of woman was lowered. After the development of science and technology, female feticides is being practiced by large number of people .This has also led to a drop in the female ratio. The Indian census 2011 state wise shows that Kerala represent the highest sex ratio with 1084 females per 1000 males while Haryana represents the lowest sex ratio with just 877 women per 1000 males. Then the dowry became popular and it was the starting period of female infanticide practices in few areas. In India, a sex-selection phenomenon has been in place since the 1980s, with men born during this period now at marriageable age. People are much wealthier but at the same time there's pressure to produce sons as an heir, so educated, wealthy families are now more likely to have sex selection. These entire factors are coming to play and creating this toxic mixture, which has turned violence against women into a bigger issue today. The origin of the gender inequality has been always the male dominance. At least in India, a woman still needs the anchor of a husband and a family. Their dominating nature has led women to walk with their head down. So, it's an alarming issue for our country.

Patriarchy

A common perception about women in India is that their status has always been low compared with women in advanced countries. Contemporary Indian culture reflects a strong connection to its ancient history. India's past provides insights to the current status of Indian women in society (Masani, 1973). An ancient text from approximately 1,500-1,000 B.C. called the Rigveda, imparted written evidence of the status of Indian women (Khanna & Varghese, 1978; Masani, 1973; Seth, 2001; United Nations, 1997). In addition, archaeological, sculptural, and artistic findings revealed the nature of Indian

women's lives in ancient India (Seth, 2001)**.** The Vedic culture believed that men and women were created as equals.

The word 'Hindu' evolves from the name 'Indus Valley' in India (Medhi, 2000, p. 31) Hindu means people of the Indus, which indicates Hinduism is a way of life as well as a religion. It is thought that Hinduism originated during the fifth and sixth centuries B.C. (Jayawardena, 1986). Although Hindus worship more than one deity, there are two main beliefs: karma and dharma, which affect the status of many women in India. Karma means that an individual's actions in their past life affect future lives, while dharma means practice of laws (Jayawardena). The two combine to mean that if one practices good dharma in this life, their karma improves in the next life. This may explain the tendency of poor women to accept their lot in life rather than fight for justice. Vedic men and women were regarded as equals.

Manu was the author and lawgiver of sacred, societal laws. The Brahmin (highest caste) priests held the Manusmriti in high regard and preached its twelve chapters and 2,684 versus to the general public. Chapter IX clearly discriminates against women in several ways. There were separate laws for husband and wife where the role of the husband was to "carefully guard his wife, in order to keep his offspring pure" (Manu, p.329). An interesting shift from Vedic times was that "a husband must constantly be worshiped as a god by a faithful wife" (p. 196). Equality for women was no longer in vogue. Patriarchy became so pervasive it suppressed women's physical and psychological freedoms. Every aspect of a woman's life was controlled, monitored, and guided. She could not possess any assets of her own, never displease her husband, must be responsible for the housework and children, perform religious duties, prepare all the food, provide male children, subdue her needs, thoughts, and actions, be loyal and obedient, and never remarry if she becomes a widow (Manu). From birth to death a woman's life is dictated and monitored for many poor women. The marriage age for females was lowered, remarriage was forbidden, and women's freedoms were severely restricted.

Lack of finances, insufficient nutrition, gender bias and tests that result in abortion of female fetuses are the main causes for girl deaths in India (Medhi, 2000). Dreze and Sen (2002) point out the high rates of "missing women" in India (p. 18). The 21st century has brought additional gender biases. Recent atrocities such as fetus testing, abortions, and dowry deaths not only block women's chances of survival but also threaten their very rights of birth. Indian society must refer back to its Vedic past to recreate its original egalitarian society.

Education

Vecchio & Roy (1998) argued that education in India is sex and class discriminatory. Medhi (2000) asserted that when education is available, it does not increase the status of women because of the belief in patriarchy. A study of female post-graduate women revealed that 99% continued traditional housewife roles even if they held a job (Medhi). Medhi's pessimistic proclamation is quite discouraging when she posited that empowerment of women will "take an indefinite period of time" (p. 38). Girls are groomed for marriage, so parents prefer to invest in a boy's education (Vecchio & Roy, 1998). A common belief is that when girls marry, they belong to their in-laws, so the return on investment for education is too low. For low-income families with limited budgets, education is unaffordable for girls.

Due to inadequate education and low assets, a woman suffers greatly if her husband dies or abandons her (United Nations, 2000). She does not possess the capacity to earn an adequate income. Because a girl's labor is more valuable in the home, mothers prefer to keep them at home. Women bear the highest burdens of household chores (Vecchio & Roy, 1998). This means they wake first, eat last, and sleep late after all chores are completed. Very little time or energy remains for an education. Women in India thus became less valued over time.

Labor

"Women are the invisible workforce in India" (United Nations, 1997, p. 8). Without equal access to the job market, women cannot participate in better-paid work so their

economic status remains stunted. India has forsaken an untapped human capital resource with high potential. A report by the Ministry of Social Welfare (1987) in India confirmed women's exploitation in the workplace highlighting women's low wages, gender biases in the workplace, extended hours, and poor conditions. Technology competes with women workers as machines replace manual work normally performed by unskilled women (Devi, 1999; Dhagamwar, 1995). Issues of employment, skills, training, and low wages adversely affect women's capacity to work (Devi, 1999, pp. 28-29).

Review of Literature

Jayachandran, S. (2014), has presented the roots of gender inequality in developing countries. This paper also discussed the several mechanisms through which the economic development could improve the relative outcomes of women & gender gaps can be reduced as country grows.

Thomas, R.E. (2013), has highlighted his paper with the state of gender based inequality in the modern India. It has presented gender inequality with the help of some facts & figures and representing the inequality practiced in India & its comparison with other Asian & Western countries.

Chaudhary, & Sarkar, D. (2012), has tried to find out some factors i.e. educational status, work participation, level of gender inequality, of the Cooch Behar, a district of West-Bengal, India and suggested some relevant strategies implication for reducing this gender inequality to promote the deprived women of this district.

Raju, E. (2014), has examined the gender discrimination in India on the basis of demographic, social, economic and political context. The paper has broadly discussed the issue of gender inequality, women empowerment& reproductive health among women of India. Some measures under taken b the International and national organizations were also discussed in this paper.

Amartya Sen (1999) studied economic reforms in India and found that income enables other capacities. Although this may be true for upper class women seeking personal

satisfaction, the primary reason why poor women labor outside the home is income generation to pay for basic survival needs. Poor working women form the backbone of India yet their contributions are rarely acknowledged. Gender inequalities rob women and hamper their capacity for income and survival (Vecchio & Roy, 1998).

Objectives of the Study

1) To identify the factors which are responsible for gender inequality?

2) To practice feminist perspective to reduce gender inequality.

Gender Inequality

Gender Inequality means disparity between men and women in different social, economical & political, cultural and legal aspects. This problem is simply known as gender biasness, which in simple term means the gender stratification or making difference a male or a female.

Types of Gender Inequality

According to Nobel Laureate Prof. Amartya Sen (2001), there are seven types of gender inequalities at present in India. Here is a brief explanation of all the types of gender inequality.

1) Mortality Inequality

In this, Inequality between women and men directly involves matters of life and death, and takes the brutal form of unusually high mortality rates for women and a consequent preponderance of men in the total population, as opposed to the preponderance of women found in societies with little or no gender bias in health care and nutrition.

2) Natality Inequality

In this kind of inequality a preference is given to boys over girls. It is ardent in many of the male dominated societies and these manifests in the form of parents wanting their newborn to be a boy rather than a girl. With the availability of modern techniques to determine the gender of foetus, sex selective abortions has become common in India.

3) Employment Inequality

In terms of employment as well as promotion at work women often face greater handicap than men. This is clearly exemplified as men getting priorities in getting better work opportunities and pay scale than their female counterparts.

4) Ownership Inequality

In many societies ownership of property can also be very unequal. Since ages the traditional property rights have favored men in the most parts of India. The absence of claims to property can not only reduce the voice of women, but also make it harder for women to enter and flourish in commercial, economic and even some social activities.

5) Special Opportunity Inequality

Even when there is little difference in basic facilities including schooling, the opportunities of higher education may be far fewer for young women than young men. Indeed, gender biasness in higher education and professional training can be observed in India.

6) Basic-Facility Inequality

Even when demographic characteristics do not show much or any anti-female bias, there are other ways in which women can have less than a square deal.

7) Household inequality

There are often enough, basic inequalities in gender relations within the family or the household, which can take many different forms. Even in cases in which there are no overt signs of anti-female bias in, say, survival or son-preference or education, or even in promotion to higher executive positions, the family arrangements can be quite unequal in terms of sharing the burden of housework and child care.

Government Initiatives

After independence in 1947, India used western models of development to plan for industrialization (Jumani, 1991). Although several governmental policies and initiatives were launched after independence, they have not been adequately enforced (Dhagamwar, 1995; Hirway & Terhal, 2002; Mohan, 1973; Vecchio & Roy, 1998). In 1950,

Article 14 of the constitution promised social, political, and economic equality for all citizens (United Nations, 1997). A 1975 government Committee on the Status of Women in India (CSWI) recommended "gainful employment" plus "recognition of their substantial and even massive contribution to the national economy" (Medhi, 2000, p.43). Top-down government initiatives were ineffective because they were not gender specific, did not produce sufficient jobs, were not context specific, or were too slow to implement (Byres, 1994; Devi, 1999; Gulati, 1999; Tisdell, 2002; United Nations, 2000).

The Dowry Prohibition Act, 1961; Hindu Women's Right to Property Act, 1937; Hindu Marrige Act, 1955; and Equal Remuneration Act, 1976 are examples of government initiatives aimed at developing the status of women in India (Dhagamwar, 1995; Mohan, 1973). Despite such legal efforts, gaps widened between ideology and reality. The general public often reacted on a voluntary basis with more practical schemes. Early issues were education, widow remarriage, and the independence campaign (United Nations, 1997). Mahatma Gandhi encouraged women to participate in social and political transformations (Jayawardena, 1986; Khanna & Varghese, 1978). In spite of many critiques of governmental efforts, it is generally recognized that the Indian government can play a crucial role in women's development (Bagwe, 1995; Breman, 1994; Census of India, 1991, Devi, 1999; Tisdell, 2002). However, since the 1970s, the Indian government continues to struggle with poverty alleviation programs (Gulati, 1999). The United Nations (2000) report on Improving the Status of Women in Poverty recommends the following policies**:** "Broad economic growth and poverty alleviation, targeted programmes for poor, targeted policies for poor women".

Feminism and Social Work

The feminist approach to social work is based on the assumption that the problems of clients are not within the female psych, but within our societal structure, which is patriarchal and oppressive to women (Berlin & Kravetz, 1981). This approach is based on the belief that, in a patriarchal culture, men have advantages, which preclude equality for women (Berlin & Kravetz, 1981; Collins, 1986). Therefore, the goal of this perspective is to create a society that is equal for both men and women (Forte, 2007). Practitioners

who use feminist principles in their social work practice attempt to create this equality by connecting the personal and political in the experiences of women (Brickner-Jenkins, Hooyman & Gottleib, 1991).

Importance of Feminism in Social Work.

Feminist social workers have been greatly influenced by the women's movement which perceives our culture as patriarchal and lacking in equal opportunities for women. (Berlin & Kravetz, 1981). According to Freeman (1990), feminist social workers have argued that feminist theory is missing from sociological, psychological and historical scholarship. This absence hinders social workers' understanding of the female perspective. A feminist perspective suggests that the oppression that women face impacts the decisions they make and the problems they are facing (Forte, 2007). Likewise, feminists argued that without knowledge about patriarchy and the impacts it has on the lives of women, social workers cannot recognize and validate women's perspectives and interests, nor can they adequately respond to the demands and realities of a diverse and fluid world (Freeman, 1990; Kemp & Brandwein, 2012).

Practice Methods and Intervention Strategies

In feminist social work, the personal is political (Collins, 1986; Berlin & Kravetz, 1981; Brickner-Jenkins, et el, 1991). Interventions are offered at both an individual level and at a macro level and the empowerment approach is used to encourage clients to take charge of their own lives (Collins, 1986). Additionally, feminist social workers present clients with all available options, focusing on those that are beyond gender norms.

Conclusion and Implication

Gender discrimination in India can be traced back to post-Vedic patriarchal attitudes. A United Nations report (2000) on economic and social status of poor women concluded that empowerment could lead to "political power and leadership" Without socio-economic equality for women in poor sectors of India, the impacts of efforts at development cannot become fully realized. India must value women as human resource assets and not liabilities. Socio-economic development can both empower women and

raise the status of the Indian economy. Women need employment justice. Education, vocational training, and skill improvements would increase the capacity for gainful economic participation of women in India. For reducing gender inequality in India, we should offer high level of education to girls and increase women empowerment. We should also give them opportunity in active politics & social activities so that social integration in Indian society can be made. The Campaign of our Prime Minister Mr. Narender Modi “Beti Bachao Beti Padhao” can be successful, when the mindset of Indian society will be changed towards women.

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To Study Invitro Release of Liposome – Mediated Drug Delivery System for Anti-Cancer Drug

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Abstract

The liposome encapsulated with UND-10 in previous experiments was assessed for sustained release nature via the oral route versus the intravenous route by comparing the in vitro release of the drug from liposome under physiological and simulated conditions, viz. in phosphate buffer saline (PBS) pH 7.4, in simulated intestinal fluid (SIF) pH6.8 and in simulated gastric fluid (SGF) pH 1.2. The formulation, while showing no release under acidic and alkaline conditions, showed a sustained release nature under physiological conditions.

Objective

In vitro release studies of the drug encapsulated liposome in PBS pH 7.4, in SIF pH 6.8 and in SGF pH 1.2.

Materials

Soya lecithin- Lifecare innovations Pvt. Ltd., Cholesterol- Lifecare innovations Pvt. Ltd. , UND-10 (Unknown Drug 10), Dialysis bag, Double distilled water, Simulated Intestinal fluid, Simulated Gastric Fluid.

Methods

- Physical Characteristics of -
- LIPIDS- Phosphatidylcholine (PC)m- solid in nature, -creamish in color, -soluble in methanol
- Cholesterol (CHO) - fine powder, - white in color, -soluble in chloroform
- UND-10- (Unknown Drug -10) -Liquid form, -Yellow in color, -Anti-cancer property

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Preparation of Buffers And Solutions

- PBS (Phosphate buffer saline) pH 7.4- NaCl- 0.08g , KCl- 0.02g, Na_2HPO4- 0.144mg , KH_2PO4- 0.24mg
  - Distilled Water: 100 ml

Experiment No: 1

Aim: Study of *in vitro* release of drug from liposome in PBS (pH 7.4)/ SIF (pH6.8)/ SGF (pH1.2)

Reagents:

1) Phosphate Buffer Saline.
2) Simulated Intestinal fluid.
3) Simulated Gastric Fluid.
4) Dialysis membrane: mol. Wt. cutoff 12000-14000. Pore size is 2.4nm

Procedure:

- Dialysis bag was soaked in double distilled water for 12hrs before use .
- Suspend the liposome in 2ml PBS/SIF/SGF in dialysis bag.
- Dialysis bag was suspended in beaker containing 15ml of release medium (PBS pH7.4/ SIF pH6.8/ SGF pH1.2) .
- Incubate at 37° C under shaking condition
- At specified time intervals, 2ml of release medium was taken out from the beaker and replaced with fresh 2ml PBS/SIF/SGF.
- Samples were analyzed at wavelength 337nm.

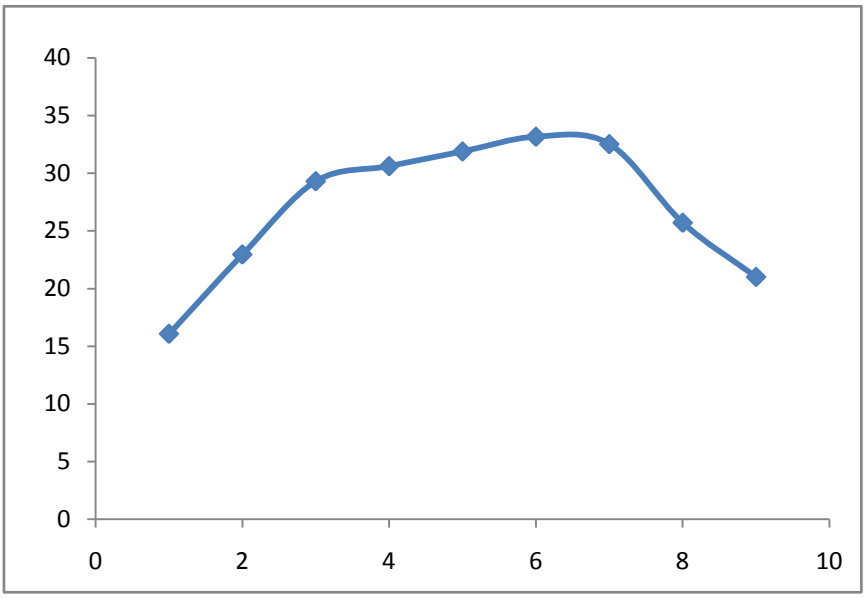
Result and Discussion

% of release	Different Time Points								
	15 mins	30 mins	1 hr	2 hrs	4 hrs	6 hrs	24 hrs	48 hrs	72 hrs
	16.07%	22.95%	29.3%	30.16%	31.88%	33.16%	32.52%	25.7%	21%

Table 4 : Study of in vitro release of UND-10

The release of the drug was maximum at 6hrs and subsequently after 6 hrs. It got decreased.

Liposome can be administered by several routes such as intravenous (i.v.), intramuscular (i.m.), Subcutaneous (s.c.), intraperitonial (i.p.), oral, ocular, nasal, aerogenic, and dermal. Mostly after systemic or local administration of liposome, sustained release of the associated drug may be achieved. The liposome encapsulated with UND-10 was assessed for sustained release nature via the oral route versus the i.v. route by comparing the *in vitro* release of the drug from liposome under physiological and simulated conditions, viz. in phosphate buffer saline (PBS) pH 7.4, in simulated intestinal fluid (SIF) pH6.8 and in simulated gastric fluid (SGF) pH 1.2. Using simulated SGF, there was no release of the drug either at initial time points of 30mins, 1 hr , and even up to for 4 hours. This is an indication of stability of the liposome in acidic medium. Similar observations were seen using simulated SIF i.e. , there was no release of the drug up to 4hrs with a negligible release (2%) at 6 hrs. Using PBS buffer , there was release of the drug at initial time points of 30 minutes the drug release were observed for three days indicating a sustained released formulation



Graph 5 : Graph of study of in vitro release of drug in PBS pH7.4

Conclusion

The formulation, while showing no release under acidic and alkaline conditions, showed a sustained release nature under physiological conditions. Further studies under in vivo conditions using animal models are warranted to conclusively establish its sustained release properties.

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Diagnosis and Management of Cerebral Venous Thrombosis: A Review

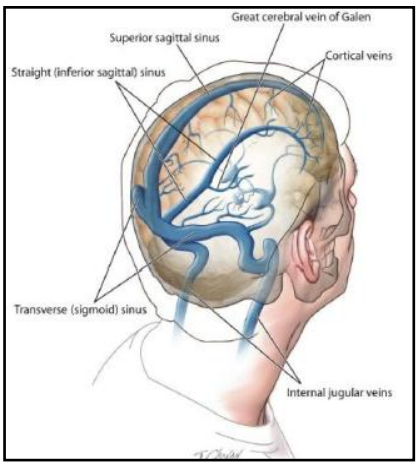
Rahul Singh Thakur[1]

Abstract

Cortical or Cerebral venous sinus thrombosis (CVST) is an event when a blood clot forms in the brain's venous sinuses. This prevents blood from draining out of the brain. As a result, blood cells may break and leak blood into the brain tissues, forming a hemorrhage. C.T. Scan of Head represent Hyperdense internal cerebral veins straight sinus, veins of galen, torcula herophili and superior saggital sinus is also seen. MR Venography represents Acute hemorrhagic venous infarcts indicating loss of T2 flow void with T1/FLAIR hyperintensity. Most cases of CSVT occurs due to the hereditary behavior of Sickle cell trait. Medication involves the introduction of Heparin and medicines such as Acitrom or Comadin are advised along with normal diet.

Introduction

Cortical or Cerebral venous sinus thrombosis (CVST) is an event when a blood clot forms in the brain's venous sinuses. This prevents blood from draining out of the brain. As a result, blood cells may break and leak blood into the brain tissues, forming a hemorrhage. This chain of events is part of a stroke that can occur in adults as well as children. It can occur even in newborns and babies in the womb. A stroke can damage the brain and central nervous system. A stroke is serious and requires immediate medical attention. This condition may also be called cerebral sinovenous thrombosis.



Blood thinners (heparins) are typically initially given, even if there is already bleeding into the brain at the site of the clot. Subsequently, warfarin is given for varying lengths of time, depending on the trigger of the clot: for 3-6 months if there was a clear temporary

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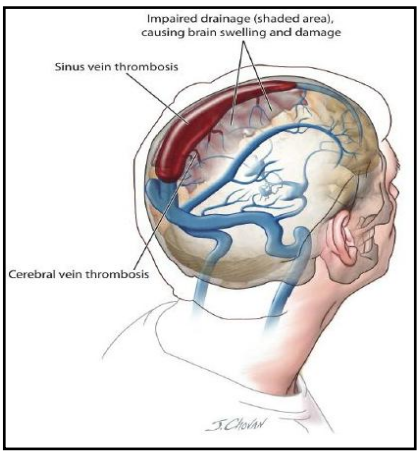
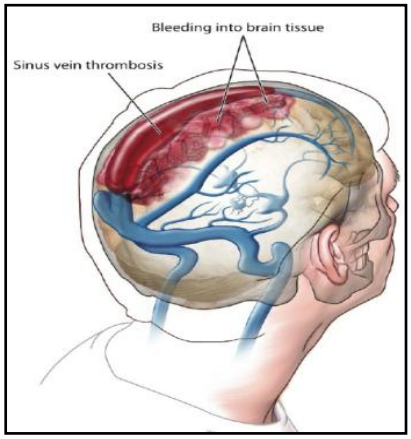
trigger (infection, estrogens), 6-12 months if the clot was unexplained and no strong clotting disorder has been found, long-term, if a strong clotting disorder is present.



Symptoms

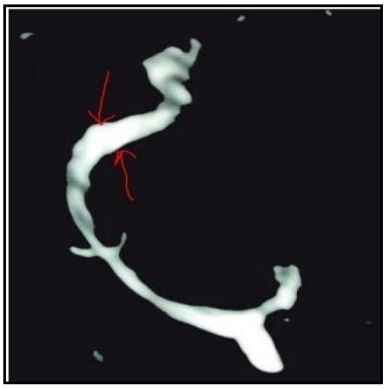
The obstruction of the blood flow from a clot in these veins leads to a back up of blood and increasing blood pressure in the blood vessels just before the obstruction (see image beside). This is like water in front of a dam. The increased pressure leads to swelling of part of the brain, which results in headaches; the pressure can damage the brain tissue, leading to stroke-like symptoms



The increased pressure can also lead to rupture of the blood vessel and bleeding into the brain (see image beside).

In medical terms this is called “cerebral hemorrhage”. It is like water in a reservoir overflowing into the surroundings or like a ruptured dam. This is referred to as “venous hemorrhagic infarction” or “venous hemorrhagic stroke”. It can lead to further damage of brain tissue. About one-third of patients with sinus and cerebral vein thrombosis have such bleeding.

Diagnosis



Sinus and cerebral vein thrombosis is easily missed if the correct imaging X-ray study is not done. The appropriate test to do is an MRI venogram (=MRV) or CT venogram (=CTV) Figure Given Below. If available, the MRV is slightly preferred over CTV. The usual routine CT or MRI, as are often done for evaluation of stroke or bleeds into the head, are often normal. Also, a plain X-ray of the head or skull is not helpful.

In unexplained sinus and cerebral vein thrombosis, work-up for a clotting disorder is appropriate, to look for a strong clotting disorder, that may influence the length of treatment with “blood thinners” (discussed above). An appropriate laboratory work-up in the patient with an unprovoked sinus and cerebral vein thrombosis includes a CBC (=complete blood count), and tests for factor V Leiden, prothrombin 20210 mutation, protein C, S and antithrombin deficiency, and antiphospholipid antibodies (lupus anticoagulant, anticardiolipin antibodies, anti-beta-2-glycoprotein-I antibodies).

Treatment

Patients with an acute clot are admitted to the hospital. If symptoms are severe, patients will be admitted to a stroke or intensive care unit. The immediate treatment consists of giving “blood thinners” (= anticoagulants). In the first few days these are either heparin into the veins (= intravenously), or injections of low molecular weight heparin (Enoxaparin, Dalteparin, Tinazparin, Lovenox®, Framin®, Innohep®) under the skin (= subcutaneously). The purpose of giving “blood thinners” is to prevent the existing clot(s) from getting bigger and new clots from forming. The body’s own clot-dissolving system then slowly, over weeks and months, works on dissolving the existing clots.

Clot busters (=fibrinolytic drugs) are typically not given, as they may increase the risk of bleeding into the brain. Radiological or surgical procedures with catheters to break up and extract the clot (thrombectomy; endovascular therapy) are done only in severe cases and in patients who get worse despite adequate “blood thinning” therapy. If a patient has bleeding into the brain due to the clot, the routine “blood thinners” are typically still given to prevent new clots from forming. However, the physicians have to pay very close attention that the bleed does not get worse.

Once the patient has been stable for a few days, an oral blood thinner (warfarin; Coumadin, Jantoven) is started. The injectable and the oral “blood thinner” need to overlap for at least 5 days AND until the INR is above 2.0. (INR= International Normalized Ratio; this is the measure of how “thin” the blood is and how much warfarin the patient needs

to take). The typical target INR is 2.0-3.0. A key question is how long a patient needs to be on warfarin. Solid treatment guidelines have recently been published.

- If the clot was associated with a transient risk factor, such as an infection or trauma, a period of 3-6 months is typically sufficient.
- If strong risk factors suggesting a high risk of recurrent clot are present, long-term warfarin is often chosen. Strong clotting disorders are: antiphospholipid antibody syndrome, deficiency of protein C, S or antithrombin; 2 abnormal genes for factor V Leiden (=homozygous); two abnormal genes for the prothrombin mutation (=homozygous); one abnormal gene for each of these mutations (double heterozygous).
- In all other patients with unprovoked clot, a treatment period of 6–12 months is often chosen. This includes patients who only have one abnormal gene for factor V Leiden (i.e. who are heterozygous) or have one abnormal gene for the prothrombin 20210 mutation (i.e. are heterozygous).

Medication

Most commonly used Medication for CSVT are the Acenocoumarol commonly known as Acitrom acts as blood thinner (anticoagulants). Medication Starts withv 8 to12mg on 1st day. 4 to 8mg on 2nd day. Maintenance dosage: 1 to 8mg daily. Its Pharmakokinetics is that it exerts it`s pharmacological action by inhibiting regeneration of active hydroquinone from vitamin K and behaves as a competitive inhibitor. Along with Medication a normal Diet Chart Should be followed which involved moderate consumption of garlic and onion in diet which acts as a anticoagulant.

Management

Management of CSVT requires a lot of observation and few medication so as to cope up with the factor promising the survival and healthy benefits of the patient as well as the subjects to be study. It also require healthy life style and proper precaution to make a stable condition for the subject.

Conclusion

A stroke can damage the brain and central nervous system. A stroke is serious and requires immediate medical attention. This condition may also be called cerebral sinovenous thrombosis. The increased pressure can also lead to rupture of the blood vessel and bleeding into the brain. In medical terms this is called “cerebral hemorrhage” diagnosed through Venogram. These can be prevented by using Blood Thinners (Anticoagulant) heparin (Enoxaparin, Dalteparin, Tinazparin, Lovenox®, Framin®, Innohep®) under the skin (= subcutaneously).

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A Study on Option Trading in Financial Derivatives - Comparative Study of TCS and Infosys

Jency Francis[1]

Abstract

India has vibrant securities market with strong retail participation that has rolled over the years. Derivatives are risk management instruments, which derive their value from an underlying asset. The underlying asset can be bullion, index, share, bonds,currency, interest etc. banks, securities firms, companies and investors to hedge risks, to gain to access to cheaper money and to make profit, use derivatives. Derivatives are likely to grow even at a faster rate in future. Option contracts are not marked –to-market and the cash settlement is done when the contracts are expired. The liquidation value is equal to the value of the option. Options are also subjected to price movement risk. The total option margin then consist of two margin components, the value of the option and a change cost to cover price movement. The main objective of the study is to analyze the derivatives market In India and to analyze the operations of options. Analysis is to evaluate the profit or loss position in options. Derivatives market is an innovation to cash market. Approximately its daily turnover reaches to the equal stage of cash market.

Introduction

In recent decades, financial markets have been marked by excessive volatility. Businesses face difficult to estimate their future production costs and revenues due to unexpected movements in foreign exchange rates, interest rates, commodity prices and price fluctuations. In such cases the derivatives securities provide them a valuable set of tools for managing the risk. Derivative products minimize the impact of fluctuations in asset prices on the profitability and cash flow situations of risk-average investors by locking the asset prices. This paper deals with the financial derivatives especially on options.

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To find the option contract, profit/loss of the investor can be calculated by analyzing the spot price, strike price, premium value and lot size of the share.

Derivatives are those financial instruments, which derive the value from the value of other assets. In other words they have no value on their own rather their value depends on the value of the underlying asset. There are three important participants in the derivatives market, which include the following.

1. Hedgers: They are those who buy or sell in derivatives market in order to reduce their risk of their portfolio. For example if the portfolio of hedgers is long then he will protect over hedge this

2. Speculators: They are those who enter into the market purely for making profit by buying or selling the derivatives, they do not intend to hedge their portfolio or such thing their only aim is to make profit based on their judgment about the stock or market.

3. Arbitrageurs: Arbitrage refers to obtaining risk free profits by simultaneously buying and selling similar instruments in different markets. Arbitrageurs enter in to derivative market in order to take advantage of any such opportunity and profit from it.

Options

Options are fundamentally different from forward and future contracts. An option gives the holder of the option the right to do something. The holder does not have to exercise this right. In contrast, in a forward or futures contract, the two parties have committed themselves to do something, whereas it costs nothing to enter into a future contracts, the purchase of an option require an up-front payment.

An option is a derivative financial instrument that specifies a contract between two parties for a future transaction on an asset at a reference price. The buyer of the option gains the rights, but not the obligation, to engage in that transaction, while the sellers

incurs the corresponding obligation to fulfill the transaction. The price of the option derives from the difference between the reference price and value underlying asset.

There are different types of options such as American options, European options, in-the-money option, out-of-the-money option etc.

Options are the second most important in the group of derivative securities and the second building block of complex derivatives. Options can be traded on individual stocks. NSE has introduced trading in S&P CNX Nifty options from June 4th 2001 and options on individual securities from July 2nd 2001.

Options are derivatives instruments that derive its value from an underlying asset like stocks, stock indices, bonds, currencies and a wide spectrum of commodities. The dictionary meaning of 'options' is **the right to choose.** An option contract gives the buyer the right but not the obligation to buy or sell a specified quantity of an underlying asset at a specified premium within a specified period of time from an option writer. The lack of obligation or rather the option of whether or not to deliver or take delivery is what makes the options a really powerful tool for financial engineering

Significance of the Study

The study will be useful to analyze the option trading and help to invest the money appropriately in the derivative market. This helps the investors in hedging the risk. The price of an option derives from the difference between the reference price and the value of underlying asset. Investor profitability or the risk can be measured with the use of option strategies evaluation tool.

Scope of the Study

The study is limited to derivatives with special reference to option trading in NSE. The options of TCS and INFOSYS (both put option and call option) are considered during the Period Of Six Months From 1st November 2016 To 28th April 2016.

Statement of the Problem

This study of option derivatives at most important for hedging the risk with the help of option strategy evaluation tool, thus the problem is stated as "a study on option trading in financial derivatives ("comparative studyof TCS and Infosys").

Objectives of the Study

- To find the profit and loss position of put option holder and writer
- To analyze the profit and loss position of call option holder and writer
- To test the variability in profits of TCS and Infosys option trading in derivative market
- To compare the profitability in option trading in both TCS and Infosys

Research Methodology

1. Data Source

Data has been collected in through secondary data only. Various portals like www.nseindia.com , financial news papers (economic times)

2. Period of the Study

This study is conducted for a period of 6 months 1st November 2016 to 28th April 2016

3. Tools Used

OSET – option strategy evaluation tool is used to find out the profit/loss of the option holders

OSET = (spot price – strike price) - premium paid * lot size

Data Analysis and Interpretation

The data was analyzed by using OSET option strategy. It has considered the spot price and strike price and premium paid for calculating the profit/loss in the put option and call option of TCS and INFOSYS.

(I) Data Analysis and Interpretation of TCS –

Monthly analysis of data on TCS call option and put option was done and the results are as follows-

CALL OPTION

Profit/loss of TCS call options from 1-11-2015 – 28-11-2015

Data on TCS call option during the month of November showedcontinuous profit. The highest profit was on 17th November and lowest profit was on 24th of November 2015.The TCS profits showed an increasing trend during this month even if there were corrections in between.

Profit/loss of TCS call options from 1-12-2015 to 31-12-2015

Data onthe TCS call option scrip in the month of December showedcontinuous losses. There was a huge loss on 29th December 2015.

Profit/loss of TCS call options from 5-01-2016 to 4-02/2016

Figures show that,in the derivative call option contract, TCS scrip on6thJanuary faced thehighest risk in the call option. And TCS scrip got a profit on 24th&26th of January. It also revealedcontinuous profitfrom 1st February to 4th February.

Profit/loss of TCS call options from 2-02-2016 to 25-02-2016

From data it isclear that the derivative call option of TCS in the month of February faced continuous losses.The particular date 18th faces high risk in TCS call.

Profit/loss of call options from 1-3-2016 to 31-3-2016

Data revealed that the TCS call option facedcontinuous losses on first and third of Marchand the remaining days of the month showed profits. On 30th March TCS option revealed the highest profit i.e., 189480.

Profit/loss of TCS call options from 5-4-2016 to 28-4-2016

Analysis of data relating to April revealed that in the derivativecalloption contractTCS scrip gainedcontinuous profit from 5th April to 20th April.On 13th of April TCS option scrip of call option got highest profit. The investment was profitable during this month. The profit also showed a fluctuating trend during the month of April.

PUT OPTION

Profit/loss of TCS put options from 4-11-2015 to 26-11-2015

From the data it is clear that TCS put option was not profitable during the month of November. There was a huge loss on 5th November

Profit/loss of TCS Put options from 2-12-2015 to 31-12-2015

From data on the same it is clear that the TCS put option during the month of December showed continuous profits from 2nd December to 9th December, thereafter from 23rd December to 31st December TCS put faced continuous losses.

Profit/loss of TCS put options from 5-01-2016 to 4-02-2016

Figures revealed that TCS put option showedcontinuous profit from 7th to 17thof Januaryand from 24th January to4th of February. And it faced losses in between. TCS putshowed highestprofit on 2nd February.

Profit/loss of TCS put options from 2-02-2016 to 25-02-2016

Figures for the month clarify that the derivative contract of TCS putoption on 25th February 2016 and 2nd February 2016 showed continuous profit. On 8th February TCS put option got highest profit .TCS put option from 9th February to 23 February gives continuous losses.

Profit/loss of TCS put options from 1-03-2016 to 31-03-2016

Data indicate that in the derivative put option contract on March month 2nd march 2016 and 4th march 2016 the TCS put option scrip got continuous profits. The TCS scrip in the month of f the derivative put option of TCSscrip on March 1st faced the high risk in the put option

Profit/loss of TCS put options from 5-04-2016 to 28-04-2016

Data during the month of April revealed that in the derivative put option contract faced loss on 8th April as well as 20th to 22nd April 2016. And it showed profits in the remaining days.

(II) Data analysis and interpretation of INFOSYS

CALL OPTION

Profit/loss of INFOSYS call options from 4-11-2015 to 26-11-2015

The derivative call option contract in the month of November showed loss on 5th and 20th of November and remaining days showed profits. The highest profit was on 26th November 2015.

Profit/loss of INFOSYS call options from 1-12-2015 to 31-12-2015

During the first half of the December the Infosys call option was profitable but from 14th December onwards it showed loss and the losses showed an increasing trend.

Profit/loss of INFOSYS call options from 5-01-2016 to 28-01-2016

INFOSYS call option during the month of January earned profits only in two days and that was on 26th and 28th. There was continuous loss from 5th January to 28th January.

Profit/loss of INFOSYS call options from 2-2-2016 to 25-2-2016

Analysis of figures reveals that there was no profits for INFOSYS call option during the month of February. And it faced high risk on 18th February 2016.

Profit/loss of INFOSYS call options from 21-03-2016 to 31-03-2016

Data for the month of March clearly indicates that the investors earned sufficient profits during the month of March. The highest profit was on 30th March it is 185700.

Profit/loss of INFOSYS call options from 5-04-2016 to 28-04-2016

While analyzing the data onINFOSYS call option in the month of April 2016, it is clear thatinvestors faced continuous loses and faced high risk. Call option of the INFOSYS scrip in the month of April in the particular date of 5thApril 2016 faced high risk.The profits of Infosys showed a decreasing trend.

PUT OPTION

Profit/loss of INFOSYS put options from 4-11-2015 to 26-11-2016

Data analysis makes it clear that except on 20th of November,INFOSYS put option earned continuous profits. The investor of put option of Infosys got high profits during the month of November. Put option of the INFOSYS scrip in November 26th showedthe highest profit.

Profit/loss of INFOSYS put options from 2-12-2015 to 31-12-2015

Data analysis points out that INFOSYS put option in the month of December earned profits only on two days that is 29th and 31st of December and remaining days suffered losses.

Profit/loss of INFOSYS put options from 5-01-2016 to 28-01-2016

Data showed that INFOSYS put option faced continuous losses from 5th January to 26th January and earned profit only on 28th January.

Profit/loss of INFOSYS put options from 2-02-2016 to 25-02-2016

Analysis make it clear that INFOSYS put option was profitable because of the continuous profits from February 2nd to 12th. From 15th February to 25th February it faced continuous losses. The option faced high risk on 15th February and was more profitable on 3rd during February 2016.

Profit/loss of INFOSYS Put options from 1-03-2016 to 31-03-2016

An analysis of the figures revealed continues profits of INFOSYS put option in the month of March. It showed highest profit on 31st march 2016 andleast profit on 10th March. Profits were fluctuating during this month. Profits showed a decreasing trend also.

Profit/loss of INFOSYS Put options from 5-04-2016 to 28-04-2016

During the month of April, Investors faced high risk because of the continuouslossesthroughout the month.

Month	**TCS Highest profit**	**INFOSYS Highest profit**	**Profitable Option**
November	870200	100550	TCS
December	NIL	17800	INFOSYS
January	99400	20500	TCS
February	NIL	NIL	No profit
March	189480	185700	TCS
April	129200	NIL	TCS

Table 4.01 : Comparison of Profitability ofcall option (TCS & INFOSYS)

Source: Secondary data

Table 4.01 reveals that during the month of April TCS call option was the most profitable option.In the month of December INFOSYS was more profitable and on January, March, April TCS call option earned more profit than Infosys. In February both the options were at loss.

Month	**TCS Highest profit**	**INFOSYS Highest profit**	**Profitable Option**
November	742480	404050	TCS
December	121700	24950	TCS
January	74000	24660	TCS
February	121700	618800	INFOSYS
March	189480	165700	TCS
April	153860	NILL	TCS

Table 4. 02 : Comparison of Profitability of Put Option (TCS & INFOSYS)

Source: Secondary data

The above table depicts that INFOSYS put option was the most profitable option in February and November, remaining months TCS was the most profitable one.

Findings

1. TCS call & put option showed highest profit in most of the months when compared to INFOSYS.
2. Among the 6 months INFOSYS profit was highest only for one month in the case of both put and call options.
3. During the month of February there were no profits for INFOSYS and TCS call option.
4. When 6 months are considered the highest profit in the case of call option was for TCS call, that was on 17th November and the profit was Rs870200. In the case of put option the highest profit was revealed by TCS put that was also revealed in the month of November, the profit was 742480 and was showed on the particular date of 5th November.

5. The put option and the call option of TCS was the most profitable one when compared to Infosys and these options was more profitable during the month of November because the highest profit was revealed on this month among the 6 months in the case of both put and call options.
6. TCS call option faced continuous loss during the month of December &February, whereas INFOSYS call faced continuous loss during the month of February and April.
7. TCS put option showed continuous loss during the month of November. And INFOSYS put showed continuous loss during the month of April.
8. When INFOSYS call option earned profits during the month of December there were no profits for TCS call option during this month. As well as when TCS call option earned profits during the month of April INFOSYS call option faced continuous loss.
9. When INFOSYS put option earned profits during the month of November there were no profits for TCS put option during this month. As well as when TCS put option earned profits during the month of April INFOSYS put option faced continuous loss.

Conclusion

Options are fundamentally different from forward/ futures contract. The buyer of an option contract has the right, but not the obligation to complete the transaction at some time in the future. Options are attractive financial instruments to portfolio managers, hedgers, speculators, traders and investors because of this flexibility. Options also mean "locking in a maximum potential loss" he could endure, which is the option's premium.After making a comparative study between TCS and Infosys options for a period of 6 months we could see that TCS performs better than Infosys as its profits were higherin most of the months. Thus we can conclude that itis better forthe investors toprefer TCS put and call option than that of Infosys.

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The Pattern of Palmar Dermatoglyphic Among Gadba Tribe of Bastar Chhattisgarh

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Abstract

The term dermatoglyphics (Derma = " skin" , Glyphe="Carve") introduced by Cummin and Midlo in the in the year 1926. Dermatoglyphics are the dermal ridge configurations on the digit, palm and sole. The didges begin to develop at about 13th week of prenatal life (Cummins and Midol, 1961) as the fetal mounds on the digit tip, inerdigital areas, thenar, hypothenar of the palm and corresponding areas of foot. The pattern formation is completed by the 19th week. Once completed, epidermal ridges remain unchanged except in size for the rest of life. Thus, the patterns which characterizes an individual may be determined with finally at birt . The Object of the present study is to find out the frequency distribution of different dermatoglyphic traits . In order to know the bilateral as well as bisexual differences among Gadba tribe of Bastar , (C.G.) . The present carried out of Baster District in hence village i.e. Jatum, Tusel, Sargipal among Gadba tribe. The Data were collected (male-76, female-82, total 150) from different villages which includes palmer Dermatoglyphics Gadba tribe of Bastar.THe termination of line D at other position among Gadba male female show greater variations in their percentage frequency. The Chi-square value show significant result. Similarly the termination of line C at other position also exhibit greater difference in their percentage frequencies between the Gadba tribe of Bastar. The Chi-square value show significant result. similarly the frequency of open field among males in 67.63 % and in females it is 64.65 % . The Chi-square value show non significant result.

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Introduction

The term dermatoglyphics (Derma = " skin" ,Glyphe="Carve") introduced by Cummin and Midlo in the in the year 1926. Dermatoglyphics are the dermal ridge configurations on the digit, palm and sole. The didges begin to develop at about 13^{th} week of prenatal life (Cummins and Midol, 1961) as the fetal mounds on the digit tips, inerdigital areas, thenar, hypothenar of the palm and corresponding areas of foot. The pattern formation is completed by the 19^{th} week. Once completed, epidermal ridges remain unchanged except in size for the rest of life. Thus, the patterns which characterizes an individual may be determined with finally at birth.

The epidermis of the palmer and planter surface of the human hand and feet are covered with the skin that is different from the skin of other parts of the body. It id corrugated with the ridges and the configurations. These features of dermatoglyphics are formed during the thirteenth week of the growing embryo and remain unchanged thereafter throughout the life of an individual except the dimensions related to the growth of the body. These features have been found to be permanent, variable and are inherited. For these amazing qualities they play a very crucial and important role in the personal identification, crime detection, twin diagnosis, racial variation and have applied values in various disease and syndromes.

Dermatoglyphics characters vary widely and are not affected by age, sex and environment and makes good material for genetic studies . At present there are sufficient evidences to prove that the dermatoglyphic traits are highly inheritable in nature (Cummins and Midlo, 1943, 1961; Holt, 1956; Singh, 1960; Kumbnan, 1964a, 1966; Tiwari, 1965 loesch, 1971, 1983; Meier, 1980; Jantz et.

Importance of Dermatoglyphics

Dermatoglyphics being differentiated in their form during the third and fourth feetal months there are significant indicators of conditions existing several months prior to the birth of individual , the configurations and their components ridges enlarge with the growth of the hand and foot, but all their essential characteristics remain unchanged.

Dermatoglyphics play an important role within the frame work of biological proofs of paternity; this was worked out first by Lauer and poll. Another application is concerned with the determination of percentage under circumstance, when these are a question of maternity of child. Dermatoglyphics is good criteria for variation studies dermatoglyphics study. Have many practical applications .dermatoglyphics is helpful in study of psychology and medicine dermatoglyphics is also a well established discipline in the field of diagnosis of different health problem, genetic, disorders and disease. Dermatoglyphics patterns are very much useful in criminal investigation Man cannot do anything without handing the dermatoglyphic impressions.

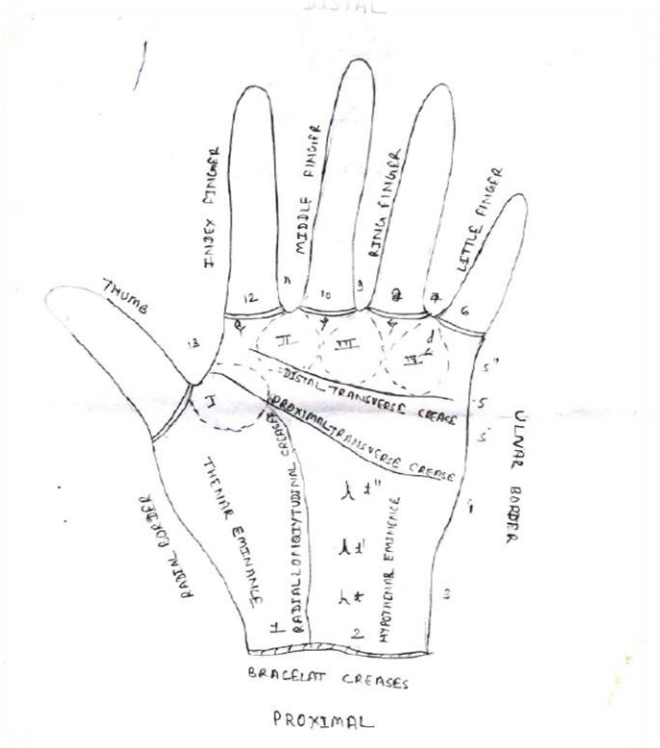
Review of the Study

- **Francis Galton's (1892)** contribution was to bring together and strengthen the evidence that fingerprints could provide an ideal technique for personal identification. He demonstrated the individual uniqueness of fingerprint. Galton's (1892) original classification of the ridge patterns on the fingerprint is divided in to three categories - Whorls, Loop and Arches.
- **Haufen (1906)** was the first scholar to study the dermatoglyphic features of the Indian populations **.** he was followed by a number of Indian physical anthropologists who have extensively used the dermatoglyphics as a tool for racial identifications. Almost all the works in this regard are descriptive in nature.
- **Joshi et al. (1992)** studied the relationship between some dermatoglyphics variables and nasobronchial allergic disorders and concluded that there were differences between the patients and their respective controls.
- **Taneja et al. (1993).** They concluded that while not many differences were observed inpalmar patterns, a low ending of line A was found on both hands of two patients and that fingertip patterns were significantly different in patients compared to controls.

- The study by **Bhasin et al. (1994)** suggests that among Mongoloid populationfrom East Asia, the frequency of whorls is high (about 46%) and frequency of arches is quite low, which is also evident from present population.
- **Padma et al. (2011)** in their study evaluated the dermatoglyphic peculiarities and caries experience of deaf and mute children and found an increased frequency of whorl pattern in caries group and the frequency of loops were more in caries free group.

Aim of the present study

The Object of the present study is to find out the frequency distribution of different dermatoglyphic traits. In order to know the bilateral as well as bisexual differences among Gadba tribe of Bastar ,(C.G.) .The present carried out of Baster District in hence village i.e. Jatum, Tusel, Sargipal among Gadba tribe . The Data were collected (male-76 female-82 total 150) from different villages which includes palmer Dermatoglyphics Gadba tribe of Bastar.



Basic criteria for the selection are:

(1) Only those who belong to Gadba tribe have been taken in the present study.

(2) The normal children of different age group were included in the present study.

(3) The close relatives (consanguineous kinds) of an individual were avoided.

Apparatus Used

The apparatus used for taking the palm prints are a tube of print ink, a piece of glass or slab which is a plane surface, a T shaped clothed pad by which the ink is distributed on the palm of the subjects and performs.

In the analysis of the palm prints the following qualitative and quantitative parameters are included and the analysis will be done as internationally accepted method adopted from Cummins and Midlo (1961) with some modification.

Statical Consideration

In the present study university Anatomical Land marks all Palmer Region statistical chi square test (^{2}-test) has been used to observe the variation between the Godba tribe of Bastar district of C.G.

Observation

Principal Main Line Formula	Male						Female					
	Right		Left		Right + Left		Right		Left		Right + Left	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
11.9.7	33.00	43.42	24	31.57	57	37.51	35	42.68	18	21.95	53	32.31
7.5.5	13.00	17.10	22	28.94	35	23.02	13	15.85	18	21.95	31	18.90
9.7.5	19.00	25.00	17	22.36	36	23.68	14	17.07	17	20.73	31	18.90
9.9.5	3.00	3.94	1	1.31	4	2.63	17	8.53	2	2.43	9	5.48
Rest	8.00	10.52	12	15.78	20	13.15	13	15.85	27	32.92	40	24.39
Total	**76.00**	**99.98**	**76**	**99.96**	**152**	**99.99**	**92**	**99.98**	**82**	**99.98**	**164**	**99.98**

Table 1 : Frequency Distributionof the Principle Palmer Main Line Formula Among the Gadba Tribe of Bastar (C.G)

Table No. 1 represents the obsolute number and percentage frequency distribution of Principal palmar main line formulae among the Gadba Tribe of Bastar (C.G.). It is

evedent from the table that main line formula 11.9.7 - shows the highest frequency, 37.51 Percent (Rt.-43.42 %, Lt.-31.57%) among the Gadba male. The next higher frequency is shown by the formula 9.7.5, 23.68 percent (Rt-25.00% Lt-28.36%) and followed by the frequency of the main line formula 7.5.5 , 23.02 percent (Rt.-17.10%, Lt-28.94%) and lowest frequency shows of the main line formula 9.9.5 , 2.63 percent (Rt-3.94 % , Lt - 1.31 %) among the Gadba male . It is seen from the table that the main line formula 11.9.7 - exhibits the highest frequency , 32.31 percent (Rt.- 42.68 % ,Lt - 21.95 %) . The next two similar highest frequent formula is 7.5.5 , 18-90 percent (Rt-15.85 % , Lt - 21.95 %) and 9.7.5 , 18.90 percent (Rt.-17.07 % , Lt - 20.75%) . The lowest frequency is shows by the main line formula 9.9.5, 5.48 percent (Rt.-8.53%, Lt-2.43%) . The chi-square value (^{2} = 9.62) suggest non signigicant difference among the Gadba Tribe of Bastar(C.G.)

Termination of Main Line "D"	Male						Female					
	Right		Left		Right + Left		Right		Left		Right + Left	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
11	39.0	51.31	29	38.15	68	44.73	39	47.56	36	43.90	75	45.73
9	22.0	28.94	19	25.00	41	26.97	21	25.60	17	20.73	38	23.17
7	15.0	19.73	28	36.84	43	28.28	22	26.82	29	35.36	51	31.09
Total	**76.00**	**99.98**	**76**	**99.99**	**152**	**99.98**	**82**	**99.98**	**82**	**99.99**	**164**	**99.99**

Table 2 : Frequency Distributionof Termination of Palmer MainLine "D" Among the Gadba Tribe of Bastar (C.G)

Table No.2 Shows the absolute and percentage frequency distribution of the termination of palmar main line ‘D’ among the Gadba tribe of Bastar,(C.G.). It is evident from the table that among that among the Gadba male of the termination of ‘D’ at Position 11 exhibits higher frequency 44.73 percent (Rt.-51.31%, Lt-38.15%) as compared to the termination at position 728.28 percent (Rt.-19.73%, Lt-36.84%).The lowest frequency is observed at position 9, 26.97 percent (Rt.-28.94%, Lt-25.00%) Gadba male of Bastar . The Gadba female the termination of main line ‘D’ at position 11 exhibits higher

frequency 45.73 percent (Rt.-47.56%, Lt-43.90%) as compared to the termination at position 7, 31.09 percent (Rt.-26.82%, Lt-35.36%) The lowest frequency is shown at position 9, 23.17 percent (Rt.-25.60%, Lt-20.73%). The chi square value (^{2} = 0.656) shows Significant diference among Gadba Tribe of Bastar(C.G.).

Termination of Main Line "D"	Male						Female					
	Right		Left		Right + Left		Right		Left		Right + Left	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
11	39.0	51.31	29	38.15	68	44.73	39	47.56	36	43.90	75	45.73
9	22.0	28.94	19	25.00	41	26.97	21	25.60	17	20.73	38	23.17
7	15.0	19.73	28	36.84	43	28.28	22	26.82	29	35.36	51	31.09
Total	**76**	**99.98**	**76**	**99.99**	**152**	**99.98**	**82**	**99.98**	**82**	**99.99**	**164**	**99.99**

Table 3 : Frequency Distributionof Termination of Palmer MainLine "C" Among the Gadba Tribe of Bastar (C.G)

Table No. 3 represents the obsalute number and percentage Frequency distribution of the termination of palmar main line. 'c' among the Gadba tribe of Bastar (C.G.). It is evident from the table that among the Gadba male the termination of line 'c at position exhibits the highest frequency (Rt.-47.36 %, Lt-35.52%) and followed by the frequency at position 7,29.60 percent (Rt.-27.63%, Lt-31.57%) and the next higher frequency is position 5, 26.97 percent (Rt.-21.05%, Lt- 32.98%) . The lowest frequency is observed by at position 11, 1.97 percent (Rt.-3.94%, Lt-0%) in Gadba male of Bastar. The Gadba female that the Termination of main line "c" at position 9 , the highest frequency 43.29 percent (Rt.-56.09%, Lt-30.48%) and lowest frequency is observed by the position 11 , 1.21 percent (Rt.-2.43%, Lt-0%). The chi square value (^{2} = 0.572) shows Significant diference among Gadba Tribe of Bastar C.G.

Termi-nation of Main Line "C"	Male						Female					
	Right		Left		Right + Left		Right		Left		Right + Left	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
11	3	3.94	0	0.00	3	1.97	2	02.43	0	0.00	2	01.21
9	36	47.36	27	35.52	63	41.44	46	56.09	25	30.48	71	43.29
7	21	27.63	24	31.57	45	29.60	15	18.29	38	46.34	53	32.31
5	16	21.05	25	32.89	41	26.97	19	23.17	19	23.17	38	23.17
Total	76	99.98	76	99.98	152	99.98	82	99.98	82	99.99	164	99.98

Table 4 : Frequency Distributionof Termination of Palmer MainLine "B" Among the Gadba Tribe of Bastar (C.G)

Table No. 4 Shows the absolute and percentage frequency distribution of the termination of palmar main line ‘B’ among the Gadba tribe of Bastar, (C.G.). It seen from the table among the Gadba male of the termination of ‘B’ at Position 5 exhibits higher frequency 55.26 percent (Rt.-47.36%, Lt-63.15%) as compared to the termination at position 7, 40.78 percent (Rt.-46.05%, Lt-35.52%).The lowest frequency is observed at position 9, 3.65 percent (Rt.-6.57%, Lt-1.31%). The Gadba female the termination of main line ‘B’ at position 5, 53.04 percent (Rt.-50.00%, Lt-56.09%) and next higher termination of main line ‘B’ at position 7, 44.5 percent (Rt.-44.34%, Lt-42.68%) The termination of main line ‘B’ at position 9, shows the lowest frequency 2.43 percent (Rt.-3.65%, Lt-1.21%). The chi square value (^{2} = 0.876) shows non- Significant difference among Gadba Tribe of Bastar(C.G.).

Termination of Main Line "A"	Male						Female					
	Right		Left		Right + Left		Right		Left		Right + Left	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
5	38	50.00	20	26.31	58	38.15	34	41.46	17	20.73	51	31.09
4	37	46.68	45	59.21	82	53.94	43	52.43	35	63.41	95	57.92
3	1	1.31	11	14.47	12	7.89	5	6.09	13	15.85	18	10.97
Total	**76**	**97.99**	**76**	**99.99**	**152**	**99.98**	**82**	**99.98**	**65**	**99.99**	**164**	**99.98**

Table 4.5 : Frequency Distributionof Termination of Palmer MainLine "A" Among the Gadba Tribe of Bastar (C.G.)

Table No.5 represents the absolute and percentage frequency distribution of the termination of main line 'A' among the Gadba tribe of Bastar (C.G.). The table exhibits that among the Gadba male of the termination of main line 'A' at Position 4 shows a higher frequency 53.94 percent (Rt.-46.68%, Lt-59.21%) as compared to the termination at position 5, 38.15 percent (Rt.-50%, Lt-26.31%). The lowest frequency is observed at position 3, 7.89 percent (Rt.-1.31%,Lt-14.47%). Where as among the Gadba female the termination of main line 'A' at position 4 exhibits higher frequency 57.90 percent (Rt.-52.43%, Lt-63.41%) which is followed by the frequency of its termination at position 5, 31.09 percent (Rt.-41.46%, Lt-20.73%). The lowest frequency is shown at position 3, 10.97 percent (Rt.-6.09%, Lt-15.85%). The chi square value (^{2} = 0.572) shows significant diference among Gadba Tribe of Bastar (C.G.).

Pattern type	**Male**						**Female**					
	Right		**Left**		**Right + Left**		**Right**		**Left**		**Right + Left**	
	No.	**%**	**No.**	**%**	**No.**	**%**	**No.**	**%**	**No.**	**%**	**No.**	**%**
Arch	17	22.36	21	27.63	38	25.00	10	12.19	15	18.29	25	15.24
Loop	5	6.57	13	17.13	18	11.84	7	8.53	21	25.60	28	17.07
Whorl	2	2.63	0	0.00	2	1.32	0	0.00	0	0.00	0	0.00
Open field	52	68.42	42	55.24	94	61.84	65	79.26	46	56.09	111	67.68
Total	**76**	**99.98**	**76**	**100.00**	**152**	**100.00**	**82**	**99.98**	**82**	**99.98**	**164**	**99.99**

Table 6 : Frequency Distribution of True Patterns thener Area Among the Gadba Tribe of Bastar (C.G)

The above table represents the absolute and percentage distribution of the true patterns on the thenar area among the Gadba tribe of Bastar, (C.G.) . The Gadba male exhibits the highest frequency of open fields is 61.84 percent (Rt. - 68.42% , Lt - 55.24%) and 67.68 percent (Rt-79.26% , Lt-56.09%) in the Gadba female. The Arch occure more frequently in the Gadba males 25 percent (Rt.- 22.36 % , Lt - 27.63%) as compared to the Gadba female's 15.24 % (Rt-12.19%,Lt - 18.29%). This area the lowest frequency is shown by the Arch and whorl among both sexes (i.e. male and female) of Gadba 1.32 percent (2.63 %, Lt-0%) and 15.24 percent (Rt.-12.19 , Lt-18.29 %) respectively. The chi square value (^{2} = 12.16) shows non Significant

diference among Gadba Tribe of Bastar (C.G.).

Pattern type	Male						Female					
	Right		Left		Right + Left		Right		Left		Right + Left	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Arch	3	3.94	1	1.31	4	2.63	11	13.41	8	9.75	19	11.58
Loop	19	25.00	26	34.21	45	29.60	17	20.73	20	24.39	37	22.56
Whorl	0	0.00	0	0.00	0	0.00	1	1.21	1	1.21	2	1.21
Open field	54	71.05	49	64.47	103	67.76	53	64.63	53	64.63	106	64.65
Total	**76.00**	**99.99**	**76**	**99.99**	**152**	**99.99**	**82**	**99.98**	**82**	**99.98**	**164**	**99.98**

Table 7: Frequency Distribution of True Patterns Hypothener Area Among the Gadba Tribe of Bastar (C.G)

Ridge count	Male						Female					
	Right		Left		Right + Left		Right		Left		Right + Left	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Below-25	4	5.26	7	9.21	11	7.23	2	2.43	3	3.65	5	3.04
26-30	5	6.57	4	5.26	9	5.92	4	4.87	3	3.65	7	4.26
31-35	6	7.89	9	11.84	15	9.86	8	9.75	10	12.19	18	11.97
36-40	30	39.47	27	35.52	57	37.50	30	36.58	26	31.70	56	34.14
41-45	19	25.01	15	19.73	34	22.36	23	28.04	26	31.70	49	29.87
46-50	4	5.26	6	7.89	10	6.57	11	13.41	9	10.97	20	12.19
51-55	3	3.94	5	6.57	8	5.26	3	3.65	4	4.87	7	4.27
56-60	4	5.26	3	3.94	7	4.6	0	0	1	1.21	1	0.06
TOTAL	**75**	**98.66**	**76**	**100**	**151**	**99**	**81**	**99**	**82**	**100**	**163**	**100**

Table 8 : Frequency Distribution of Atd angle Among the Gadba Tribe of Bastar (C.G)

The above table represents the obsalute and percentage frequency distribution of the eight categories of angle atd among the Gadba tribe of Bastar chhattishgarh. It is seen from the table that among the male and female group the angle range both groups between 36^0 -40^0 shows the highest frequency among the male and female group. Its frequency is much higher in male group 37.50 percent (Rt.- 39.47%, Lt- 35.52%) as compared to female group 34.14 percent

(Rt-36.58%, Lt- 31.70%) among the male group next higher frequency has been shown by the angle range between 41^0-45^0, 22.36 percent (Rt.- 25.01%, Lt- 19.73%) and in the female group 34.14 percent (Rt.- 36.58%, Lt- 31.70%). Among the male group the next higher frequency is shown by the angle range 31^0 to 35^0, 9.86 percent (Rt.- 7.89%, Lt- 11.84%) and followed by the frequency of angle range 31^0-35^0, (Rt.- 9.75%, Lt- 12.19%) and followed by the frequency of angle range 46^0-50^0. 12.19 percent (Rt.-13.41%, Lt- 10.97%) . The lowest frequency is shown by the angle range 56^0-60^0 among the male group 4.60 percent (Rt.- 5.26%,Lt- 3.94%) and also by the female group 0.06 percent (Rt.- 0 %, Lt- 0.06%). The chi square value (^{2} = 14.83) shows Significant diference among Gadba Tribe of Bastar (C.G.).

Summary and conclusion

- **Principal Main Line Formula**

The Gadba males (37.51%) and Gadba females (32.31 %) both exhibit the highest frequency of the main line formula 11.9.7 as compared to the other main line frequencies similarly. Other main line formulae also show greater differences in the frequencies between Gadba male and female. This has been confirmed by the Chi-square value show significant difference

- **Termination of Main Line D**

The termination of main line D shows in decreasing order of magnitude among the Gadba tribe of Bastar(C.G.) . Where the order of magnitude is 11>7>9. Among the Gadba males the percentage frequency of the termination of main line D at position 11 is the highest (43.73 %) similarly among the Gadba females the highest frequency of termination of line D is also at position 11 (45. 73 %) . The termination of line D at other position among Gadba male and female show greater variations in their percentage frequency. The Chi-square value show significant result.

- **Termination of Main Line C**

Among the Gadba tribe of Bastar the termination of main line C is the highest at the position 9. The termination of line C at other position also maintain similar trend among the Gadba

tribe of Bastar.Among the Gadba males percentage frequency of the termination of line C at position 9 (41. 44 %) is quite low as compared to theGadba females (43.29 %) . Similarly the termination of line C at other position also exhibit greater difference in their percentage frequencies between the Gadba tribe of Bastar. The Chi-square value show significant result.

- **Termination of Main Line B**

The Gadba males termination of main line B show the highest percentage frequently at position 5 (55. 26 %) similarly among the Gadba females i.e. 53.04 % . The termination of line B at other position among Gadba male and female show greater variation in their percentage frequencies. The Chi-square value show non significant result.

- **Termination of Main Line A**

Among the Gadba males the highest frequency of termination of main line A is shown by the position 4 (53. 94 %) is quite low as compared to the Gadba females (57.92%) similarly the termination of line A at other position also exhibit greater differences in their percentage frequencies between the Gadba tribe of Bastar. The Chi-square value show significant result.

- **Pattern Type**

In the present study only the true patterns (whorl, loop and arch) and open field have been considered in analysis. The vestige patternshave been included in the open field category.

- **Hypothenar**

Among the Gadba males the frequency of arch, loop and whorl are 29.60 %, 2.63%, 0% respectively and among the Gadba females are 11.58 % , 22.56 % , 1.21 % respectively. This clearly indicates that both sexes exhibit greater variation in their percentage frequencies , similarly the frequency of open field among males in 67.63 % and in females it is 64.65 % . The Chi-square value show non significant result.

- **Thenar**

Among the Gadba males the percentage frequency of arch, loop and whorl are 25 % , 11.84 %, 1.31 % respectively and Gadba females the same are 15.24 % , 17.07 % , 0 % respectively. This clearly indicates that both these exhibit greater variation in their percentage frequencies, similarly the frequency of open field among males in 61.84 % and in females it is 67.68 %. The

Chi-square value show non significant result.

- **Atd Angle**

Among the Gadba tribe of Bastar (C. G.) the highest percentage frequency of the atd has been found between the angle range of 36^0 to 40^0 ,37.5 % among Gadba males and the some range percentage frequency (34.14 %) among the Gadba females. The other range of atd exhibit greater variation in their percentage frequencies between Gadba male and female. The Chi-square value shows significant difference.

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To Develop Liposome – Mediated Drug Delivery System for Anti-Cancer Drug

Dr. Nalini Vemuri[1], Akanksha Mahna Anand[2]

Abstract

The main focus of project was to develop a sustained drug delivery system for cancer. Among the various delivery system that are known such as liposome, noisome and polymeric micro or nano particle. Liposome was chosen for encapsulating an anti-cancer drug. Liposomes are mainly composed of neutral or very charged phospholipids (PLs) plus cholesterol (CH). The anticancer drug (UND-10) was encapsulated in the liposomes by evaporating the organic solvents containing lipids under vacuum to form a thin film and hydrating the film with the anti-cancer drug to form liposomes. . The amount of drug encapsulated was determined by EE.

Objective

- Standardization of protocol for the preparation of liposome's encapsulated with water soluble compounds
- Preparation of liposome encapsulated with anti-cancer drug
- Characterization of liposome encapsulated with anti-cancer drug and determination of Encapsulation Efficiency of anticancer drug in liposome.

Materials

Soya lecithin- Lifecare innovations Pvt. Ltd., Cholesterol- Lifecare innovations Pvt. Ltd. Chloroform- Fisher Scientific , Methanol- Samir-Tech Chem. , CaCl2- Fisher Scientific NaCl- Fisher Scientific , KCl- Fisher Scientific , Na_2HPO_4- Fisher Scientific , $KH2PO_4$- Fisher Scientific ,Co massive brilliant blue-SRL (Sisco Research Laboratory) , Methylene blue-Fisher Scientific , Ethanol- Fisher Scientific , Phosphoric acid- Fisher Scientific , Perchloric

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acid- Fisher Scientific , Phenyldiamine- Lobachemie , NaOH- Fisher Scientific , BSA- Sigma, UND-10 (Unknown Drug 10)

Methods

Physical Characteristics o f -

- LIPIDS - Phosphatidylcholine (PC)- solid in nature, -creamish in color , -soluble in methanol
- Cholesterol (CHO)fine powder, - white in color , -soluble in chloroform
- UND-10- (Unknown Drug -10) -Liquid form, -Yellow in color, -Anti-cancer property

Preparation of Buffers and Solutions

- Chloroform – Methanol solution (2:1)
- CaCl2 [1M] - 7.35gm in 50ml of distilled water, Normal saline solution, 0.98gm in 100ml of distilled water.
- 0.9% NaCl -0.9gm in 100ml of distilled water.
- BFR(Bradford reagent)- Co massive brilliant blue- 10mg, Ethanol- 5ml, Phosphoric acid- 10ml, Distilled water- 85ml
- Perchloric acid [5M]- Perchloric acid- 8.33ml , Distilled water- 1.67ml
- O -phenyldiamine [1.8mM]- O -phenyldiamine - 1.9mg , Distilled water - 10ml

Experiment No. : 1

Aim: To find out the λ max of METHYLENE BLUE/ BSA /UND-1 and to prepare its standard curve.

Procedure:

- Stock solution was prepared by dissolving 5mg of drug in 5ml of distilled water.
- Dilutions of 10µg/ml, 20µg/ml, 30µg/ml, 40µgm/ml, 50µg/ml were prepared from the stock solution.
- All the test tubes were vortexes for 2mins.
- One of the conc. was chosen to scan the λ max for the drug.
- At 663 Max the absorbance of all the conc. was taken.
- Graph was plotted between Concentration v/s Absorbance.

Experiment No. : 2

AIM: Preparation of LIPOSOMES with METHYLENE BLUE / BSA / UND-10.

Procedure:

Preparation of **Lipid Film for Hydration**

- Dissolve the lipid mixture (i.e. cholesterol and soya lecithin) both with different ratio i.e. DRUG: CHO (1: 1) in a 12ml organic solvent (chloroform : methanol) (2: 1)
- Solvent is removed to yield a thin lipid film by evaporation using a rotavapour at 40̊ C with vacuum.
- Yields a thin lipid film on the side of round bottom flask

Hydration of Lipid Film

- The lipid film is hydrated by adding the MB/BSA/UND-10 in aqueous medium (25mg of MB/BSA/UND-10 in 1ml of water).
- Sonic ate for 05 minutes.
- Agitates for 30 minutes without vacuum
- Add $CaCl_2$ (1ml) [1M]
- Centrifuge it at 13000 rpm for 15mins
- Collect supernatant and LIPOSOMES

Experiment No. : 3

Characterization of liposome and to determine the encapsulation efficiency of MB/BSA/UND-10 in liposome.

Morphology of liposome: was examined under the microscope .

The encapsulation was determined- by measuring free MB/BSA/UND-1 in supernatant.

Formula Used -

Encapsulation efficiency (EE %) $= \frac{\text{Amount of free MB/BSA/UND} - 1}{\text{Initial amount}} \text{X } 100$

The amount of MB/BSA/UND-1 in the liposome was also determined by extracting MB/BSA/UND-10 using Folch extraction method.

ANALYSIS OF LIPOSOMES BY FOLCH EXTRACTION

Procedure:

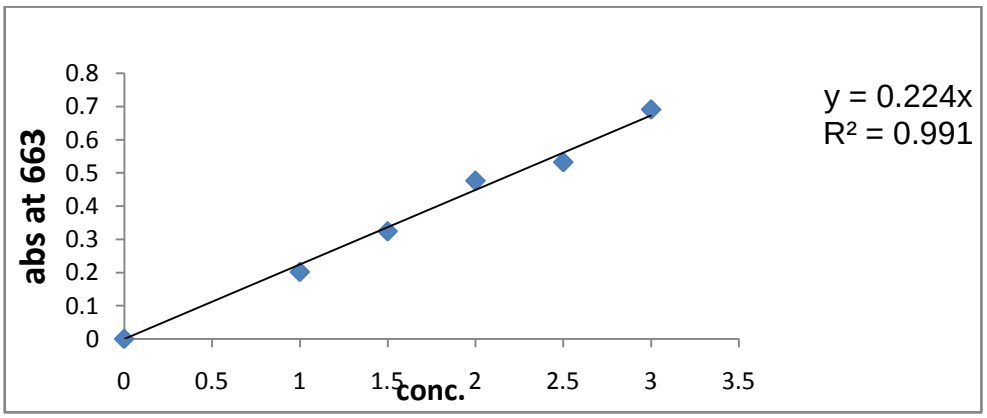
- The liposome was suspended in chloroform methanol (2:1) mixture (1gm/ 20ml C: M)
- Vortex it for 15 minutes
- Centrifuge it at 2000rpm for about 5 minutes.
- Add 0.9% NaCl solution (4 ml/ 20 ml C: M)
- Centrifuge x 2000rpm x 5 minutes.
    - Aqueous layer 1
    - Organic layer
        - Re-treated with 0.9% NaCl
        - Centrifuge x 2000rpm x 5 minutes.
        - Separate aqueous layer 2 and organic layer
        - Pool the 2 aqueous layers and estimate the amount of MB/BSA/UND-10 spectrophometrically using the respective λmax.
        - The amount of MB/BSA/UND-10 encapsulated in the liposome was determined by the following formula

Formula Used -

$$\text{Encapsulation efficiency (EE \%)} = \frac{\text{Amount of free MB/BSA/UND} - 10}{\text{Initial amount of drug}} \text{ X } 100$$

Result and Discussion

Determination of λ max of methylene blue: Different dilutions were prepared from the stock solution of methylene blue. Lowest concentration was used to determine the λ max. The λ was observed at 663nm



Graph 1 : Calibration curve of methylene blue

Preparation of MB in liposome and determination of Encapsulation Efficiency

MB: CHO ratio: 1:1

Hydration with normal saline- 50ml

$CaCl_{2-}$ 10ml

%of free drug – 11.076%

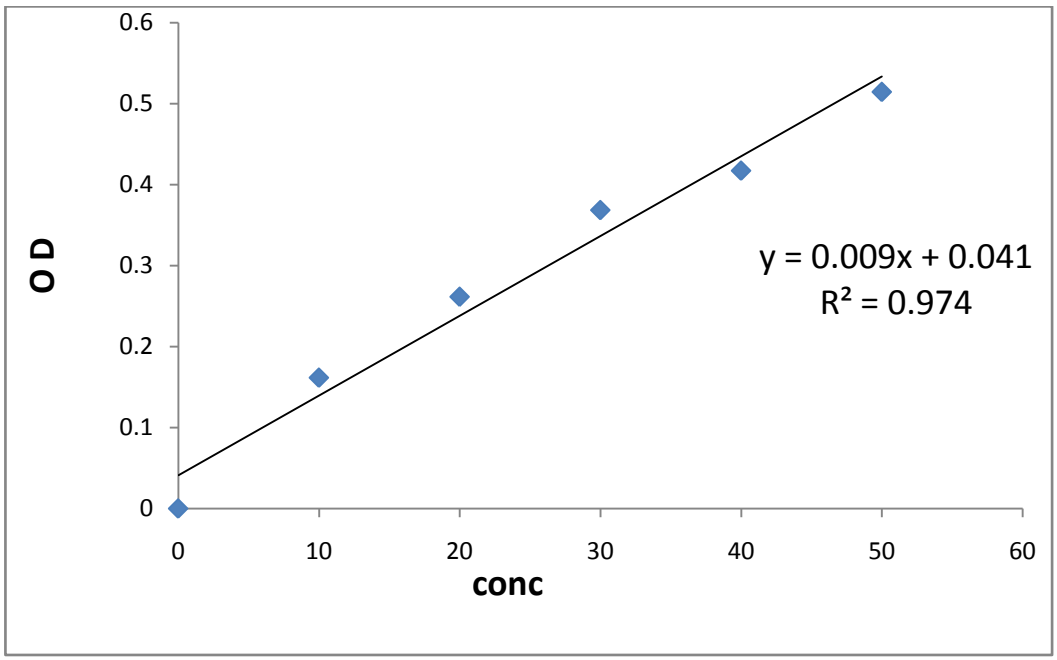
%of encapsulated drug- 88.92%

%of encapsulated drug by Folch extraction – 84.80%

Table 1 : Preparation of MB in liposome and determination of Encapsulation Efficiency

Determination of λmax of BSA

Different dilutions were prepared from the stock solution of BSA. Lowest concentration was used to determine the λ max. The λ was observed at 595nm



Graph -2 Calibration curve of BSA

Preparation of BSA in liposome and determination of Encapsulation Efficiency

BSA: CHO ratio: 1:1

Hydration with phosphate buffer saline- 50ml

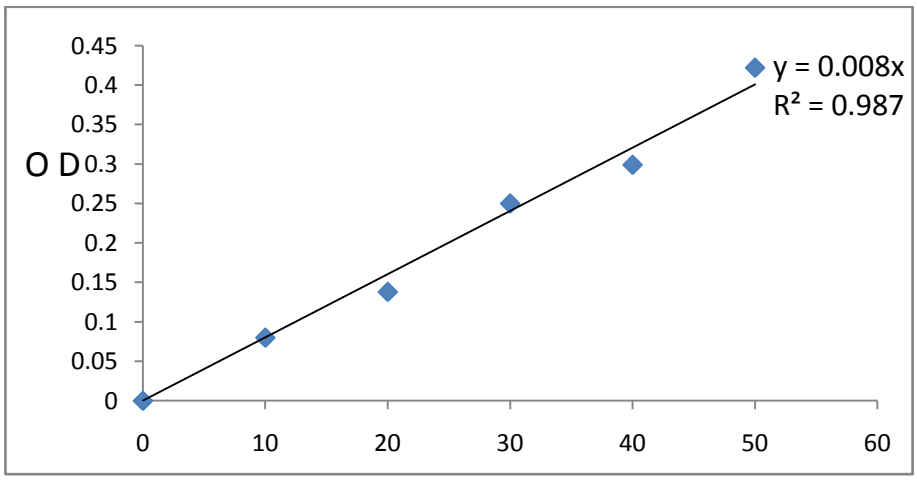
$CaCl_2$- 10ml

%of free drug – 72%

%of encapsulated drug- 28%

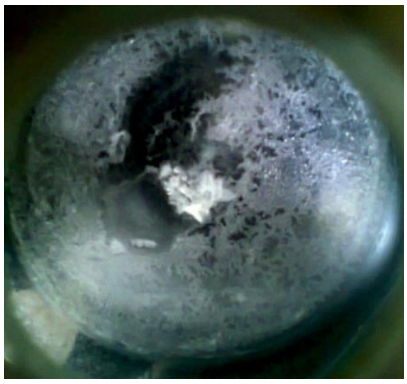
%of encapsulated drug by Folch extraction – 12.60

Table 2 : Preparation of BSA in liposome and determination of Encapsulation Efficiency



Graph - 3 Standard Plots

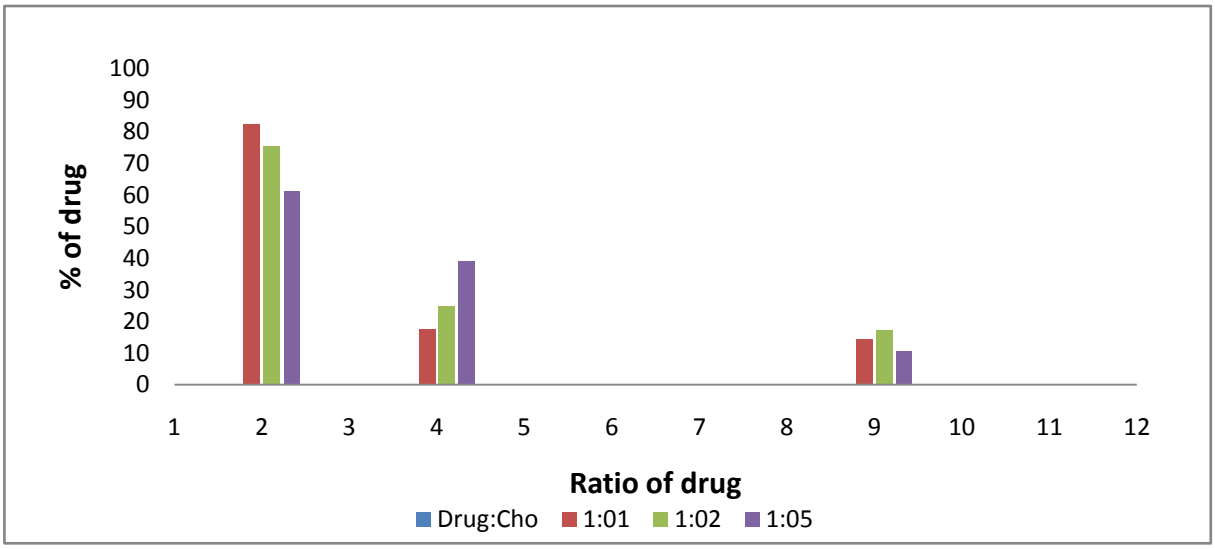
Different dilutions were prepared from the stock solution of UND-10. Lowest



concentration was used to determine the λ max. The λ was observed at 337nm

Formulation no.	Ratio Drug: Cho	%of free drug	%of encapsulated	%of encapsulated drug by Folch extraction	Hydration with aqueous medium containing drug	Cacl2
1	1:1	82.48	17.52	14.24	1ml	1ml
2	1:2	75.28	24.72	17.31	1ml	1ml
3	1:5	61.04	38.96	10.77	4ml	4ml

Table 3



Graph 4 : Comparison of the different formulation of the free and encapsulated drug

Discussion

The main focus of project was to develop a sustained drug delivery system for cancer. Among the various delivery system that are known such as liposome, noisome and polymeric micro or nano particle. In the current project liposome is one of the best studied drug carrier system. Liposome was chosen for encapsulating an anti-cancer drug.

Conventional liposome are mainly composed of neutral or very charged phospholipids (PLs) plus cholesterol (CH). In the current project liposome were prepared by using cholesterol and soya lecithin as lipids. The anticancer drug (UND-10) was encapsulated in

the liposome by the standard methods of preparation i.e. evaporating the organic solvents containing lipids under vacuum to form a thin film and hydrating the film with the anti-cancer drug to form liposome. The amount of drug encapsulated was determined by EE%. The encapsulation of the drug was influenced by the ratio of drug : polymer i.e. with lower amount of lipid, there was higher encapsulation of the drug. A drug: lipid ratio of 1:1 showed a maximum amount of encapsulation as compared to 1:2 and 1:5.

Conclusion

Liposome composed of cholesterol and lecithin encapsulated an anti-cancer drug UND-10 with high efficiency. The encapsulation of the drug was influenced by the ratio of drug : polymer i.e. with lower amount of lipid, there was higher encapsulation of the drug. A drug: lipid ratio of 1:1 showed a maximum amount of encapsulation as compared to 1:2 and 1:5. Further studies under *in vivo* conditions using animal models are warranted to conclusively establish its sustained release properties.

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