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Certificate of Merit

Certified that **M.Saikiran,** *Student of GDC Bhadrachalam is awarded First Prize for Jignasa- State Level Student Study Projects Presentation on the topic* ***Encouragement of Organic Agriculture on the Godavari River Sandy area by using Hydrogel*** *in* ***Zoology*** *for the academic year 2018-19.*

Academic Guidance Officer (I/c)

Commissioner

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Certificate of Participation

Awarded to

M. Saikiran - GDC, Bhadrachalam.

for presenting study project on

Encouragement of Organic Agriculture on the Godavari river Shady area by using Hydrogel.

at

IIGNASA

3-Day Presentation and Selection Programme conducted from 2nd to 5th February, 2019.

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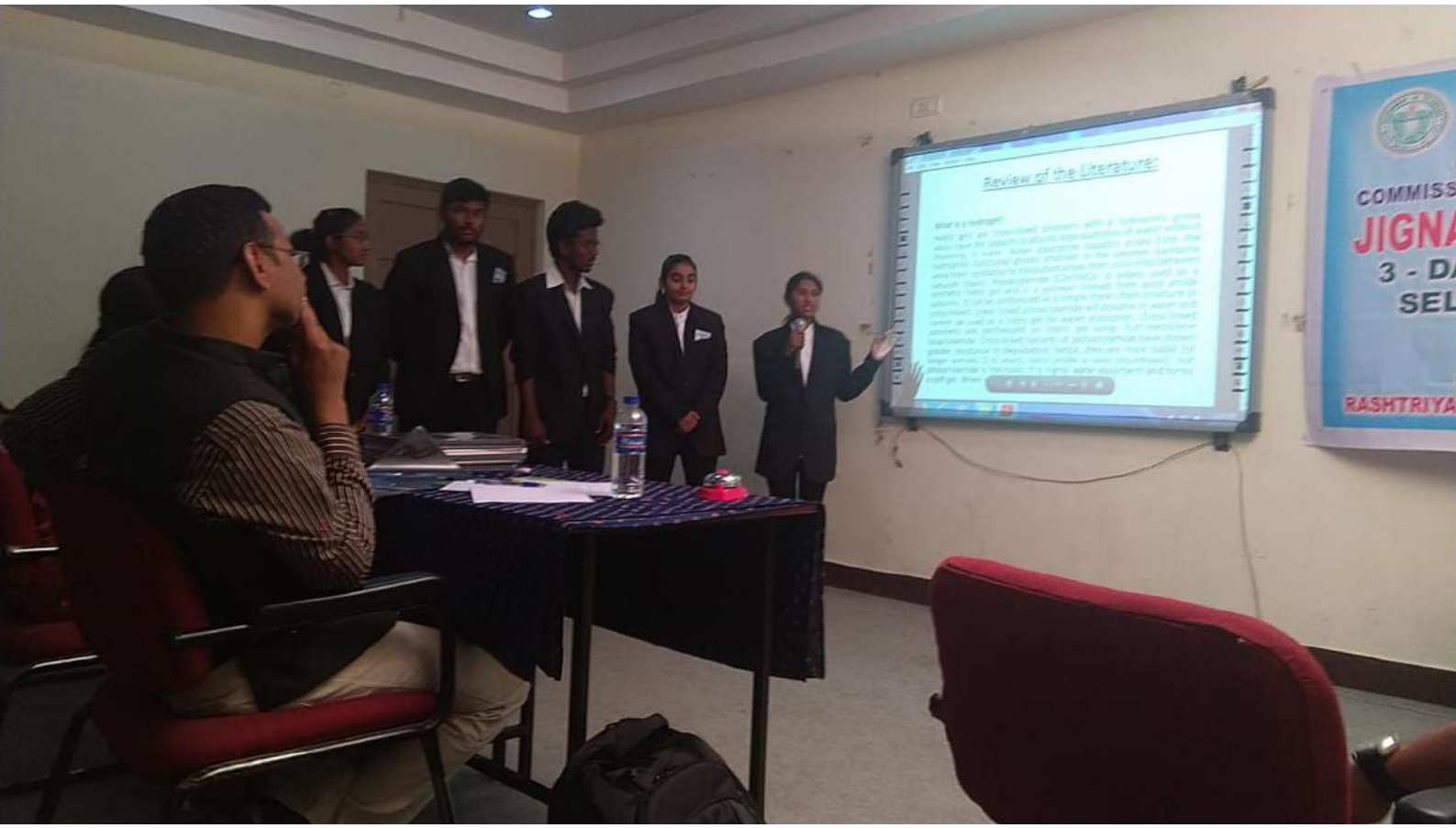
Review of the Literature:
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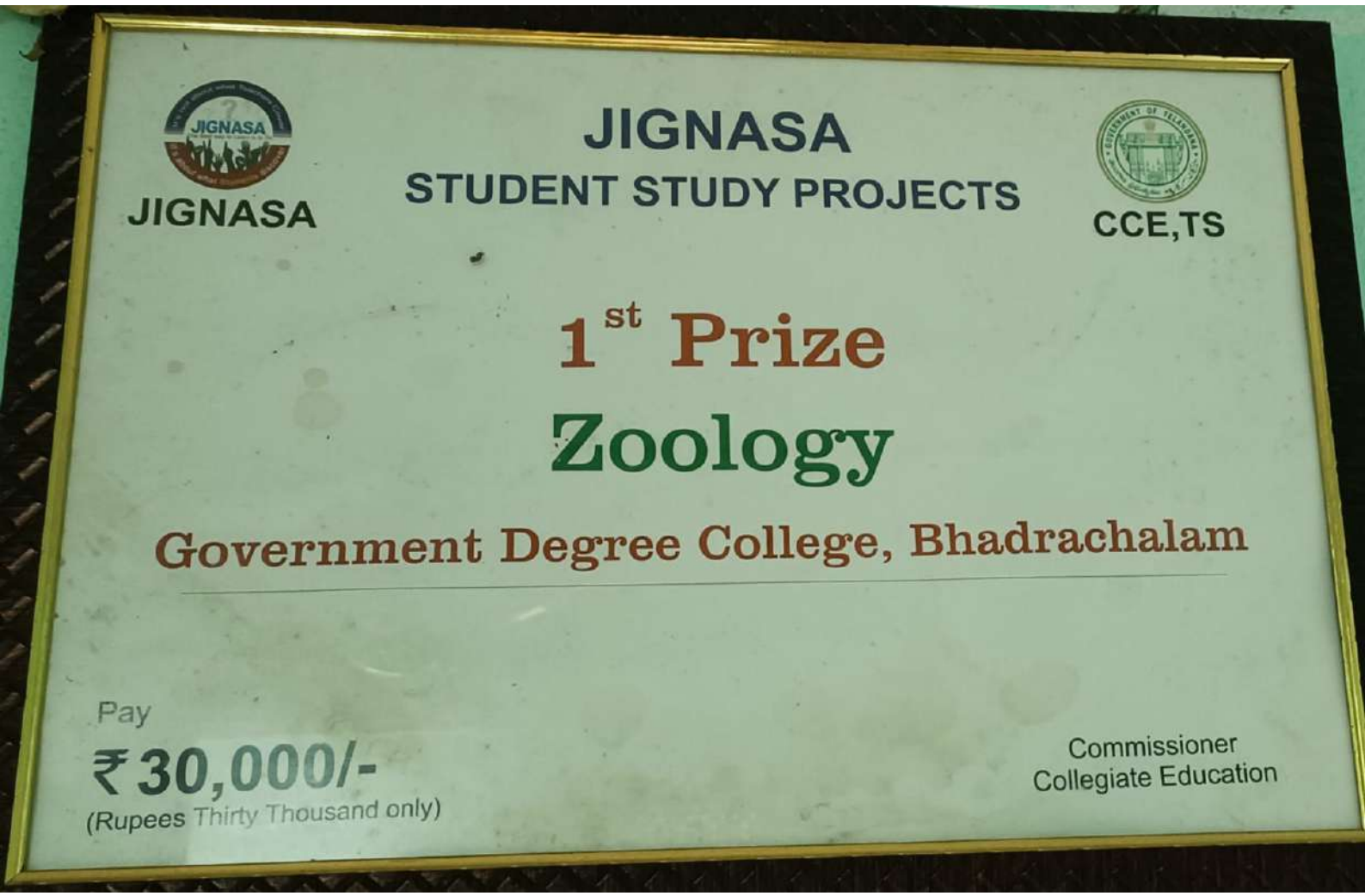
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JIGNASA PROJECT WORK TITLE

Encouragement of organic agriculture on the Godavari river sandy area by using hydro gel

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4. Y.SaiBala
5. B.Sowjanya
6. K.Robie Felix

BONAFIDE CERTIFICATE

Certified that the study project titled "***Encouragement of organic agriculture on the Godavari river sandy area by using hydro gel***" is the bonafide work of S.B.Z/C E/M students **Md.UmmeaHazia, M.SaiKiran, M.Ruchitha, Y.SaiBala, B.Sowjanya, K.Robie Felix** and is carried under my supervision and is that, this project doesn't represent any other form of project work done earlier.

Signature of supervisor Incharge of the department

INDEX

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2. **Project Aim & Objectives**
3. **Review of the Literature**
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TITLE OF THE PROJECT

Encouragement of organic agriculture on the Godavari river sandy area by using hydro gel

Statement of the Problem

India ranks 41st among 181 countries of the world with regard to water stress. More than 60% of the net cultivated area is under dry land condition. Also, more than 30% of the area faces the problem of insufficient rainfall. Agriculture is under abiotic stresses (drought, salinity and temperature) which likely to increase due to land degradation, urbanization and climate change. In India, most of the area is located in arid and semi-arid regions. Irrigation water is becoming scarce and the world is looking for water-efficient agriculture. Increasing food demand and declining water resources are challenges for food security. So under such areas, proper management practices should be done in order to conserve moisture and to increase water holding capacity of the soil. Then also the yield of the crops will be lower as compared with normal conditions. The best possible solution to the above said problem is 'hydro gel'. Hydrophilic gels called hydro gels are cross-linked materials absorbing large quantities of water without dissolving that absorb substantial amounts of aqueous solutions

Project Aim:

Converting the Godavari sandy area from the brown colour into green colour by using hydrogel

Pic - 1

Objectives:

- To improve and calculate seed germination
- To enhance water use efficiency
- To improve and calculate root & stem growth and density
- To know plant survival rate.
- To know the sample pH.
- To observe temperature and humidity levels.

Review of the Literature:

What is a hydro gel?

Hydro gels are cross-linked polymers with a hydrophilic group which have the capacity to absorb large quantities of water without dissolving in water. Water absorption capacity arises from the hydrophilic functional groups attached to the polymer backbone while their resistance to dissolution arises from cross-links between network chains. Polyacrylamide $(C3H5NO)n$ is widely used as a synthetic hydro gel and is a polymer formed from acryl amide subunits. It can be synthesized as a simple linear chain structure or cross-linked. Linear linked polyacrylamide will dissolve in water and cannot be used as a hydro gel for water absorption. Cross-linked polymers are synthesized as hydro gel using *N*,*N*′-methylene bisacrylamide. Cross-linked variants of polyacrylamide have shown greater resistance to degradation; hence, they are more stable for longer periods (2–5 years). Acryl amide is toxic (neurotoxin), but polyacrylamide is non-toxic. It is highly water-absorbent and forms a soft gel when hydrated

Water Absorption Mechanism of Hydrogel :

The hydrophilic groups (viz. acryl amide, acrylic acid, acryl ate, carboxylic acid, etc.) of the polymer chain are responsible for water absorption in hydro gels. The acid groups are attached to the main chain of the polymer. When these polymers are put in water, the latter enters into the hydrogel system by osmosis and hydrogen atoms react and come out as positive ions. This leaves negative ions along the length of the polymer chain. Hence the hydro gel now has several negative charges down its length. These negative charges repel each other. This forces the polymer chain to unwind and open up. They also attract water molecules and bind them with hydrogen bonding. Hydro gel can absorb more than 400 times its weight of water by this mode. When its surroundings

begin to dry out, the hydro gel gradually dispenses up to 95% of its stored water. When exposed to water again, it will rehydrate and repeat the process of storing water. This process can last up to 2–5 years, by which time biodegradable hydro gel decomposes.

Characteristics of super absorbent polymers

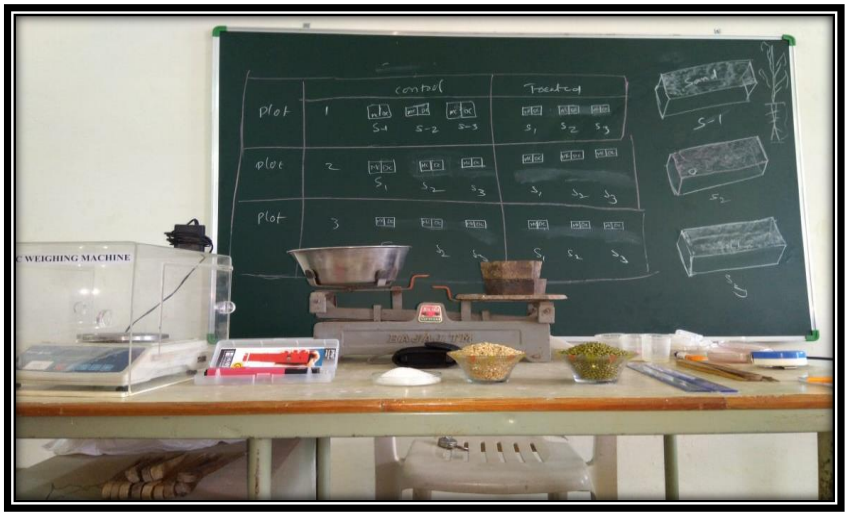
Taking into account the water imbibing characteristics of SAP materials, the possibilities of its application in the agricultural field has increasingly been investigated to alleviate certain agricultural problems. SAP hydro gels potentially influence soil permeability, density, structure, and texture, evaporation, and infiltration rates of water through the soils. Particularly, the hydro gels reduce irrigation frequency and compaction tendency, stop erosion and water runoff, and increase the soil aeration and microbial activity (Rehimet *al.*, 2011). In arid areas, the use of SAP in the sandy soil, to increase its water-holding capacity seems to be one of the most significant means to improve the quality of plants (Bakass *etal.*, 2012). The SAP particles may be taken as "miniature water reservoirs" in soil. Water will be removed from these reservoirs upon the root demand through osmotic pressure difference. The hydrogels also act as a controlled release system by favoring the uptake of some nutrient elements, holding them tightly, and delaying their dissolution. Consequently, the plant can still access some of the fertilizers, resulting in improved growth and performance rates (Liang *et al.*, 2007). SAPs can also be used as retaining materials in the form of seed additives (to aid in germination and seedling establishment), seed coatings, root dips, and for immobilizing plant growth regulator or protecting agents for controlled release (Rehim*et al.*, 2011).

Research Methodology & Materials

Material:

1. Hydro gel
2. Sand
3. Dry Mud
4. Soil
5. Green gram (Moong dal)
6. Wheat
7. Electronic weighing machine
8. Weighing Machine
9. Trays
10. Hygrometer
11. Water

12. Beaker
13. Scale
14. Chopsticks
15. Digital PH meter
16. Distil water



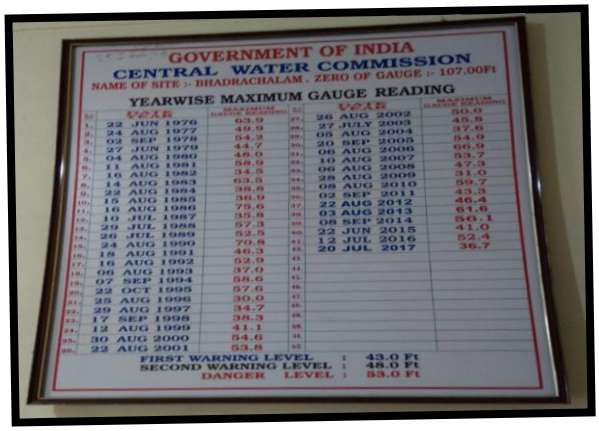
Pic - 2

The Godavari Basin

This is the longest Peninsular river. Its drainage basin is also the largest among the peninsular river basins. The Godavari is about1465 km long.It originates from the slopes of the Western Ghats in Nasik district of Maharashtra and drains into the Bay of Bengal. The Godavari basin covers parts of aharashtra, Madhya Pradesh, Orissa and Andhra Pradesh. Purna, Wardha, Pranhita, Manjra, Waiganga and enganga are the main tributaries of Godavari.

Pic - 3a

GODAVARI BASIN



Pic – 3b

GODAVARI FLOOD DATA

Green Gram: Is one of the important pulse crops in India. It has been reported that Green gram has been cultivated in India since ancient times.. It is believed that Green gram is a native of India and Central Asia and grown in these regions since prehistoric times. It is widely cultivated throughout the Asia, including India, Pakistan, Bangladesh, Sri Lanka, Thailand, Laos, Cambodia, Vietnam, Indonesia, Malaysia, south China, and Formosa. In Africa and U.S.A. it is probably recent. Green gram is a protein rich staple food.

Wheat

Wheat (*Tritium spp*.) occupies the prime position among the food crops in the world. In India, it is the second important food crop being next to rice and contributes to the total food grain production of the country to the extent of about 25%. Wheat has played a very vital role in stabilizing the food grain production in the country over the past few years.

The origin of the durum wheat was probably in the region of Abyssinia, whereas the whole group of soft wheat, which includes the bread wheats, probably originated in the region of Pakistan, Southwestern and the Southern parts of mountainous Bokhara.

Methodology:

Our project work main concept is proper utilization of Godavari sandy area after floods. Godavari river water flow only 10-15 meters in normal condition. Nearly 200-300 meters area is always covered both side by sand (total 500 meters). Hence we planned a project on utilization of sandy area of Godavari. In our study to introduce the hydro gel on plant survival rate when all other conditions remain same. Two days before showing of seeds sand and dry mud from river bank of Godavari collected. The same time soil is collected from the college campus. The sand, dry mud & soil is cleaned for any large babbles, dried plants, roots & is softened And kept ready. Wheat (Monocot) and Moongdal (dicot) seeds are purchased from shop. Verified for unproductively seeds are kept ready. Hydro gel purchased from the market and kept ready prior to the experiment. Six plastic plates are taken (with measurement 30 X 25 X 7 cms) as the experiment is planned in three plots, three colour trays are taken @ 6 per each colour. All the trays are filled with 5 kg of sand, sand & dry mud, soil alone.

The experiment is divided into 3 plots: To study the effect of hydro gel on 3 plots

All three plots are set as given below:

Sample1: Tray A(5kgs sand,500ml water) is control, Tray B(5kgs sand,500ml water+ 2gms of hydro gel) is treated.

Sample 2: Tray A(5kgs sand + pit filled with mud,500ml water) is control, Tray B(5kgs sand + pit filled with mud,500ml water & 2gms of hydrogel)is treated.

Sample 3:: Tray A(5kgs soil,500ml water) is control, Tray B(5kgs soil,500ml water & 2gms of hydrogel) is treated.

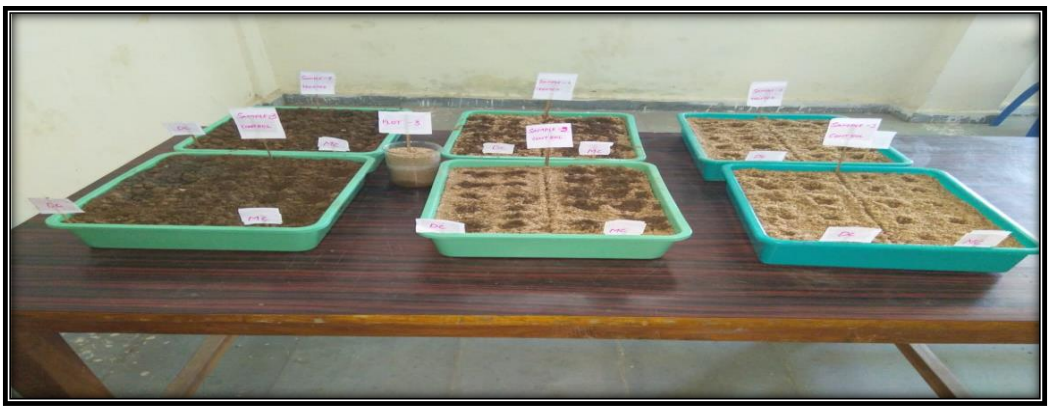
All the trays after filled with sand/soil with 5kg each are watered @ 500ml tray. One day prior to sowing. The hydrogel is soaked in water and allowed to absorb the water then the hydro gel are directly into the fits where seeds are placed in treated trays.10 seeds of wheat (monocot) and 10 seeds of moongdal (dicot) are sowed into the all trays(treated & control).Seeds are sowed after measuring humidity & pH 3 times in every day.

Experiment Setting:

Plot - I

Pic -4

Plot - II



Pic -5

Plot - III

Pic -6

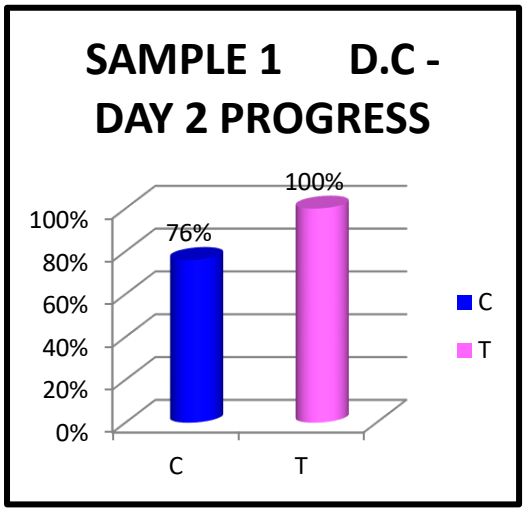
Analysis of Data

Germination

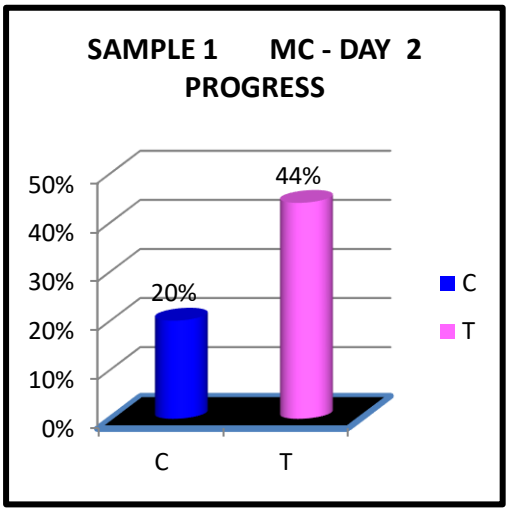
S.no	Sample	D.C/M.C	C/T	Day 2	Day 3	Day 4	Total Germination %
1	Sample - I	DC	C	26%	50%	17	93%
			T	40%	60%	-	100%
		MC	C	0%	20%	57%	77%
			T	0%	44%	43%	87%
2	Sample -II	DC	C	37%	60%	3%	100%
			T	53%	47%	-	100%
		MC	C	0%	27%	57%	84%
			T	0%	57%	40%	96%
3	Sample -III	DC	C	30%	60%	3%	93%
			T	53%	47%	-	100%
		MC	C	0%	23%	63%	86%
			T	0%	40%	57%	97%

Tab – 1

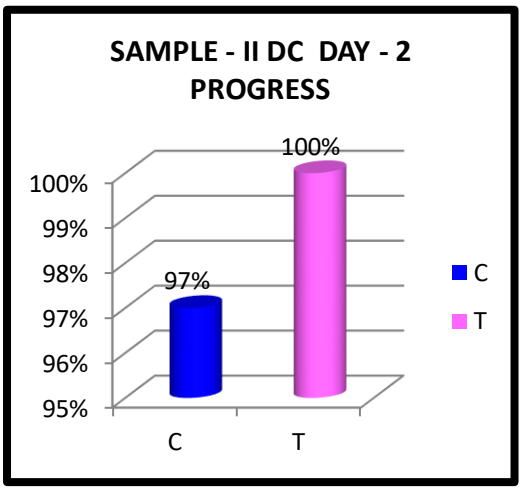
Germination



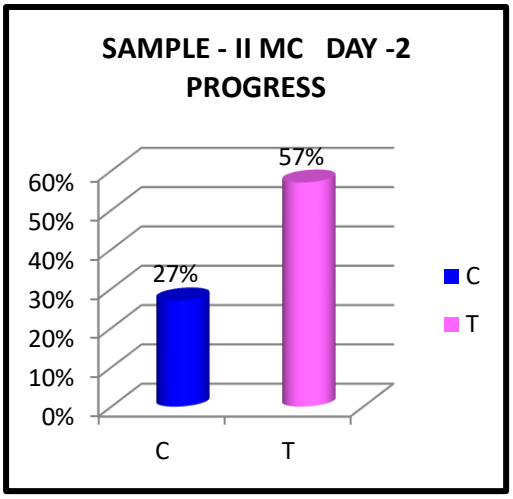
Graph – 1a



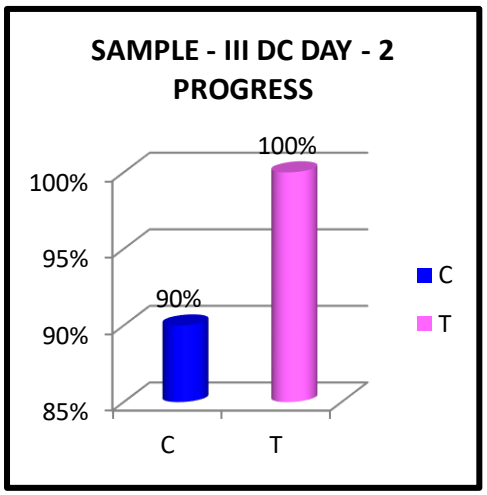
Graph – 1b



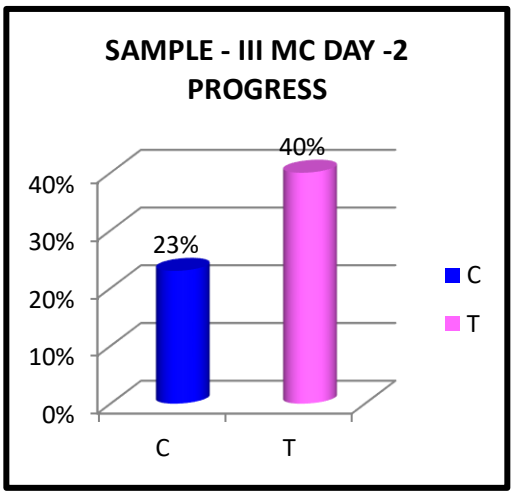
Graph – 1c



Graph – 1d



Graph – 1e



Graph – 1f

Root and Stem Growth

7 th Day								
sample	**STEM SIZE IN CM**				**ROOT SIZE IN CM**			
	DC		**MC**		**DC**		**MC**	
	Control	**Treated**	**Control**	**Treated**	**Control**	**Treated**	**Control**	**Treated**
Sample -I	**15**	**20**	9	17	2	3	2	4
Sample-II	**20**	**25**	13	20	3	4	5	7.5
Sample-III	**17**	**21**	9	19	3	4	2	3
Total	52	66	31	56	8	11	9	14.5
Average	17.3	22	10.3	18.6	2.6	3.6	3	4.8

Table – 2a

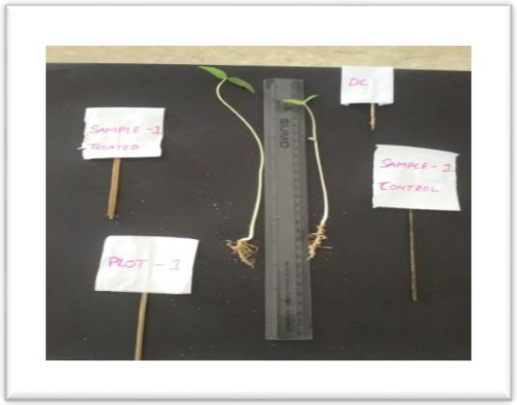
10 th Day								
sample	**STEM SIZE IN CM**				**ROOT SIZE IN CM**			
	DC		**MC**		**DC**		**MC**	
	Control	Treated	Control	Treated	Control	Treated	Control	Treated
Sample -I	**.**	**22**	.	18	.	3.5	.	5
Sample-II	**..**	**26**	.	19	.	4.5	.	8
Sample-III	**.**	**23**	8	17	.	4	3	6
Total	0	71	8	54	0	12	3	19
Average	0	23.6	2.6	18	0	4	1	6.3

Table – 2b

15 th Day								
sample	**STEM SIZE IN CM**				**ROOT SIZE IN CM**			
	DC		**MC**		**DC**		**MC**	
	Control	**Treated**	**Control**	**Treated**	**Control**	**Treated**	**Control**	**Treated**
Sample -I	**.**	**23**	**.**	20	**.**	4.5	**.**	8
Sample-II	**.**	**24**	**.**	22	**.**	4.5	**.**	9
Sample-III	**.**	**23**	**.**	18	**.**	4	**.**	6
Total	0	70	0	60	0	13	0	23
Average	0	23.3	0	20	0	4.3	0	7.6

Table – 2c

Sample – I DC C/T



Sample – I MC C/T

Sample – II DC C/T

Sample – II MC C/T

Sample – III DC C/T

Sample – III MC C/T

7th Day Progress

Pic – 7

Sample – I DC C/T

Sample – I MC C/T

Sample – II DC C/T

Sample – II MC C/T

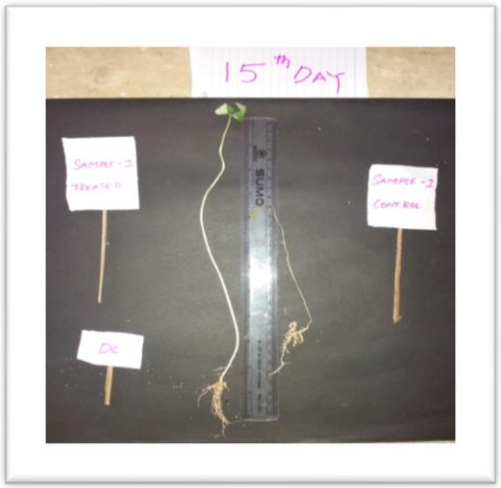
Sample – III DC C/T

Sample – III MC C/T

10th Day Progress

Pic - 8

Sample – I DC C/T



Sample – I MC C/T

Sample – II DC C/T

Sample – II MC C/T

Sample – III DC C/T

Sample – III MC C/T

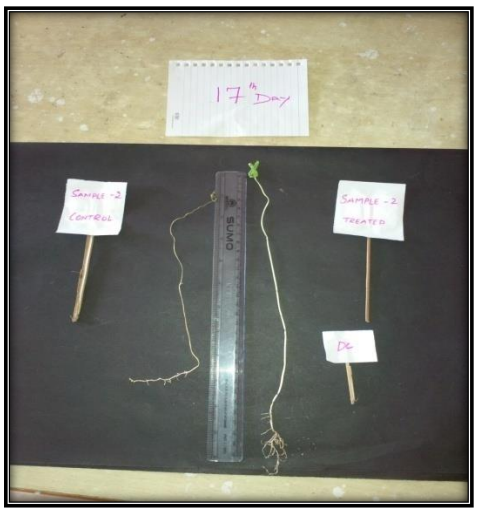
15th Day Progress

Pic - 9

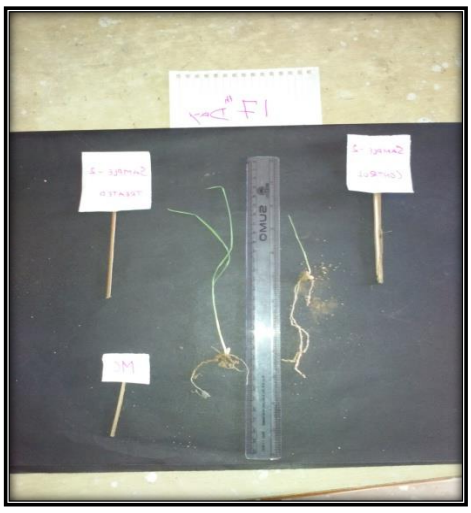
Sample – I DC C/T

Sample – I MC C/T

Sample – II DC C/T



Sample – II MC C/T



Sample – III DC C/T

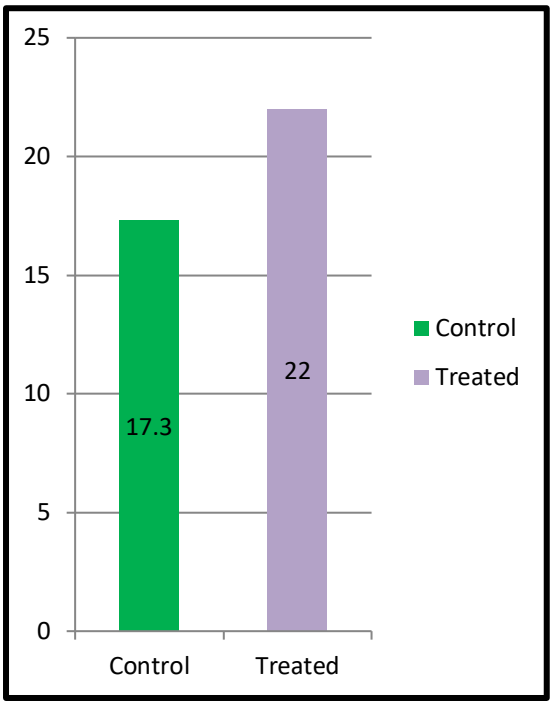
Sample – III MC C/T

17thDay Progress

Pic - 10

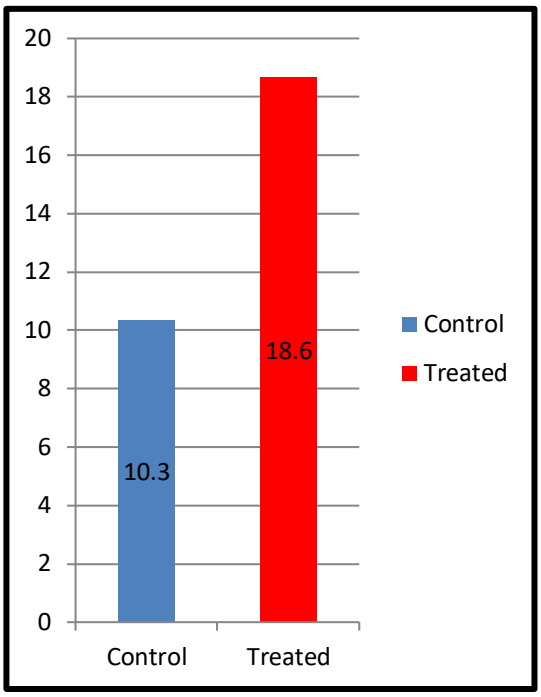
Stem & Root Size in Cm:

Stem DC



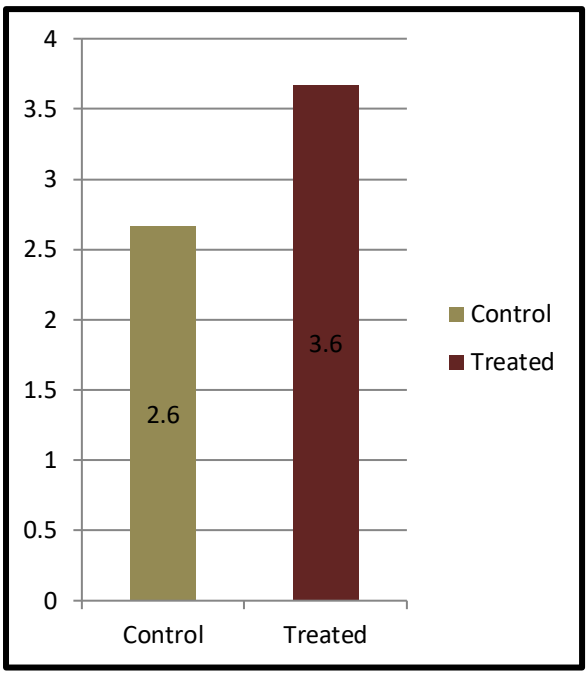
Graph – 2a

Stem MC



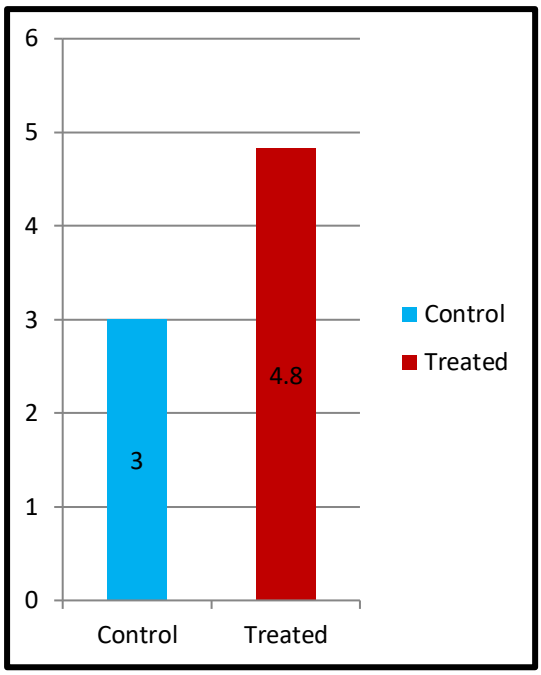
Graph – 2b

Root DC



Graph – 2c

Root MC



Graph – 2d

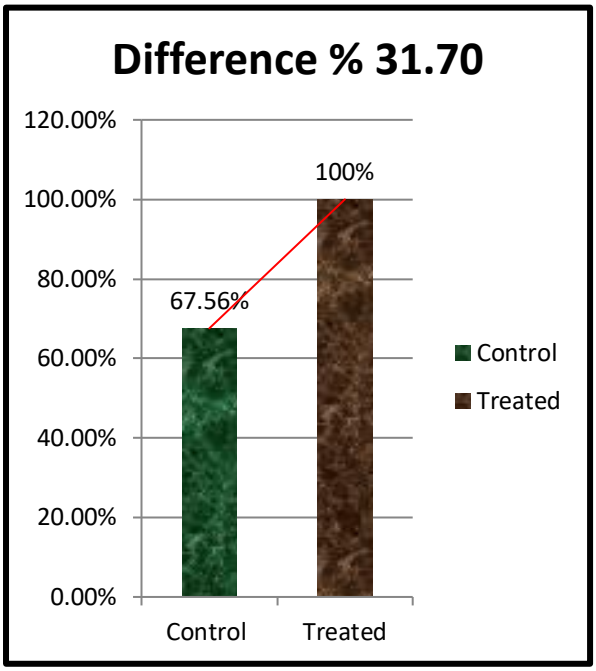
Plants survival rate in Days

Plot No.	Sample 1				Sample 2				Sample 3			
	Dicot		Monocot		Dicot		Monocot		Dicot		Monocot	
	C	T	C	T	C	T	C	T	C	T	C	T
Plot-I	8	12	10	13	9	14	11	16	9	17	11	17
Plot-II	8	13	10	15	10	15	11	17	11	18	12	18
Plot-III	9	12	10	14	10	15	12	17	11	18	12	18
Total Days	25	37	30	42	29	44	34	50	31	53	35	53
Average	8.33	12.33	10	14	9.67	14.67	11.3333	16.67	10.3	17.67	11.67	17.67
Variation	4		4		5		5.33		7.33		6	
Percentage	31.70%		28.57%		34.24%		31.90%		41.40%		34%	

Tab - 3

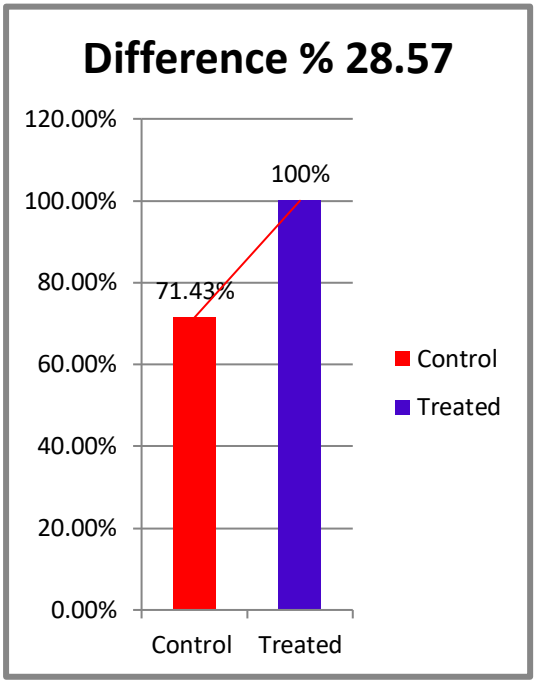
Survival Rate:

Sample – I DC



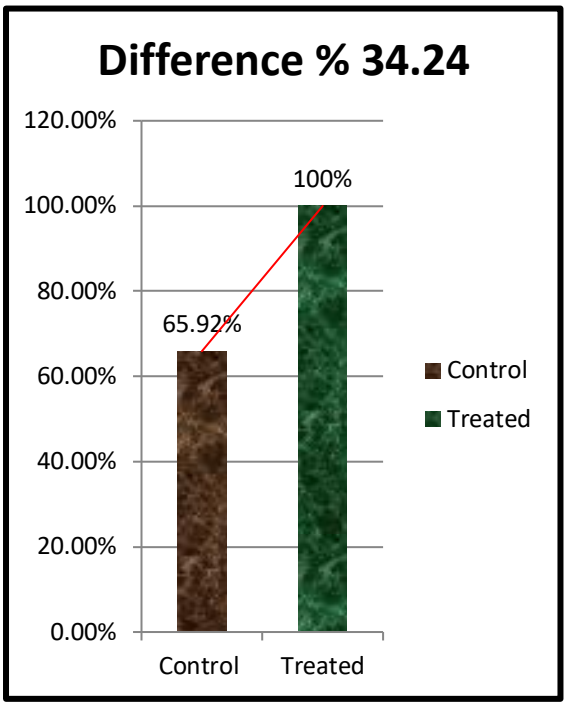
Graph – 3a

Sample – I MC



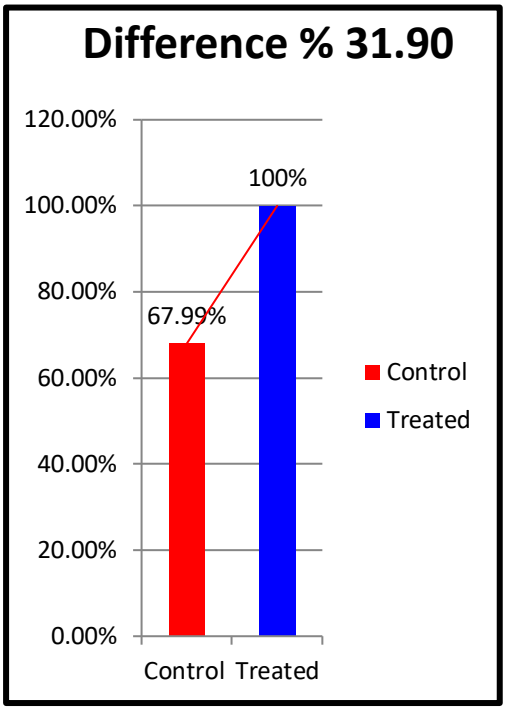
Graph – 3b

Sample – II DC



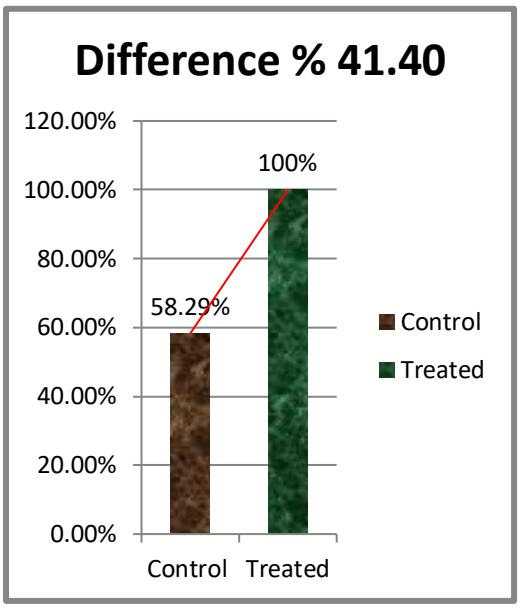
Graph – 3c

Sample – II MC



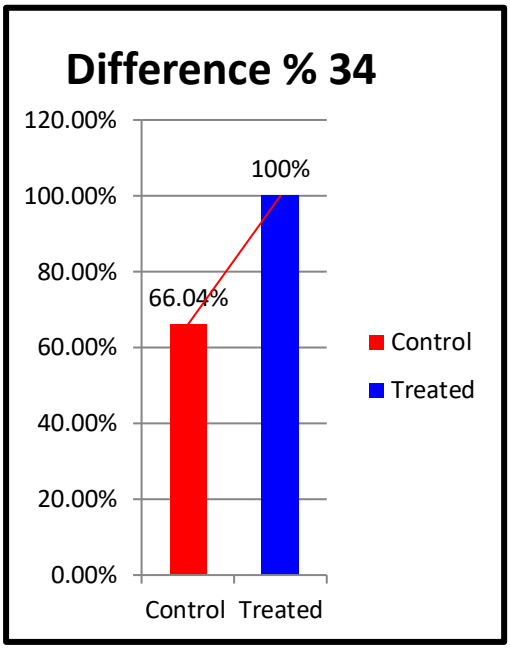
Graph – 3d

Sample – III DC



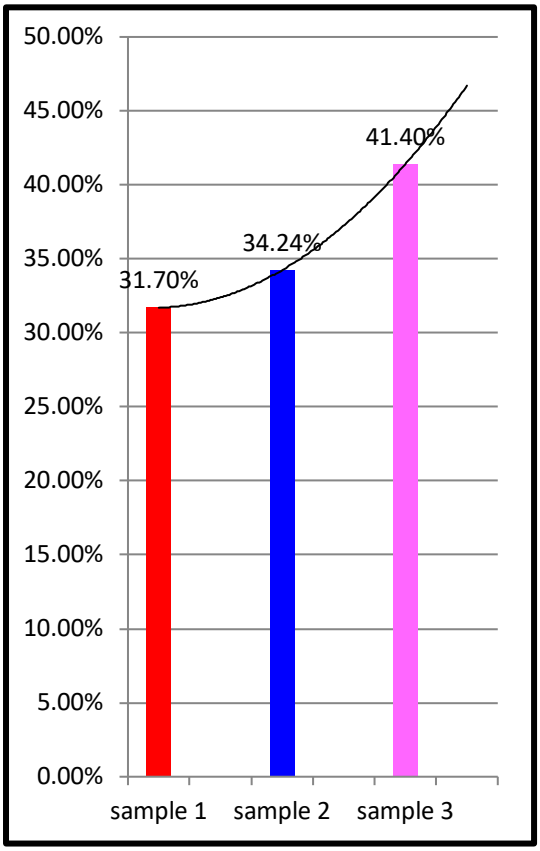
Graph – 3e

Sample – III MC



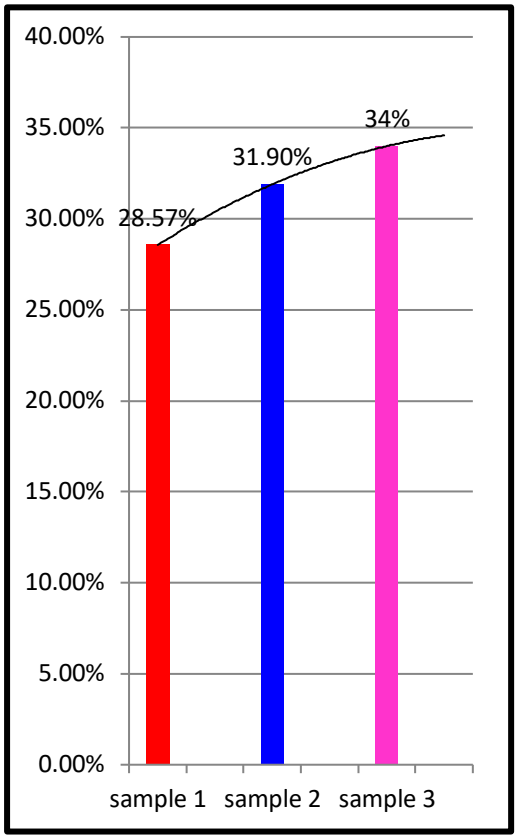
Graph – 3f

Sample – I , II & III Difference DC



Graph – 4a

Sample – I , II & III Difference MC



Graph – 4b

Sample PH

Plot No.	Sample 1		Sample 2		Sample 3	
	Control	Treated	Control	Treated	Control	Treated
Plot-I	8.2	8.1	7.8	7.9	7.9	7.8
Plot-II	8.2	8	7.8	7.9	7.9	7.8
Plot-III	8.1	8	7.8	7.9	7.9	7.8

Tab - 4

Humidity and Temperature Levels

S.no	Date	Temperature & Humidity Levels					
		6'O clock a.m.		12'O clock a.m.		6'O clock a.m.	
		Tem	RH%	Tem	RH%	Tem	RH%
1	31/10/18	31	75	36	53	32	53
2	1/11/2018	31	73	35	50	33	50
3	2/11/2018	31	73	33	45	32	52
4	3/11/2018	31	75	35	45	32	51
5	4/11/2018	32	76	36	45	32	52
6	5/11/2018	31	75	37	46	33	50
7	6/11/2018	31	74	37	48	32	50
8	7/11/2018	31	73	37	45	32	50
9	8/11/2018	32	74	36	45	31	52
10	9/11/2018	31	74	35	48	32	52
11	10/11/2018	30	73	35	45	31	53
12	11/11/2018	30	76	35	47	31	53
13	12/11/2018	31	75	36	48	32	53
14	13/11/2018	31	75	36	48	32	53
15	14/11/2018	30	75	37	49	30	52
16	15/11/2018	30	76	36	48	30	53
17	16/11/2018	31	74	35	49	31	53
18	17/11/2018	31	75	34	49	32	52
19	18/11/18	30	74	35	49	33	53

Tab - 5

Results:

Present study showed that highly significant differences were observed in plant survival rate (S- 1 DC- 31.7%, MC 28.57%, S -2 DC - 34.24%, MC 31.90%, S- 3 DC – 41.40%, MC 34.0%). Stem growth and Root growth and density shown (Tab – 2). Seed germination (shown in Tab – 1) more in treated samples compare with control. pH variation are not in remarkable. Sample – 3 significance positive difference compare with sample – 2, Sample – 2 significance positive difference compare with Sample -1.

Germination

Day 2nd progress:

Sample –I DC C&T Difference: 34%, MC C&T Difference : 24%

Sample –II DC C&T Difference: 3%, MC C&T Difference: 30%

Sample –III DC C&T Difference: 7%, MC C&T Difference: 23%

Root & Stem Size

Sample – I Stem DC C& T Difference: 5Cm, MC C& T Difference: 4Cm

Sample – I Root DC C& T Difference: 2Cm, MC C& T Difference: 3Cm

Survival Rate in Days:

Sample – I	DC Treated: 31.5%	MC Treated: 28.57%
Sample – II	DC Treated: 34.22%	MC Treated: 31.90%
Sample – III	DC Treated: 41.4%	MC Treated: 34%
Sample – I & II Difference	DC: 2.5%	MC: 3.4%
Sample – II & III Difference	DC: 7.2%	MC: 2.1%
Sample – I & III Difference	DC: 9.7%	MC5.5%

Conclusion & Suggestions:

- The present study conclude that the Hydro gel performance was found to be superior in germination percentage and Root, Stem and density in plant survival rate more in treated condition in all parameters treated samples are shown better results with compare control samples.
- It can be easily applied directly in the soil at the time of sowing of field crops and in the growth medium for nursery plantation.
- The low application rate (i.e. 2.5–5.0 kg/ha) of hydro gel is effective for almost all the crops in relation to soil type and climate of India.
- Agricultural hydro gels are not only used for water saving in irrigation, but they also have tremendous potential to improve physic - chemical and biological properties of the soil.
- Bulk density, porosity and water holding capacity of the soil are improved with the application of hydro gel.
- Agricultural hydro gels are eco-friendly, because they are naturally degraded over a period of time, without leaving any toxic residue in the soil and crop products.
- Hence application of hydro gel will be a fruitful option for increasing agricultural production with sustainability in water - stressed environment.
- To encourage the flood affected people in this regard.
- To supply minimum equipment to the formers Hydro gel related agriculture.
- Particularly encourage vegetable crops like creepers, climbers, melons, cucumbers, pumpkins, sweet potato, plant been, ridge gourd, bottle gourd etc.
- ITDA and other agriculture institutes aware the people on organic agriculture on sandy area.
- Encourage the experimental programs on sandy area agriculture.

Gallery

Sand Collection Pic - 11

Tray Setting Pic - 12

Plot Preparation Pic - 13

Seed Sowing Pic - 14

Soaking of Hydro Gel Pic - 15

pH Testing Pic -16

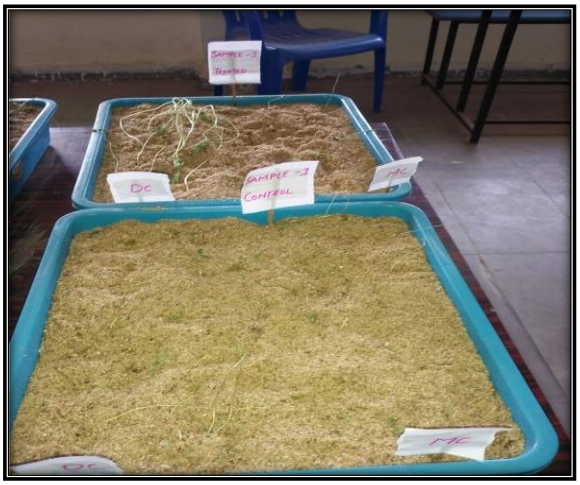
pH Testing Pic - 17

Measurment of Plants Pic - 18

Measurment of Plants Pic - 19

7th Day Pic - 20

10th Day Pic - 21



17th Day Pic - 22

Principal's Visit Pic - 23

Project Team Pic - 24

ABBREVATIONs:

D.C	:	DICOT
M.C	:	MONOCOT
C	:	CONTROL
T	:	TREATED
TEM	:	TEMPERATURE
RH	:	HUMIDITY
SAP	:	SUPER ABSORBENT POLYMERS
S -1	:	SAMPLE – 1
S -2	:	SAMPLE – 2
S -1	:	SAMPLE – 3

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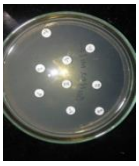
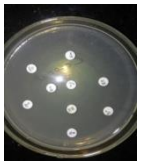
GOVERNMENT DEGREE & PG COLLEGE BHADRACHALAM

STUDENT STUDY PROJECT(JIGNASA)

Antibiotic Sensitivity Testing on

Milk,Buttermilk,Glucose Water,Coconut Water

BY

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GUIDED BY

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BHADRACHALAM

BONAFIDE CERTIFICATE

Certified that the study project titled "**Test For Antibiotic Sensitivity On Microbes** " is the bonafide work of B.Z.C E/M students, Bhargav,Mohana Sai,Hasitha.Sarika,Vasanthi,Rajeswari and is carried under my supervision and is that, this project doesn't represent any other form of project work done earlier.

Signature of supervisor Incharge of the department

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Last but not least, our sincere thanks to our dynamic principal Sri.D.Bhadraiah and our Vice Principal Sri Reddaiahfor theieconstant encouragement and support throughout the work.

Relevance of the Topic:

There are so many bacteria which cause infectionsin organisms. So it will be essential for us to find out the antibiotics that would be effective against a particular antibiotic. This is done by antibiotic sensitivity testing. There are various methods for this purpose. Antibiotic sensitivity explains the susceptibilityof bacteria to various antibiotics

- Antibiotics play a major role in the treatment or prophylaxis of any infection.Antibiotics are categorized as **bactericidal,** if they kill bacteria or **bacteriostatic**,if they reversibly inhibit the growth of bacteria.
- The antibiotics for treatmentare selected after performing **Antibiotic susceptibility Test(AST).**
- This test is usually done by**KIRBY-BAUER** method.In this method the antibiotic impregnated discs are used to test the susceptibility of any bacterial strain to a specific antibiotic.
- Certain bacteria show resistance to one or more antibiotics.
- It is very important to know the survival of a bacterium in the presence of anantibiotic before suggesting for an infectious disease.
- Bacterial pathogens are tested for their susceptibility to antibiotics to guide antibiotic treatment.
- Sensitivity test are generally performed from single pure bacterial colonies on an agar plate.
- Direct sensitivity test are set up directly from specimens or liquid culture producing quicker but less standardized results.
- In Kirby-bauermethod,antibiotic diffuses out of a disc placed on the surface of the agar.

- Up on incubation ,if bacteria are sensitive then the test organism is unable to grow immediately around the disc showing a zone of inhibition.

OBJECTIVES

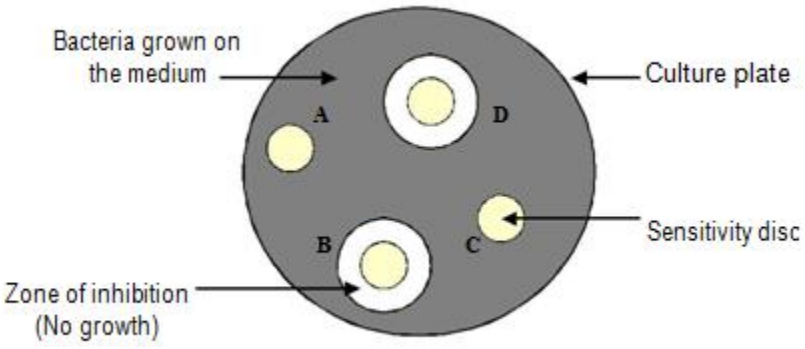
The main objective of our project is to identify the appropriate nutrient solution(s) that can be suggested while using a particular antibiotic.

- This test allows classification of bacterial strains as **susceptible**, **resistant**, or **intermediate** to various antimicrobial agents.
- In this method, the antibiotic impregnated discs are placed on the Agar plates on which the bacterial culture is spread. As the antibiotic impregnated disc comes in contact with the moist agar surface, water is absorbed in the disc paper and the antibiotic diffuses out in the surrounding medium.
- As the distance from the disc increases, there is a logarithmic reduction in the antibiotic concentration which creates a gradient of drug concentration in the agar medium surrounding each disc.
- Though the diffusion of drug occurs, the bacteria that are inoculated on the agar surface are not inhibited by the concentration of antimicrobial agents but continue to multiply until a lawn of growth is visible.
- No growth occurs in the areas where the concentration of drug is inhibitory thus forming a zone of inhibition.
- Thus when an organism is sensitive to any antibiotic, a clear zone appears around that specific disc where the growth has been inhibited (zone of inhibition) whereas if an organiszm is resistant no clear zone of inhibition appears.

  Sensitive(S): An organism is called ‘sensitive’ to a drug when the infection caused by it is likely to respond to the treatment with that specific drug at the recommended dosage.

Intermediately sensitive (I): It is applicable to organisms that are moderately sensitive to an antibiotic that can be used for treatment at a higher dosage and as a result leads to uncertain therapeutic effect.

Resistant(R): An organism is called 'resistant' to a drug when the organism does not respond to a given drug irrespective of the dosage.



The diameter of the zone of inhibition surrounding the antibiotic disc is measured to determine whether the microorganism is sensitive or resistant to a particular antibiotic.

The zone size depends on:

1. The rate of diffusion of the antibiotic through agar
2. The concentration of the antibiotic present in the disc
3. The degree of sensitivity of the microorganism
4. The growth rate of the bacterium

Thus, by performing AST clinicians can select the most appropriate antibiotic for treatment. Also various microbial strains can be studied for their susceptibility to various antibiotics.

AIM:

To determine the sensitivity of **lactobacillus(butter milk)**, **lactococcus**, **streptococcus**(milk) and to show the effect of **coconutwater** and **glucosewater** during **medication.**

MATERIALS REQUIRED :

Glass ware: Conical flask, Sterile petriplates, Glass spreader

Other requirements: Lactic acid bacterium culture (butter milk), Lactococcus bacterium culture, Streptococcus bacterium culture (milk), fresh coconut water, glucose water, antibiotic discs(**Chloramphenicol,Tetracyclin, Gentamycin, Erythromycin, Ofloxacin, Amikacin, Streptomycin, Ciprofloxacin, Cefixime)**

Chemicals : Nutrient agar, Distilled water

Uses of different Antibiotics in day to day life:

We have taken 9 antibiotics, which are used to cure different diseases,like:

Chloramphenicolwhich works on Cholera, plague, typhoid, meningitis.

Tetracyclinwhich shows its effect on Cholera, malaria, plague.

Gentamicin for Bone infection, meningitis, pneumonia, urinary tractinfection, pelvic inflammatory diseases, endocarditis.

Erythromycinworksfor Respiratory tract infections, skininfections,syphilis.

Ofloxacin which shows its effect on Pneumonia, cellulitis, urinary tract infections, plague,infectious diarrohea, prostatitis.

Amikacinfor Joint infections, intra abdominal infections, meningitis,pneumonia, sepsis,urinarytract infections.

Streptomycinworking onTuberculosis, mycobacterium avium complex, endocarditis, plague, rat bite fever.

Ciprofloxacinshowing its effect on Joint infections, intra abdominal infections, infectious diarrohea, respiratory tract infections, skin infections, typhoid, urinary tract infections.

Cefixime for Sour throat, pneumonia, urinary tract infections, gonnorrhea.

METHODOLOGY:

A. LABELLING OF PETRIPLATES:

Label the four agar plates with buttermilk, milk, glucose and coconut water.

B. PREPERATION OF AGAR MEDIUM:

- 50 ml of distilled water is taken in a conical flask. 3 grams of nutrient agar is added to the water in the flask.
- Now add slowly another 50 ml of distilled water from the sides of the conical flask to take any component from the walls of the conical flask.
- Mix the components until they dissolve in the distilled water and close the conical flask with a cotton plug.
- Now the conical flask with the solution is sterilized in the autoclave at 121 ^{o}C for 15 minutes.
- Now allow the nutrient agar medium to cool but not to solidify.

C. AGAR INTO PETRI PLATES :

- Now this nutrient agar is poured in to labeled sterilized petriplates and leave it until the agar has solidified.
- Now mark using dots,where we will put the antibiotic discs .
  a. Discs should be a minimum of 20 mm apart.
  b. Discs should not be placed near the edge of the plate

D.INOCULATION OF BACTERIUM:

- Using aseptic technique ,wet a swab with the bacterial broth culture.
- Thoroughly swab the surface of the plate and be sure to cover the entire surface.
- If more culture is not resulted repeat the same process one or two times (2^{nd} swabbing,3^{rd} swabbing).
- Discard the swab in a bleach containing beaker.

E. INSERTION OF ANTIBIOTIC DISCS :

- Heat the tips of the forceps by placing them just inside the opening of the bacticinerator for 5-10 seconds.
- Cool the forceps by waving them in the air for about 10 seconds.
- To ensure that the disc is flat on the agar,gently push it down with the forceps .
- Reheat the tips of the forceps as above to kill any bacteria.
- Repeat the procedure with the following antibiotic discs .
- Repeat the above steps on a new agar plate with our next bacterium.
- Wait until the surface of the plates has completely dried .
- Incubate all the plates at 37^0C.

RESULTS AND ANALYSIS :

Observe the plates for zone of inhibition to the antibiotics surrounding the respective discs after 24 hours.

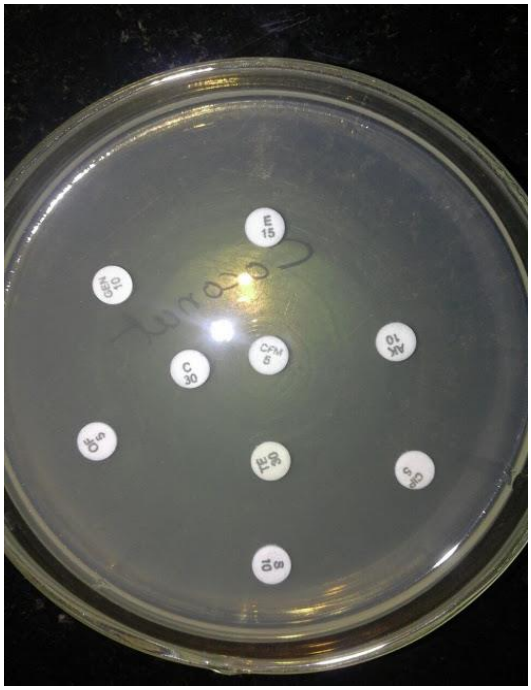
The following results are obtained in our observation:

- This picture shows the growth of microbes when sample solutions (cocnutwater,buttermilk,glucose and milk) are grown in nutrient agar medium.

- In this picture it is clearly seen that our sample solutions are grown well in nutrient medium.

When these sample solutions are taken individually and tested with the above 9 antibiotics , the following results are obtained:

COCONUT WATER:



Before Streaking

After Streaking

This picture shows the zones of inhibition and zones of growth for different antibiotics when COCONUT WATER is used as sample solution .

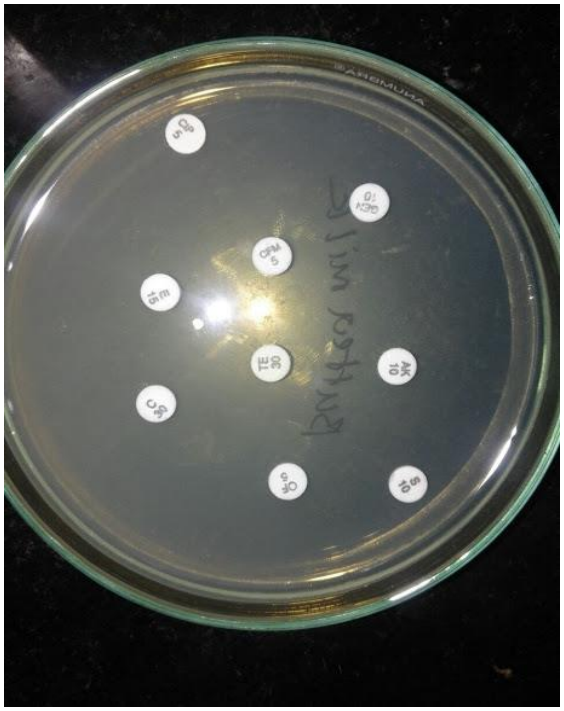
S.No	Antibiotics	Zone of inhibition	Zone of growth
01	Chloramphenicol	More	Less
02	Tetracycline	More	Less
03	Gentamycin	Low	More
04	Erythromycin	More	Less
05	Ofloxacin	More	Less
06	Amikacin	Low	More

07	Streptomycin	Low	More
08	Ciprofloxacin	More	Less
09	Cefixime	More	Less

- **Zone of inhibition** is observed in antibiotics **Chloramphenicol, Tetracycline, Erythromycin, Ofloxacin, Ciprofloxacin, Cefixime**
- **Zone of growth** is observed with antibiotics**Gentamycin,Amikacin,Streptomycin.**

From this observation,we can say that coconut water can not be used as an additional nutrient when antibiotics like Gentamycin,Amikacin,Streptomycin are used.

BUTTER MILK:



Before Streaking

After Streaking

This picture shows the zones of inhibition and zones of growth for different antibiotics when BUTTER MILK is used as sample solution .

S.No	Antibiotics	Zone of inhibition	Zone of growth
01	Chloramphenicol	Low	More
02	Tetracycline	More	Less
03	Gentamycin	Low	More
04	Erythromycin	More	Less
05	Ofloxacin	More	Less

06	Amikacin	Low	More
07	Streptomycin	Low	More
08	Ciprofloxacin	More	Less
09	Cefixime	Low	More

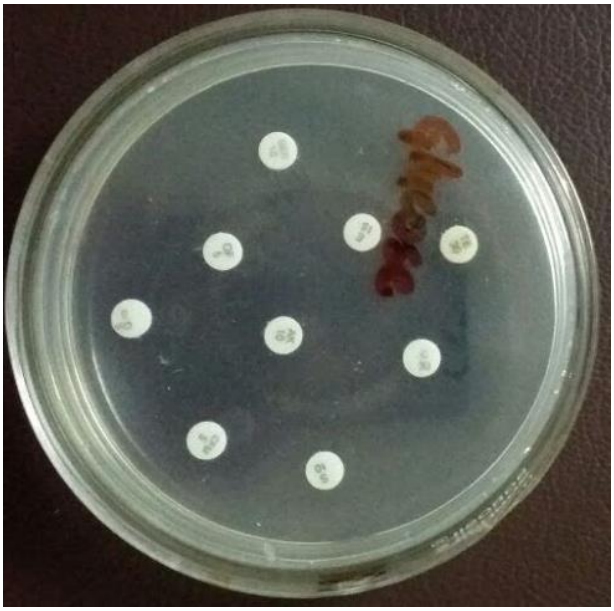
Zone of inhibition is observedwith antibiotics**Tetracycline,Erythromycin,Ofoxacin,Ciproflaxacin.**

Zone of growth is observed inantibiotics**Chloramphenicol,Gentamycin,Amikacin,Streptomycin, Cefixime.**

From this observation,we can say that butter milk cannot be used as an additional nutrient when antibiotics like Chloramphenicol,Gentamycin,Amikacin,Streptomycin,Cefixime are used

GLUCOSE WATER:

Before Streaking

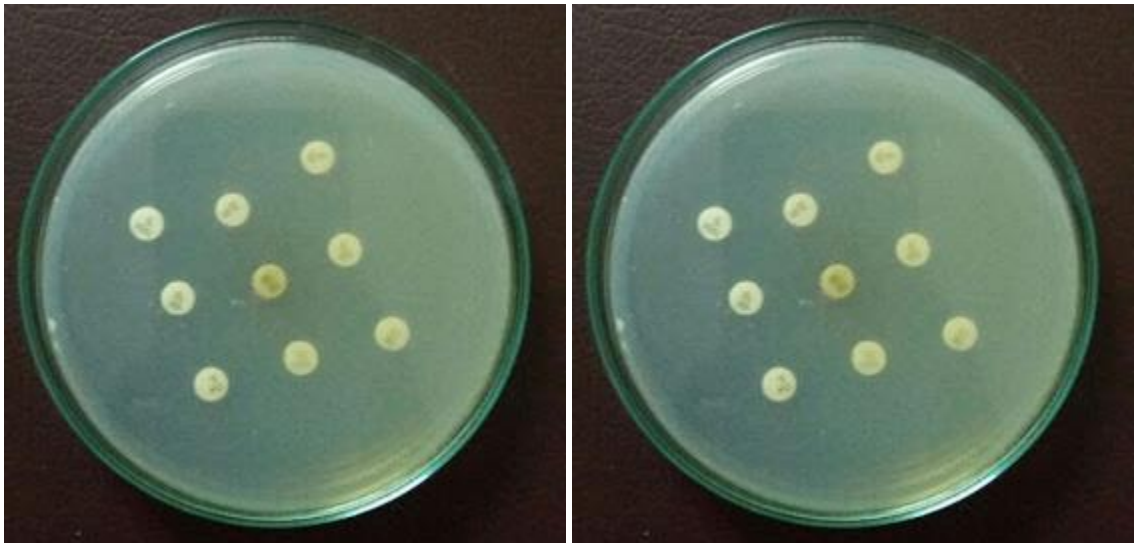


After Streaking

This picture shows the zones of inhibition and zones of growth for different antibiotics when GLUCOSE WATER is used as sample solution .

S.No	Antibiotics	Zone of inhibition	Zone of growth
01	Chloramphenicol	NA	NA
02	Tetracycline	NA	NA
03	Gentamycin	NA	NA
04	Erythromycin	NA	NA
05	Ofloxacin	NA	NA
06	Amikacin	NA	NA
07	Streptomycin	NA	NA
08	Ciprofloxacin	NA	NA
09	Cefixime	NA	NA

MILK:



This picture shows the zones of inhibition and zones of growth for different antibiotics when MILK is used as sample solution .

S.No	Antibiotics	Zone of inhibition	Zone of growth
01	Chloramphenicol	NA	NA
02	Tetracycline	NA	NA
03	Gentamycin	NA	NA
04	Erythromycin	NA	NA
05	Ofloxacin	NA	NA
06	Amikacin	NA	NA
07	Streptomycin	NA	NA
08	Ciprofloxacin	NA	NA
09	Cefixime	NA	NA

From the above two results, i.e., Glucose and Milk there is no clear zone of growth or zone of inhibition.From this ,we can suggest two things …one is the sample may be sterile and the secondly we can say further studies are required in this aspect.

Conclusion: **From** all the above results in our study, we can say, some antibiotics are sensitive to some fluids and some are resistant. So, it can be suggested from our studies to take some fluid more when using antibiotics as some fluids show good nutritive results than some other fluids.

The use of certain fluid is based on the type of antibiotic that we using.

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5.Antimicrobial activity of panchacavya against urinary track infection by DEEPIKA M., NASHIMA K., RAJESWARI S

DEPARTMENT OF ZOOLOGY

Academic Year:(2018-19)

PROJECT WORK ON:----------

Lake ecosystem

SUBMITTED TO DEPARTMENT OF ZOOLOGY

GUIDED BY:

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Lake Ecosystem

A Lake Ecosystem includes, Biotic (living) plants, animals and Micro organisms. Abiotic (non living) physical and Chemical interaction.

Lentic refers to Stationary.

Fresh water lakes vary tremendously in Sizely, depth and nutrient context, encloding distinct life zones and temperature Stratification. Life zones are based on access to light and nutrients.

The distribution of life in lakes depends on access to light, to nutrients and to place for attachment.

The lake ecosystem can be divided into 3 main zones: They are - littoral Zones.
- Limnetic Zones.
- Profondal Zones.

Lake Ecosystem is having two types of Components:

1] Biotic Compounds

2] Abiotic Compounds.

1] Biotic Compounds: It is mainly having three parts They are :- Producers
- Consumers
- Decomposers.

Example for Producers: Plants, mangroves, algae.

Consumers: Insects, Animals, protozoans, Crab, hydra

Decomposers: Detritus feeding bacteria and fungi.

2] Abiotic Compounds: Air, temperature, Soil, water, Sunlight.

1. Littoral Zone :- I found that, lake near my home town having types The littoral Zone is the part of a Sea, Lake or river that is close to the shore. In this zone, the water is shallow and plants find abundant light, anchorage and adequate nutrients from the body sediments. These sediments carried by stream.

Plants in littoral Zone Communities are most diverse water lillies and entirely Submerged vascular plants and Algae loutish at the deepest region of zone living among the anchored plants are microscopic organisms called phytoplankton.

Ex: Small Crustaceans, Insect larvae, Snails, flatworms, Hydra, frog, aquatic snakes and turtles.

phytoplankton (drifting Plants) : Include photosynthetic protista, bacteria and algae.

~~Equal level of~~

Maximum level of Oxygen and photosynthesis and also presence of plants are having.

2] Limnetic Zone: It is open surface waters in a lake, away from shore.

The vegetation of littoral zone surrounds this expanse of open water and it is above Profundal.

This is the main photosynthetic body of lake zone produces oxygen and food that support the lakes consumers.

In this zone enough light penetrates to support photosynthesis. Here, phytoplankton includes cyanobacteria (blue green Algae) which serve as producers. These are eaten by protozoa and small Crustaceans, which in turn are consumed by fishes.

3] Profundal Zone:- It is a deep zone of an inland body of free standing water such a lake located below the range of effective light penetration.

Here, light is insufficient to support photosynthesis The Organisms of this zone are mainly nourished by detritus that falls from the littoral and limnetic zone and by incoming sediment.

Decomposers and detritus feeders, such as snails and Certain insect larvae, bacteria, fungi and fishes inhabit it as this zone's example.

The major community consists of Bacteria and Fungi and three groups of animal consumers:

(a) Blood worms, or haemoglobin containing chironomoid larvae and annelids.

(b) Small clams and

(c) Phantom larvae, or chaoborus are also seen in the profundal zone of lake ecosystem.

Eutrophication

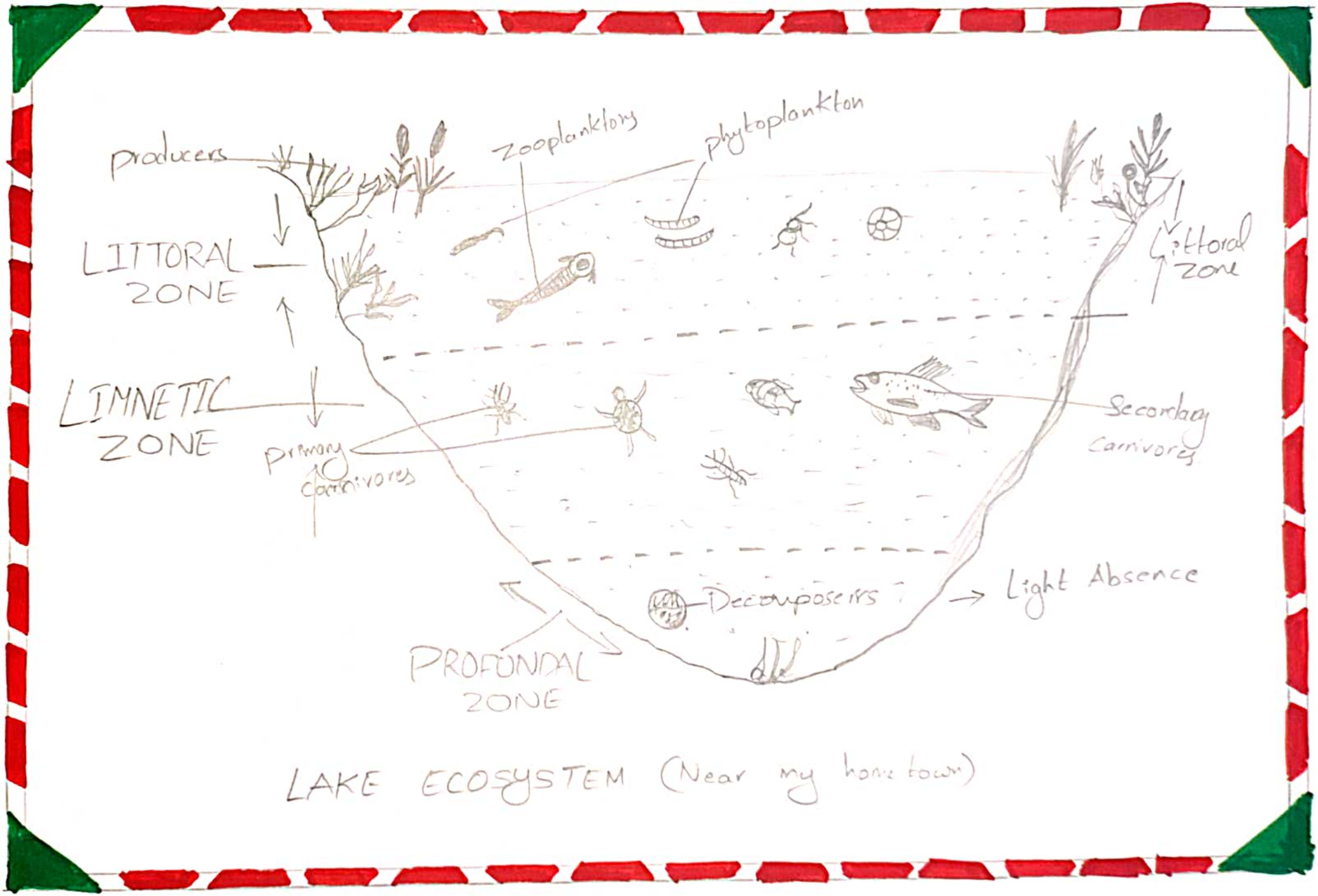
Eutrophication is One type of damage to the lake ecosystem. Along with Acidification. These are the main factors which damage a Lake ecosystem.

Eutrophication arises from the oversupply of nutrients, which leads to overgrowth of plants and algae.

* After such organisms die, the bacterial degradation of their biomass consomes the oxygen in the water, thereby creating the loss of Oxygen.

This process induces growth of plants and algae and due to the biomass load, may result in oxygen depletion of the water body.

ex: The "Bloom" or great increase of phytoplankton in water body as a response to increased levels of nutrients.



LAKE ECOSYSTEM (Near my home town)

Cause :- Eutrophication is almost always induced by the discharge of phosphate-containing detergents, fertilizers, or sewage into an aquatic system.

ECOLOGICAL EFFECTS

* Many ecological effects can arise from stimulating primary production, but there are three particularly troubling ecological impacts: decreased biodiversity, changes in species composition and dominance and toxicity effects.
* Decreases in water transparency (increased turbidity).
* Colour, Smell, and water treatment problems.
* Dissolved Oxygen depletion
* Increased incidences of fish Kills.
* Loss of desirable fish species
* Decreased biodiversity,
* New species invasion,
* Toxicity.
* Increased biomass of phytoplankton.
* Toxic or inedible phytoplankton species.

CONTROL MEASORES

* Use reusable water bottles, not disposable.
* Don't wash your vehicles in driveway, wash it on lawn.
* Dispose of hazardous chemicals properly. Don't dump down the drain, indoors or out.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GOVT.DEGREE & P.G. COLLEGE BHADRACHALAM

BHADRADRI KOTHAGUDEM DIST-507111.

JIGNASA STUDENT PROJECT WORK TITLE

STUDIES ON ECOLOGICAL RISKS TO THE ROHU FISH & CHEMICAL PARAMETERS FROM RESIDUAL OF ITC PSPD DUMP YARD COAL ASH IN GODAVARI RIVER, BHADRACHALAM

DEPARTMENT OF ZOOLOGY

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2. Project Aim & Objectives
3. Review of the Literature
4. Research Methodology & Materials
5. Analysis of Data
6. Research Findings
7. Conclusions &Suggestions
8. Gallery
9. Abbreviations
10. Reference

BONAFIDE CERTIFICATE

Certified that the study project titled "*Studies On Ecological Risks To The Rohu Fish & Chemical Parameters From Residual of ITC PSPD Dump Yard Coal Ash In Godavari River, Bhadrachalam" is the bonafide work of S.B.Z / B.Z.C E/M Students* Md.UmmeaHazia, M.Ruchitha, Y.SaiBala, B.Sowjanya, G. Kavya, R.Rajeswari and is carried under my supervision and is that, this project doesn't represent any other form of project work done earlier.

Signature of Supervisor Incharge of the Department

TITLE OF THE PROJECT

STUDIES ON ECOLOGICAL RISKS TO THE ROHU FISH & CHEMICAL PARAMETERS FROM RESIDUAL OF ITC PSPD DUMP YARD COAL ASH IN GODAVARI RIVER, BHADRACHALAM

Statement of the Problem

The river is not just a water source that is the future of life for generations to come. Since the formation of the rivers, so far its power has served many creatures. rivers are the basis of every creature in creation .Evolution and development started from rivers. So rivers are going to be civilized now the same civilization has become death for rivers but the rivers are still giving life to for those who are harming.

Every creature, essentially human polluting the river, thinking that it is his own property. His work is beyond rivers. But the river is nature property. Everyone should figure it out. Industries power stations agricultural chemicals, transport system and many companies are leaving hazardous substances into rivers. If this is done, the rivers are made only subject topic for future trends. There is a need to reduce the pollution of rivers and to protect river organisms, human beings who are living depending on it. 'Fly-ash' refers to fine particles of ash sent up by the burning of solid fuel-like coal. Typically, this is the residue of ash generated by thermal power companies. Due to its toxic nature, the government has mandated that fly-ash must be dumped in ash ponds, which are specially made on vacant lands. However, this mandate is not strictly observed and casual dumping has resulted in the poisoning of air, water and land in areas close to the power plants. This has also had a negative impact on the health of people living in those areas. Rivers in India have great mythological significance, it is believed that rivers have curative powers, they can wash away our sins bring us closer to god. But what is ironical is that in spite of our profound respect and reverence for our rivers, we have not been able to maintain their purity, cleanliness and their physical well-being. Be it Ganga, Yamuna, Brahmaputra, Kaveri or any other river flowing in the soil of our motherland, not a single river is free from pollution. River pollution has been causing serious water-borne diseases and health problems that are affecting the human population as well as animals, marine life, and birds in the environment. An alarming 80% of India's surface water is polluted, according to the latest assessment by Water Aid, an international organization working for water sanitation and hygiene.

Project Aim:

Accessing the impact of coal ash on Fish community and chemical parameters of river water.

Ash dump yard

Objectives:

- To determine of PH and Temperature
- To determine water hardness & Alkalinity
- To estimate of dissolved oxygen.
- To observe the fish survival rate and color change of scales & gills.
- To analysis the ash components.
- To collect the data of fish quantity, quality and variety of fish ect... Since last 30 years from fishermen's.

Review of the Literature:

Surface water pollution, particularly in rivers, mainly results from the various anthropogenic activities like disposal of partly treated or untreated waste effluents containing toxic metals from different industries The main impact of such threats is the deterioration of the natural biotic communities of the river which in turn disturbs the sustaining aquatic biodiversity (Das et. al., 1997; Ghosh and Vass, 1997). In rivers, fish community structure is a good bio-indicator of environmental stress (Barrella and Petrere, 2003) as such the composition of particular groups in fish communities reflects the level of habitat degradation (Wichert and Rapport, 1998). The river Bhagirathi which is the lower freshwater stretch of Ganga River is one of the major capture fisheries resources of West Bengal. It has a wide range of piscine diversity throughout its stretch (Das and Bandyopadhyay, 2010). The prominent fish species of this river within Murshidabad district consists of the carps, minnows, several catfishes and also the anadromic migratory fish Hilsa (Bhaumik and Sharma, 2011). Composition and relative prevalence of fish species are greatly influenced by their biological interactions as well as physico-chemical qualities of the water body (Hynes, 1963). Different fish species need particular physical environment, chemical quality of water in which they survive, grow and reproduce (Donaldson, 1975; Reash and Jimmile, 1990; Sabo et. al., 1991; Das and Bandyopadhyay, 2010). Mathews (1998) pointed out that the local fish abundance and their dynamics in water are dependent on the environmental stress as well as on their tolerance level to overcome the changes. Thus fluctuation in fish distribution may be an effective bioindicator for determination on qualitative changes in the local aquatic environment and may be used as a biological tool to find out the ecological requirements of the available fish fauna.

Fly-ash from coal fired power stations is known as a potential source of many toxic metals like zinc, chromium, nickel, mercury, arsenic, lead, selenium, cadmium, fluoride etc. in a significant amount (NRC, 2006; US EPA, 2007). Large scale generation of fly-ash from different thermal power stations is now emerging as a serious threat due to problems associated with its disposal (Kumar and Singh, 2001; Bhattacharya and Chattopadhyay (2005). When fly ash and its toxic metals accumulate in the surface water resources cause adverse alteration in aquatic ecosystem (Mn/DOT, 1997). The pollution of rivers and streams with chemical contaminants has become one of the most critical environmental problems (Hosetti et. al., 2010). Fishes are considered as biological indicator of that changing water quality (James et. al., 1986; Gopalakrishnan et. al., 1991; Jeyaraj et. al., 2001). In rivers, fish community structure is considered as a good bio-indicator of environmental stress (Barrella and Petrere, 2003) as such the composition of particular groups in fish communities reflects the level of habitat degradation of that system

(Wichert and Rapport, 1998). Yazolandoost and Katdare (2000) studied the impact of pollution on fish diversity in the stretch of the rivers Mula, Mutha and Pawna, India.

Fish diversity depends greatly on the limnological parameters of water body. The fluctuation of the water quality affects the fish species distribution. The biological and physico-chemical characteristics of water of the river Saraswati, West Bengal were studied by Ghatak and Konar (2003) and found change due to the toxic effect of industrial effluents. Water quality and fish community structure reflected a higher degree of pollution in the Churni River (Chakrabarty and Das, 2006). Ghosh and Konar (1991) even recorded a loss of fish species in the Churni as a result of water pollution and ecological degradation. Though the water quality of river Ganga is optimum for fisheries in some stretches but pollution has reflected its impact on its fish abundance and composition. Jhingran (1988) reported acute mortality of the fish Rita rita caged for 24h near the paper mill during summer and winter in the river Ganga. Surfacing of fish near the outfall of pulp and paper mill, mortality of young prawn and crabs in the outfall of thermal power station also reported by him. In fact, the catch statistics over the years indicate some disturbing trends in the Ganga.

The biologically and economically desirable species i.e. Indian Major Carps (IMC) is being replaced by low valued miscellaneous fish species. Besides, the fish spawn availability of IMC has also declined drastically (Jhingran, 1991). A fish species diversity study was undertaken by Jeyaraj et. al. (2001) at river Pantikal, Tamil Nadu, loaded with coconut husk retting effluent. In addition, the severe impacts of industrial effluents disposed into various river systems in India have been reported from time to time resulted into huge loss in aquatic lives including fish which shows the degraded condition of the rivers in the country (Das et. al., 2007). Metal is a point source pollutant and its effects were found more in the rivers because they are discharged mostly in the rivers in untreated condition as effluents. Kar et. al. (2008) reported that the dominance of various heavy metals in the river Ganga in lower basin followed the sequence: Fe> Mn> Ni> Cr> Pb> Zn> Cu> Cd. Metal contamination in the river Ganga, its tributaries and the tidal waters has been reported by several workers (Mohammed et. al., 1987; Samanta et. al., 2007).

Research Methodology & Materials:

1. Coal ash(White)
2. Coal ash(Black)
3. Godavari river water
4. Aquarium
5. Rohu Fish
6. PH meter
7. Thermometer
8. Electronic weighing machine
9. Beaker

10. Burette
11. Pippet
12. Stand
13. Fish Meal
14. Conical flask
15. Chemicals and reagents.

Fly Ash:

Fly ash is one of the coal combustion residue produced during combustion of coal at thermal power plant. In international context India, China, U.S.A, Germany, UK, Australia, Canada and France are the major fly ash producer countries. Produced fly ash is a major concern for management of thermal power plant and also for environmental aspects. On the world scenario, India is the highest producer of thermal fly ash. Only 38% of its production is utilized for various purposes . The residual fly ash remains as a potential source of waste product of the thermal power plants containing different toxic heavy metals like zinc (Zn), chromium (Cr), nickel (Ni), mercury (Hg), arsenic(As), lead (Pb), selenium (Se), cadmium(Cd) etc. in a significant amount in its basic composition (NRC, 2006; US EPA, 2007).

Nature and properties of fly ash:

Fly ash, a by-product of the coal combustion in thermal power plants, is predominantly an amorphous ferro-alumino silicate having a property of deposition as sediments (Kumar et al., 1998; NRC, 2006; US EPA, 2007).

The physical, mineralogical and chemical properties of coal ash depend largely on the geographical origin of the source coal composition of the parent coal, conditions during coal combustion, efficiency of emission control device, storage and handling of product and climate (Adriano et al., 1980; el-Mogazi et al., 1988). Physically fly ash occurs as very fine spherical grey or brown particles. Some physical properties of fly-ash are described in Table 10. Kumar et al. (2000) described that these particles have an average diameter of less than 10µ while some workers stated the sizes vary from 0.01 to 100µ (Davison et al., 1974; Shrivastava and Shrivastava, 2012). A number of workers (Natusch, 1975; Fisher et al., 1976; Page et al., 1979) have shown that the coal ash contain ‘cenospheres’ (hollow spherical particles) and ‘plerospheres’ (large spheres containing smaller spheres). As a whole such ash has a large surface area. Adriano et al. (1980) referred that the specific surface areas for bottom ash, mechanical collector hopper ash and electrostatic precipitator ash were 0.38, 1.27 and 3.06 m2/gm respectively.

Rohu

Scientific classification	
Kingdom:	Animalia
Phylum:	Chordata
Class:	Actinopterygii
Order:	Cypriniformes
Family:	Cyprinidae
Subfamily:	Labeoninae
Genus:	*Labeo*
Species:	***L. rohita***
Binomial name	
Labeo rohita	

The **rohu**, **rui**, or **roho labeo** (*Labeo rohita*) is a species of fish of the carp family, found in rivers in South Asia. It is a large omnivore The rohu is a large, silver-colored fish of typical cyprinid shape, with a conspicuously arched head. Adults can reach a maximum weight of 45 kg (99 lb) and maximum length of 2 m (6.6 ft), but average around ½ m (1.6 ft The rohu occurs in rivers throughout much of northern and central and eastern India, Pakistan, Bangladesh, Nepal and Myanmar, and has been introduced into some of the rivers of Peninsular India and Sri Lanka The species is an omnivore with specific food preferences at different life stages. During the early stages of its lifecycle, it eats mainly zooplankton, but as it grows, it eats more and more phytoplankton, and as a juvenile or adult is a herbivorous column feeder, eating mainly phytoplankton and submerged vegetation. It has modified, thin hair-like gill rakers, suggesting that it feeds by sieving the water.

Rohu reach sexual maturity between two and five years of age. They generally spawn during the monsoon season, keeping to the middle of flooded rivers above tidal reach. The spawning season of rohu generally coincides with the southwest monsoon. Spawn may be collected from rivers and reared in tanks and lakes.

The Godavari Basin

This is the longest Peninsular river. Its drainage basin is also the largest among the peninsular river basins. The Godavari is about1465 km long.It originates from the slopes of the Western Ghats in Nasik district of Maharashtra and drains into the Bay of Bengal. The Godavari basin covers parts of aharashtra, Madhya Pradesh, Orissa and Andhra Pradesh. Purna, Wardha, Pranhita, Manjra, Waiganga and enganga are the main tributaries of Godavari.

Methodology:

We collect the black and white ash samples on dump yard and took it as a sample A (White ash) Sample-B(Black ash) Total 5 aquarium pots(3Lit capacity) have taken.In that 1st aquarium is control(direct Godavari river water) 2nd aquarium is sample A1 treated (3lt Godavari water+ 0.05% White ash) 3rd aquarium is treated A2(3ltGodavari water+0.1%) 4th aquarium is treated B1(3lt Godavari+Black0.05%) 5th aquarium is treated is B2(3lt Godavari+0.1%) have taken.

Godavari water has been poured at the rate of 3lits in 5 pots. White ash add A1 & A2 pots at the rate 0.05% & 0.1% in order. black ash add B1 & B2 pots at the rate 0.05% & 0.1 % in order mix thoroughly by glass rod in 5 pots 1st aquarium pot poured only river water.

Rohu fish was brought from palair fish seed centre and laid down them in pots at the rate of 3 in each aquarium artificial food is taken as food for fish. Fish sizes, water quantity food supply was taken in equal in all aquariums section same lab conditions are maintained same.

Experiment Setting

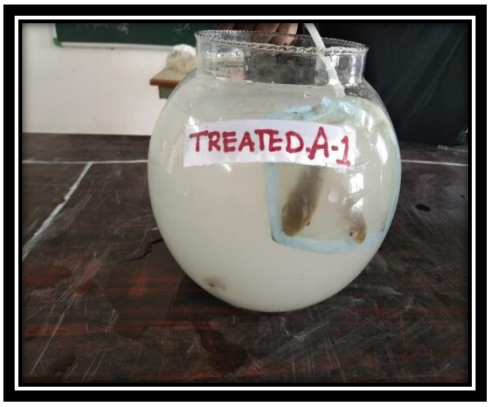
Control:

Sample - A

Sample B


SAMPLE-B


SAMPLE-B


TREATED-A-1


TREATED-A-2


CONTROL
CONTROL


TREATED-B-1


TREATED-B-2

- **pH** - Directly measured by Digital pH meter:
- **Temperature:** measured by Thermometer
- **Alkalinity :-**

  Test Method: Titrimetric method

  Apparatus: Burette 50ml,Bulb pipette 25ml,Volumetric flask 1000ml,100ml,Beaker 100ml,Conical flask 250ml.

Procedure:

pipette of 25ml sample into 100ml beaker. If the pH of the sample is more than 8.3,then ,add 2 to 3 drops of phenolphthalein indicator and titrate with standard sulphuric acid solution, till the pink color disappears. Record the volume of standard sulphuric acids solution used. Then add 2 to 3 drops of mixed indicator or methyl orange solution and then titrate with standard sulphuric acid to light pink color. Record the volume of standards acid consumed and record the end point. The alkalinity as CaCo3 is calculated by using the following formula:

Phenolphthalein Alkalinity as CaCo3 mg/lit=AxNx50000/ml odf sample

A=Volume of std. Sulphuric Acid required by the sample.

N=Normality of acid used.

Total alkalinity as caco3 mg/lit=(A+B)xNx50000/ml of sample

B=Volume of std. Sulphuric Acid required by the sample(Methyl orange) from pH 8.3 to pH 4.5

- **Hardness**: To determine the hardness of the water sample to verify whether it is in the permissive limits 200 mg/lt to 600 mg/lt as per IS 10500:2012.

Chemicals/Reagents:

Ammonia buffer solution, Standard calcium solution, Erichrome black-T indicator solution,Standard ETDA solution, 10% Hydroxylamine Hydrochloride.

Test Method: ETDA Titration method. This method is based on standard IS-3025 Part-21

Apparatus:

150 ml beaker, Bulb pipette 25ml, Volumetric flask 1000,500 & 250 ml, Conical flask 250 ml,

Burette 50ml.

Procedure:

Volumetrically measure 25ml of water sample into a conical flask. Add 1-2 ml of Ammonia buffer and 2 drops or pinch of Erichrome Black T indicator and add 2 drops of 10% Hydroxylamine Hydrochloride. Record the starting titrant reading on the Burette(A).Titrate slowly with standardized ETDA solution while swirling the sample until the color changes from wine Red to Blue. Record the end titrant of the Burette as the end point (B).The volume of ETDA required by the sample(C=B-A) volume of ETDA consumed for analysis.

Calculation:

Total Hardness in mg/lit=[1000(V1-V2)/V3 X CF(as CaCo3)

V1=Volume in ml of the ETDA standard solution used in the titration for the sample.

V2=Volume in ml of the ETDA solution used in the titration for blank

V3=Volume in ml of the sample taken for the test,

CF=X1/X2=correction factor for standardized of ETDA

X1=volume in ml of standard calcium solution taken for standardization, and

X2=volume of ml of ETDA solution used in the titration.(OR)

You can use the following equation

Total Hardness in mg/lit(as CaCo3)=Vol of ETDA X Normality of ESTA X 50 X 1000/Vol of the sample

- **Dissolved oxygen**

Do analysis procedure.:

Collect the water sample in a BOD bottle. Add 2ml manganese sulphide solution Add 2ml alkali iodide azide solution and shake it and keep it aside for 2-5 minutes to get a brown precipitate. Add 2ml concentrated sulphuric acid (Sulphuric acid dangerous handle it carefully and swirl the bottle the brown precipitate will become yellow solution. Transfer 100ml of the above solution into a conical flask with the help of measuring cylinder. Fill the burette with 0.0125N hypo solution and record the initial burette reading(BR).Titrate the solution taken in the conical flask till the solution becomes pale yellow. Add 1 to 2 drops starch solution the solution

becomes dark blue. Continue the adding the hypo solution with the burette till the solution is colorless and record the final burette reading.Preparation of starch solution take about 10grms starch powder in a 100ml beaker little water to make it slurry. Take another 100ml beaker and put about 50 distilled water boil it while boiling add the starch slurry and remove the beaker from the flame and cool it. Use these cooled starch solution for the Do analysis.

Calculation D.O:-

D.O in mg/l=FBR-IBR x 0.0125 x 8 x 1000/98.7

Physical properties of fly-ash

These reports are taken from Singareni mines Lab Manuguru

Data collection of fish in Godavari:

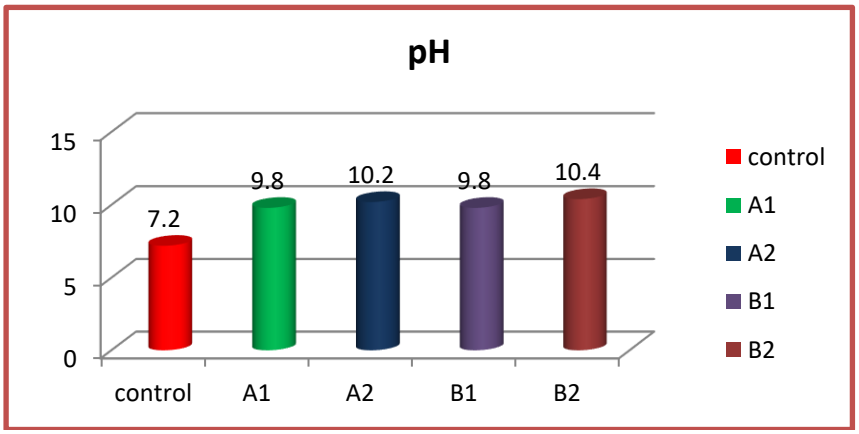
Required data collected from local fishermen street (Ambha sathram Area)

Analysis of Data:

pH & Temperature:

S.no	Sample	Sample	PH	Temperature $_0{}^c$
1	Control		7.2	27^c
2	Sample –A (Treated)	A1	9.8	30-32
		A2	10.2	32-33
3	Sample –**B** (Treated)	B1	9.8	30-32
		B2	10.4	32-33

Table - 1



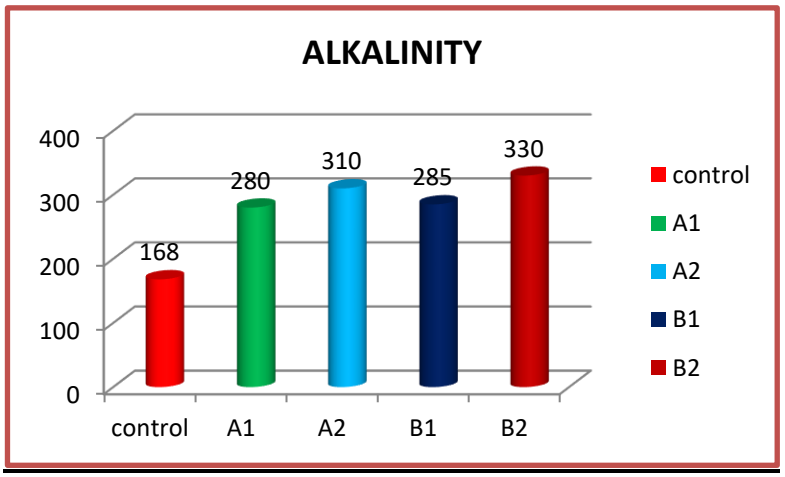
Graph – 1

- Control & A1 differences treated A1 sample shows more 26 %.
- Control & A2 differences treated A2 sample shows more 28.71 %.
- A1 & A2 differences treated A2 sample shows more 4.85 %.
- Control & B1 differences treated B1 sample shows more 28.71 %.
- Control & B2 differences treated B2 sample shows more 32.07 %.
- B1& B2 differences treated B2 sample shows more 4.71 %

Alkalinity:

S.no	Sample	Sample	Alkalinity(mg L^{-1})
1	Control		168
2	Sample –A (Treated)	A1	280
		A2	310
3	Sample –**B** (Treated)	B1	285
		B2	330

Table - 2



Graph - 2

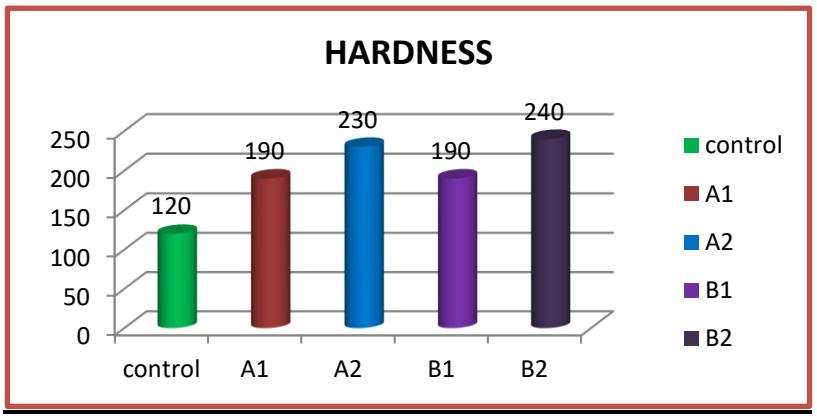
Sample Testing

- Control & A1 differences treated A1 sample shows more 30 %.
- Control & A2 differences treated A2 sample shows more 42.46 %.
- A1 & A2 differences treated A2 sample shows more 17.80 %.
- Control & B1 differences treated B1 sample shows more 31.14 %.
- Control & B2 differences treated B2 sample shows more 43.62 %.
- B1& B2 differences treated B2 sample shows more 18.12 %.

Hardness:

S.no	Sample	Sample	Hardness(mg L^{-1})
1	Control		120
2	Sample –A (Treated)	A1	190
		A2	230
3	Sample –**B** (Treated)	B1	190
		B2	240

Table - 3



Graph - 3

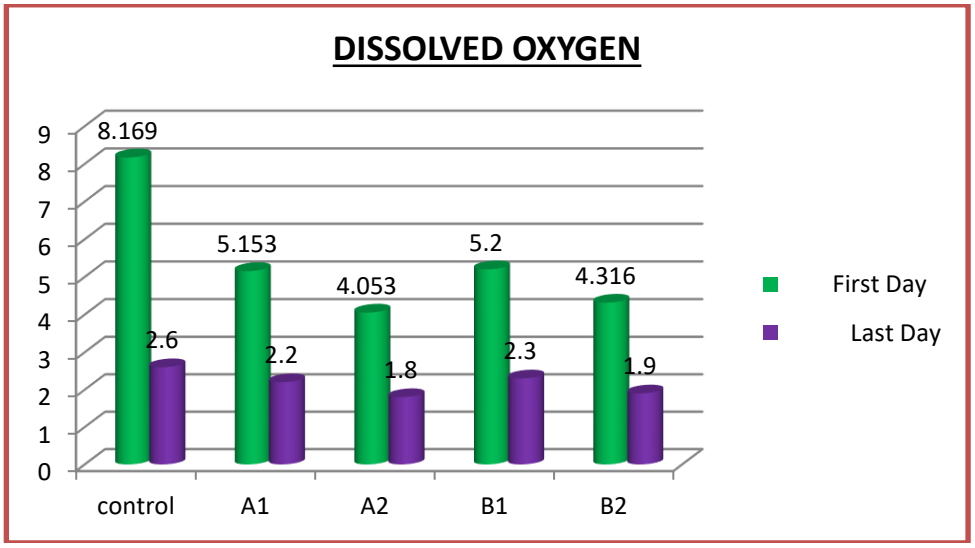
Sample Testing in CWS

- Control & A1 differences treated A1 sample shows more 36.84 %.
- Control & A2 differences treated A2 sample shows more 47.82 %.
- A1 & A2 differences treated A2 sample shows more 17.39 %.
- Control & B1 differences treated B1 sample shows more 38.46 %.
- Control & B2 differences treated B2 sample shows more 50 %.
- B1& B2 differences treated B2 sample shows more 18.75 %.

Dissolved Oxygen

S.no	Sample	Sample	DO(mg/l)	
			First Day	Last Day
1	Control		8.169	2.6
2	Sample –A (Treated)	A1	5.153	2.2
		A2	4.053	1.8
3	Sample –**B** (Treated)	B1	5.20	2.3
		B2	4.316	1.9

Table - 4



Graph - 4

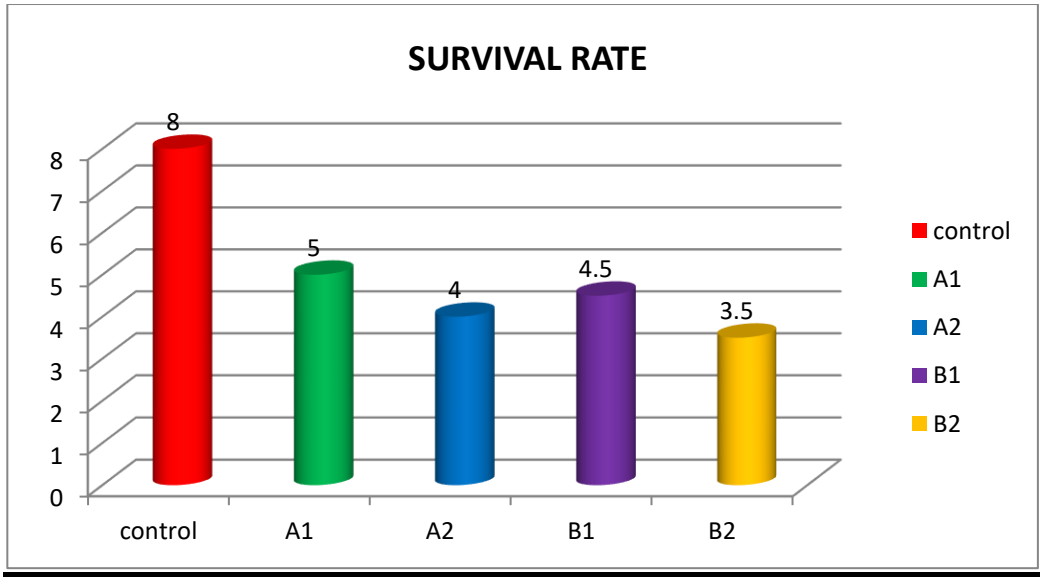
Sample Testing in CWC

- Control & A1 differences treated A1 sample shows less 36.92 %.
- Control & A2 differences treated A2 sample shows less 50.38%.
- A1 & A2 differences treated A2 sample shows less 21.34 %.
- Control & B1 differences treated B1 sample shows less 36.34 %.
- Control & B2 differences treated B2 sample shows less 47.16 %.
- B1& B2 differences treated B2 sample shows less 17 %.

Survival Rate / Gill Color/ Scale color:

S.no	Sample	Sample	Survival Rate	**Gill color**	**Scale color**
1	Control		8 days	Normal	Normal
2	Sample –A (Treated)	A1	5 days	Light White	Light White
		A2	4 days	Thick White	Thick white
3	Sample –**B** (Treated)	B1	4.5 days	Light Black	Light Black
		B2	3.5 days	Thick black	Thick black

Table – 5



Graph -5

- Control & A1 differences treated A1 sample shows less 26.66 %.
- Control & A2 differences treated A2 sample shows less 46.66%.
- A1 & A2 differences treated A2 sample shows less 27.27 %.
- Control & B1 differences treated B1 sample shows less 26.66 %.
- Control & B2 differences treated B2 sample shows less 46.66 %.
- B1& B2 differences treated B2 sample shows less 27.27 %.

Dead Fish in Aquarium

Sample A

Sample B

Gill Color:

Control-Gill

A1-Gill

A2-Gill

Control-Gill

B1-Gill

B2-Gill

Scale Color:

Control

A1

A2

Control

B1

B2

Table: Some physical properties of fly-ash

S.no	Parameters	Properties
1	Color	Gray, Brown/black/white
2	Shape	Spherical
3	Size	1-100 µ
4	Specific gravity	1.90-2.55
5	Plasticity	Non-Plastic
6	Max.dry density(gm/cc)	0.90-1.60
7	Optimum moisture content(%)	38-18
8	Permeability(cm/sec.)	105-103
9	RH Moisture	4.70
10	RH ash (%)	55.73
11	Fixed carbon	14.97

Table -6

Note: Results taken from Singareni Mines Lab, Manuguru

Germination Chemical composition

Elemental constituents Quantity (%)	At Neyveli	At Bandel	At Tuticorin
Silica as SiO2	45 – 59	60.10	41.29-67.69
Alumina as Al2O3	23 – 33	17.88	13.94 – 25.62
Iron as Fe2O3	0.6 – 4 6	. 90	3.13 – 6.71
Titanium as TiO2	0.5 – 1.5	1.73	Not recorded
Calcium as CaO	5 – 16	1.53	0.44 – 2.24
Magnesium as MgO	1.5 – 5	1.25	0.28 – 1.81
Sulphur as SO3	2.75	0.20	**Traces**

Table - 7

Source (Sivagnanam et al., 2001), Bandel fly ash (Tripathi et al., 1997) and Tuticorin fly ash (Pillai, 2003)

Data collection from fisherman

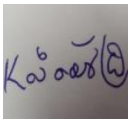
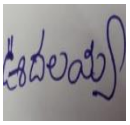
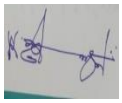
Name		Simhdramma	Udalaiah	KSrinivas	Venkateswarlu	Raju	Govindamma
Age		40	45	44	50	35	40
Occupation period		20	25	20	35	15	20
Quality of fish	Starting	Good	Good	Good	Good	Good	Good
	Present	Below Average	Below Average	Below Average	Below Average	Below Average	Below Average
Capture Quantity KG/ Day	Starting	30 to 40	40 to 50	50 to 60	30-40	25	40 to 50
	Present	2 to 3	2 to 4	4 to 6	2 to 3	2 to 3	2
Size /Weight KG	Starting	5 to 10	5 to 10	5 to 10	5 to 10	8 to 10	5 to 10
	Present	1 to 2	1 to 2	1 to 2	1 to 2	Below 1	1 to 2
Variety of fish types	Starting	10 to 12	12 to 14	10 to 12	10 to 12	8 to 10	10 to 12
	Present	2 to 4	2 to 4	2 to 4	3 to 4	3 to 4	2 to 4
Cost per Kg	Starting	30 to 40	30 to 40	30 to 40	20 to 40	50 to 60	30
	Present	150 to 200	150 to 200	150 to 200	150 to 200	200 to 220	150 to 200
Income per Day	Starting	300	300	300	400	500	300
	Present	500	500	600	600	600	600
Signature							
Photo							

Table - 8

Average of Fishermen's Data:-

Quality of fish	**Starting**	**Good**
	Present	**Below average**
Capture Quantity time	**Starting**	**40 to 50 kgs**
	Present	**2 to 5 kgs**
Size /Weight	**Starting**	**5 to 12 kgs**
	Present	**1 to 2 kgs**
Variety of fish	**Starting**	**12 to 14 types**
	Present	**2 to 4 types**
Cost per Kg	**Starting**	**30 to 40 Rs/kg**
	Present	**150 to 200**
Income per Day (Rs)	**Starting**	**300-400**
	Present	**400-600**

Table - 9

Result:-

Present study showed that highly differences were observed in control and treated samples. pH, Temperature, Alkalinity, Hardness were more in treated samples B2,B1,A2,A1 in respective order. But dissolved oxygen is more in control, less in B2,B1,A2,A1 in respective order. Gill & Scale color normal in control but gradual increase A1,B1,A2,B2 in respective order. May be these factors cause low density rate of fish in river. This leads to financial burden & health disorders to both consumers & fishermen's.

Conclusion & Suggestions:

The present study conclude that there is more impact of ash on fish growth & chemical fluctuations in water its leads to river pollution and financial effect health disorders to consumers & fishermen's. Hence we suggest some suggestions to minimize this problem.

a. The present study conclude that the fly ash has highly impact on fish survival rate and biochemical impact on river water .
b. River conservation legislation must be proper implemented. Punishments and penalty should be imposed.
c. At least 5km on either side of the river should be seen with no dump yard.
d. RP(river protection) system the river protected should be kept and protected by government for every 10 km along with river basin.
e. In all people need to improve of awareness.
f. UG students organization: The establish of UG level student organization on the river basin UG level colleges(Private & Govt.)take this as challenge and establish organization and take proper action.

Gallery:

Ash Dump yard – Godavari River Bhadrachalam

Sample Collection

Sample Collection

Mixing of sample

Shifting of Fish

Lab work-Titration

At Central water Commission

D.O testing at C.W.C

At Rural water supply office

Sample testing at R.W.S

At singareni mines lab

At singareni mines lab

Ash testing at singareni mines lab

Ash testing at singareni mines lab

At fish market

Godavari fish

Varieties of godavari fishes.

Interaction with fisher man

Jignasa team

Abbreviations

PSPD –Paper board and speciality papers division.

ITC- International trade centre.

EDTA-Ethylenediaminietetraacetic.

DO-Dissolved oxygen.

IBR-Indian Burette Reader.

N-Normality.

FBR-Final burette reading.

C.W.C:-Central Water Commission

R.W.S:- Rural Water Supply

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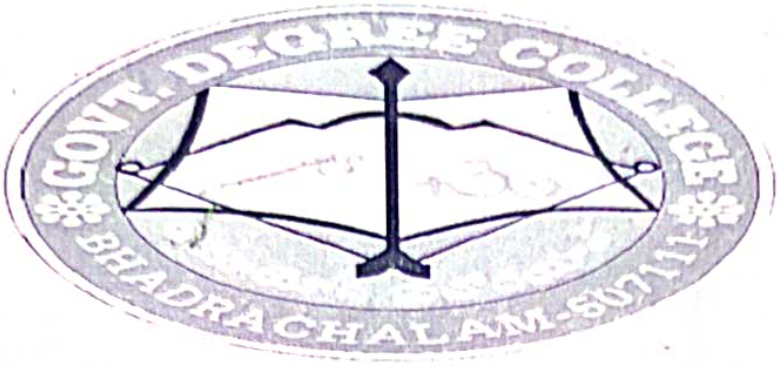
2019-20

DEPARTMENT OF ZOOLOGY



ACADEMIC YEAR ([redacted])

PROJECT WORK ON : IDENTIFICATION OF CARBONATES IN GODAVARI RIVER – BHADRACHALAM

SUBMITTED TO DEPARTMENT OF ZOOLOGY

GUIDED BY: B. VENKATESHAM

SUBMITTED BY

033-14

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(AFFILIATED TO KAKATITA UNIVERSITY, WARANGAL.)

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1. Introduction
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3. Table
4. calculation
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6. conclusion
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PROJECT WORK:

ప్రభుత్వ డిగ్రీ మరియు పి.జి కళాశాల ఆంతరశాస్త్ర విభాగానికి చెందిన ద్వితీయ సంవత్సర ప్రాజెక్టు వర్కులో భాగంగా గోదావరి నది నీటిలోగల కార్బొనేట్ల గాఢతను కనుగొంటిమి.

ఈ ప్రాజెక్టు వర్కులో గాజు నీసాలు, కొలజోడి, బ్యూరెట్టు, పిపెట్టు, కొనికల్ ఫ్లాసుక వంటి పరికరాలను ఉపయోగించి లిమి.

లిట్మస్ A, B, C HCl ద్రావణంను, ఫైనాప్తలీన్ సూచిక మొదలైన రసాయనవస్తువులను ఉపయోగించి లిమి.

ప్రయోగ విధానము:-

ఒక సన్నని మూతగల గాజు నీసాలో గోదావరి నీటిని తీసుకొని దానికి రెండు నుంచి మూడు చుక్కల ఫినాఫ్తలీన్ సూచికను కలిపిలిని ద్రావణం గులాబి రంగులోకి రంగులో మారును. దీనిని బ్యూరెట్ లోని హైడ్రోక్లోరిక్ ఆమ్లంలో అంశమాపనము చేయుటం వలన గులాబి రంగులోకి వర్ణరహిత వర్ణముగా మారినది.

ఇవ్వబడిన ఫ్యూరెట్ లోని లోపి, తుది తీడింగులను గుర్తించి గోదావరి నీటిలోగల కార్బొనేట్ ల గాఢతను కనుగొనగలము.

S. No	గోదావరి నీటి ఘనపరిమాణం	ఫ్యూరెట్ తీడింగు.		భేదము
		లోపి	తుది	
1.	20 mL	0 mL	10.5 mL	10.5 mL
02.	20 mL	10.5 mL	21 mL	10.5 mL

అంశ మానము లోపివిలువ = 0mL

అంశేతరమానం తుది విలువ = 10.5mL

భేదము = 10.5mL

గోదావరి నీటిలోగల కార్బొనేట్ల గాఢత = ఫ్యూరెట్ రీడింగ్ × కార్బొనేట్ల అణుభారం / నెట్ల ఆణుభారం

ఫ్యూరెట్ రీడింగ్ × కార్బొనేట్ల అణుభారం

= 10.5 × 60

= 63.0 PPM

ముగింపు:- భద్రాచలంలో ప్రవహిస్తున్న గోదావరి నది నీటిలో గల కార్బొనేట్లు 63.0ppm ఉన్నవని project work ద్వారా కనుగొంటిమి.

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GOVT.DEGREE & P.G. COLLEGE :: BHADRACHALAM

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8. **Research Findings**
9. **Suggestions**
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Title of theProject

A study of socio – Economic Development of Tribes in Bhadrachalam Forest area by utilizing the forest plant produce.

Statement of the problem & Hypothesis

In bhadrachalam forest area some tribal people and others main occupation is agriculture,but most of the tribal people are depending on seasonal collection of Non-timber forest produce besides agriculture for their income.

AIM

To know the purpose of socio – economic development of tribal people of Bhadrachalam forest area by collecting the non timber forest products

OBJECTIVES :

- **To know about the Non timber forest produce of Bhadrachalam forest area.**
- **To know about the production areas of different NTFP's of Bhadrachalam forest area.**
- **To know how much the tribal people gaining income from collecting the NTFP's .**

INTRODUCTION :

Bhadrachalam forest area constitutes Wazeedu,Venkatapuram,Kunavaram, VararamaChandrapuram and Chintoor. The total geographical area of Bhadrachalam forest division is 1,96,500Ha with 1,45,000ha under forest. Bhadrachalam forest division is a territorial wild life division. The terrain shows great variation in the altitude with constituting high range of hills. Bhadrachalam forest division which is one of the major tribal inhabited area in Telangana and Andhra Pradesh.Bhadrachalam forest area is mostly along the Godavari river banks well marked plants are present. The indigenous communities live in the interior parts of forest area. An extent of 2000 Ha has been provided as tribal settlements inside the forest area.

The main tribes of Bhadrachalam forest area are koyas and Kondareddies,.Kondareddies are primarily shifting cultivators and largely depend on flora and fauna of forest for their livelihood. They eat a variety of tubers, roots,leaves,fruits of the forest, and they collect and sell non timber forest produce (NTFP) like Tamarind, Broom sticks,Ippapuvvu, Thuniki fruits, Addakuetc to gain or meat their income. They cultivate largely Jowar, chodi, red gram, Bajra, Beans, Paddy& Pulses.

The another group the Koyas are mainly settled cultivators, they grow Jowar, Ragi, Bajra, and other millets. They collect tubers, roots and fruits from forest. The economy of the people is largely depended on the economically useful plants of the forest area namely Non timber forest products and agricultural products.

Review of Literature:

NTFP's also known as minor forest produce, special, non wood , alternative and secondary forest produces. These produces are useful substances , materials or commodities obtained from forests which do not require harvesting trees. They include some fruits, nuts,seeds,mushrooms,oils,foliage,pollardings,peat,mast,fuelwood, spices and forage.

Research on NTFP's have focused on their commoditiability for rural incomes and markets, as an expression of traditional knowledge or as a livelihood option for rural household needs and as key component of sustainable forest management and conservation strategies.

In recent years there has been rapid increase in the interest in NTFP's among civil society, conservation development organizations and government agencies. It is mainly due to the changing legal scenario in the country with introduction of forest rights and community control over natural resources. Civil society understand the utility of NTFP's in their day today lives and how their importance in tribal people.

NTFP's are playing significant role in employment generation and economy of the country. They are providing employment to several million people in India.Differentvarieties of NTFP's have contribution in tribal economy. About 14 NTFP's are estimated and their approximate production value is Rs.4,000/- crores.

Tendu leaves are have high production value, later on Bamboo and Mohuwa seed and flower. Tendu leaves are used for wrapping bedies. Tendu leaves are one of the most important NTFP's species in central India. Collection of tendu leaves and beedi rolling providing employment to many people.

Research Methodology & Materials:

In the part of project work, we taken some villages as sample unit fromDummugudem,Charla,Chintoor , Wazeedu, Kunavarammandals of Bhadrachalam forest area.When we visited those villages , there we interacted with the villagers and local tribal people about forest produce. They gave the information about the plant produces, seasonal collection of plant parts and how they get income from them by selling to GCC-ITDA in addition to agriculture. We requested to furnish the information on plant local name and useful plant parts or plant products.Howmany days they will engaged in products collection and how much they collect for a day. We also got information from GCC-ITDA, Bhadrachalam. We collected the data and later identified by using floras.

Result and Discussion :

In this study we came to know about plant products are mainly collected by tribal people. About 20 – 25 plant products are collected and sell them to GCC – ITDA and individually in local / village markets. Some seasonal plant fruits and wild edibles they will sell in weekly local markets which are called as santha

Some of the wild edibles are as follows :

1. **Thuniki (Diaspyrosmelanoxylon)**
2. **Movva flowers (Ippapuvvu)(Madhucalatifolia)**
3. **Etha (Phoenix sylvestris)**
4. **Chintha (Tamarindusindica)**
5. **Pala (Manilkarahexandra)**
6. **Ginne (Syzygiumcumini)**
7. **Pariki (Scutiyamytrina)**
8. **Ullenda (Diaspyroschloroxylon)**
9. **Morli /Sarapappu (Buchananiaauxillaris)**
10. **China morli (Buchamialanzen)**
11. **Regu (Zizypusmaurifiana)**
12. **Custard apple(Annonasquamosa)**
13. **Nakkera (Cordiadichotoma)**
14. **Tegalu (Borassusflabellifer)**
15. **Kalimikayalu (Carissa carandus)**
16. **Akakara (Momordicadioca)**

The list of forest plant produce collected by Tribal People

S.No	Name of the Plant	Collecting period	Quantity they collect per day
1	Musti seeds	February-March	2Kg
2	Thunikaku (Tendu) leaves	April-May	50 Bunches
3	Chilla seeds	February-March	2 Kg
4	Karakkayalu	Summer season	5Kg
5	Thanikaya	Summer season	4Kg
6	Ippapuvvu	February-March	5Kg
7	Usiri	October-December	2 Kg
8	Vippa seeds	May	2 Kg
9	Tabsijiguru	October - November	-
10	Mamidi	March-June	-
11	kunkudu	May	2 Kg
12	Chintha	March – May	5 Kg
13	Dulagondi seeds	April-June	2Kg
14	Honey	Summer season	-

The list of forest plant produce collected by Tribal People Andthe rate given by GCC :

S.No	Vernacular Name	Scientific Name	Family	Collected plant part	Rate given by GCC per 1 kg in rupees
01	Chinta	TamarindusIndica	Caesalpinoidae	Dry Fruit	45/- (Without Seed) 30/-(With seeds)
02	Musti	Strychnos nux-vomica	Loganiaceae	Seeds	45/-
03	Chilla	Strychnospotatorum	Loganiaceae	Seeds	35/-
04	Thuniki	Diaspyrosmelanoxylon	Abanaceae	Leaves	20/-(for 50 leaves)
05	Usiri	Emblicaofficinalis	Euphorbiaceae	Dryfruits	45/-
06	Ippa	Madhucalatifolia	Sapotaceae	Fleshy flower cotyledons	15/-
07	Mamidi	Mangiferaindica	Anacardiaceae	Fruit	35/-
08	Thabsichettu	Sterculiaurens	Sterculiaceae	Gum	Grade one : 250/- Grade two : 130/- Grade three :50/-
09	Thirumanu	Anogeissuslatifolia	Combrataceae	Gum	Grade one : 80/- Grade two : 60/- Grade three :50/-
10	Karaka	Terminaliachebula	Combrataceae	Dryfruit	6/-
11	Tani	Terminaliabellerica	Combrataceae	Dryfruit	8/-
12	Chipurugaddi	Aristidasetacea	Poaceae	Culm	30/-
13	Gacchakaya	Caesalpiniabanduc	Casalpinoidae	Dry Seeds	25/-
14	Kunkudu	Sapindusemarginatus	Sapindaceae	Dry fruits	10/-
15	Addaku	Bauhinia vahli	Caesalpinoidaeae	Leaves	20/- (for 50 leaves)
16	Kondgogu	Cochlospermumgossypium	Bixacaeae	Gum	200/-
17	Honey				140/-
18	Honey wax				120/-

Available Regions :

- **Nux-vomika**grows in sand and river belt regions and available in Gundala, Manuguru, Ashwapuram, Charlamandals and villages like Sainapalli, Janampeta, Gollagudem, Anantharam,Regalla etc..
- **Chillaginjalu** (Cleansing nuts) are available in Dammapeta
- **Mova flowersand seeds**(Ippapuvvu)are mostly available in Bhadrachalam and Gundalamandals
- **Pongamia**(Kanuga seeds) are available in Dammapeta and Manuguru.
- **Dry amla pulp** is available in Charlamandal and Chattisgarh boarder villages.
- **Honey** is available in Charla ,Manuguru, Aswapuram, Gundalamandals in addition to this honey wax is also available in all the above mandals.
- **Maredugaddalu**(Sugandhipalaroots) are available in VenkatapuramWazeedu
- **Gum karia**and **Tamarind** is available in all above mandals.
- **Tabsi gum** is collected from chintoormandal**.**

Uses of Non timber forest products :

- Cleaning nuts are used in the purification of water.
- Movaflower(vippapuvvu) is used in the preparation of alcohol.
- Mova seeds are used in preparation of oil and vanaspathi
- Nux vomica Musti seeds are used in antibiotic drugs and medicinal herbs.
- N M bark is used to prepare agarbattis.
- Soap nuts are used in the preparation of shampoos.
- Pongamia seeds are used to make Bio-diesel.
- Dry amla pulp is rich in vitamin- C,used in ayurvedic products.
- Sugandhipala roots are used in ayurveda and preparation of a special sharbath called Nannari.
- Karakkaya reduces cough and digestion problems.

Conclusion :

In addition to agriculture, some tribal families get income nearly 10,000/- to 20,000/-
per year. Some tribal families totally dependent on collection of NTFP's for their income, but as the tribal people are very innocent the middle purchasers easily misguide and buy the products for very less price and uses wrong weights.

All these products are available in the forests while collecting the products wild animals attack the tribal people.As they injured they loose their employment for some days.Modern tools and processing facilities which are used for the collection and processing of Non-Timber Products are not available.

Suggestions :

1. The government must provide medical facilities for these people for effective collection of products.
2. GCC and other Government agencies must come forward to purchase these NTFP's directly from these people.
3. There must be a provision of modern tools and implements for the collection of these products by the government agencies in subsidary rates.
4. There must be protection from the wild animals and snakes at the times of collection of products in the forest.
5. The forest department should take action to plant the NTF producing plants in HARITHA HARAM programme to sustainable collection

Students collecting the information at Chintoor village

Students collecting the information at Gundala village

Students collecting the information at GCC – bhadrachalam

Students collecting the plant produce at venkatapuram

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STUDENT STUDY PROJECT

"A STUDY OF AWARENESS ABOUT CYBER LAW AMONG COLLEGE STUDENTS WITH SPECIAL REFERENCE TO BHADRACHALAM"

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A STUDY OF AWARENESS ABOUT CYBER LAW AMONG COLLEGE STUDENTS WITH SPECIAL REFERENCE TO BHADRACHALAM".

INTRODUCTION

In India each and every minute one person becomes internet users. It convergence with digitally supported platforms and gadgets, safeguarding the parents as well as students from the cyber crimes it's becoming a Challenging task.

India is an attractive target for crackers due to high internet and technology penetration growth and limited awareness among the users in cyber space and it resulted into increase in the cyber crime. But awareness about the cyber law is an often over looked factor among college students even many stake holders of the Computer science are not aware about the cyber law of country, they are enhancing their technical skills by various means but sadly they are not serious about getting knowledge about cyber crime and cyber law. It necessitated Information security awareness among the college students.

In this project we have conducted one survey to check cyber law awareness statistics among college students in Bhadrachalam. The paper presents the results of a survey conducted and provides the recommendations for improving general awareness of cyber law in Bhadrachalam area.

AIMS AND OBJECTIVES

- To understand the awareness of cyber law among college students in Bhadrachalam
- To find out the levels of awareness among college students regarding cyber laws.

RESEARCH METHODOLOGY

Using random sampling this research was carried out in Bhadrachalam panchayat with 100 respondents. The respondents are college students who are either undergraduates or post graduates and the age of the respondents falls between 18 to 25 years. The primary data was collected using questionnaire.

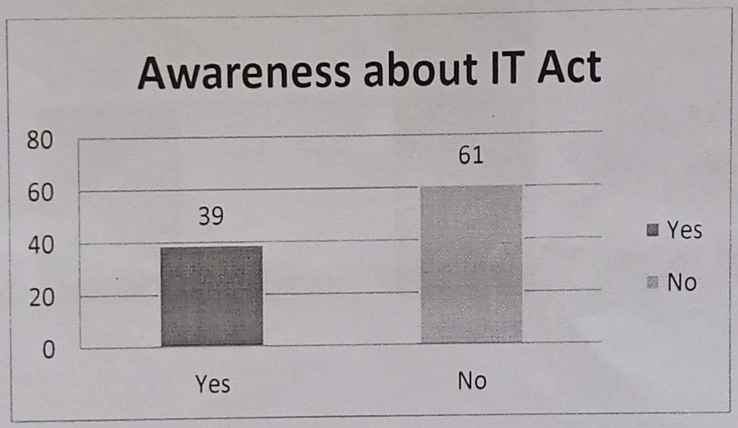
alysis of Data

The present study titled A Study of Awareness about cyber laws among college students h special reference to Bhadrachalam Used a questionnaire survey as the major tool for lecting required data.

Awareness about IT Act

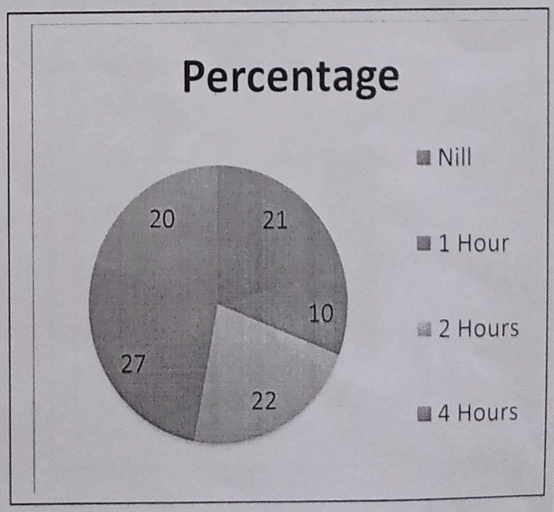
Awareness of Participants about IT Act

Yes	39
No	61
Total	100



Per day Internet usage

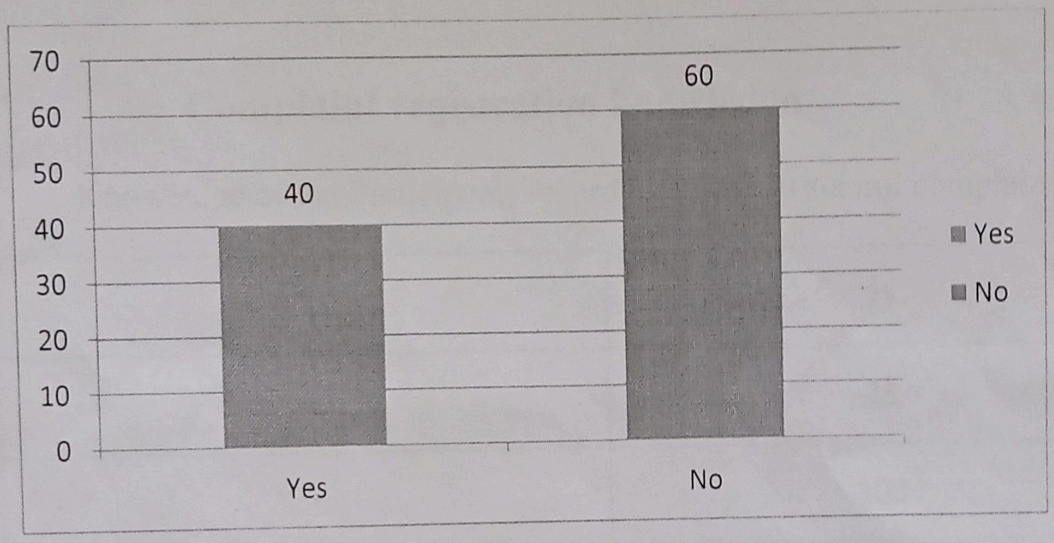
Internet usage Time per Day	Percentage
Nil	21
1 Hour	10
2 Hours	22
4 Hours	27
Above 4 Hours	20



Awareness about the Cyber Crime & Security

Awareness of Participants about Cyber Crime & Security on them or their Organization

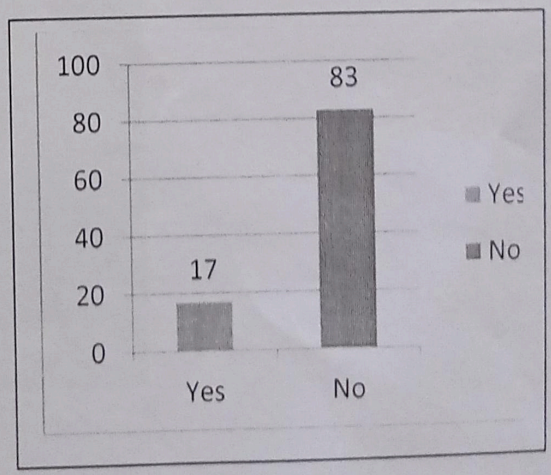
Yes	40
No	60
Total	100



Knowledge about the Cyber Attack

Knowledge of Participants about Cyber-attack on them or their Organization

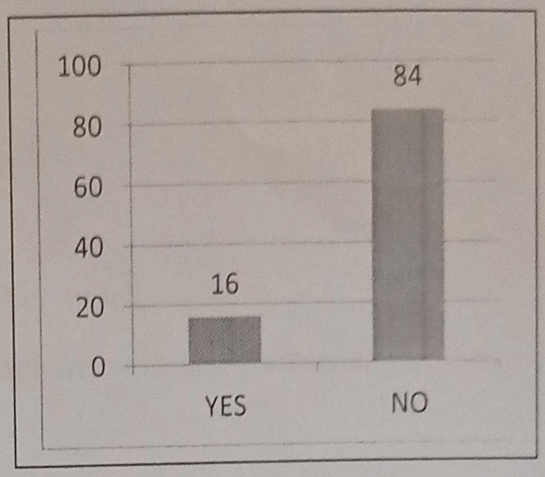
Yes	17
No	83
Total	100



Willing to register the complaint

Willingness of the participant to register the complaint with the authority

YES	16
NO	84
Total	100



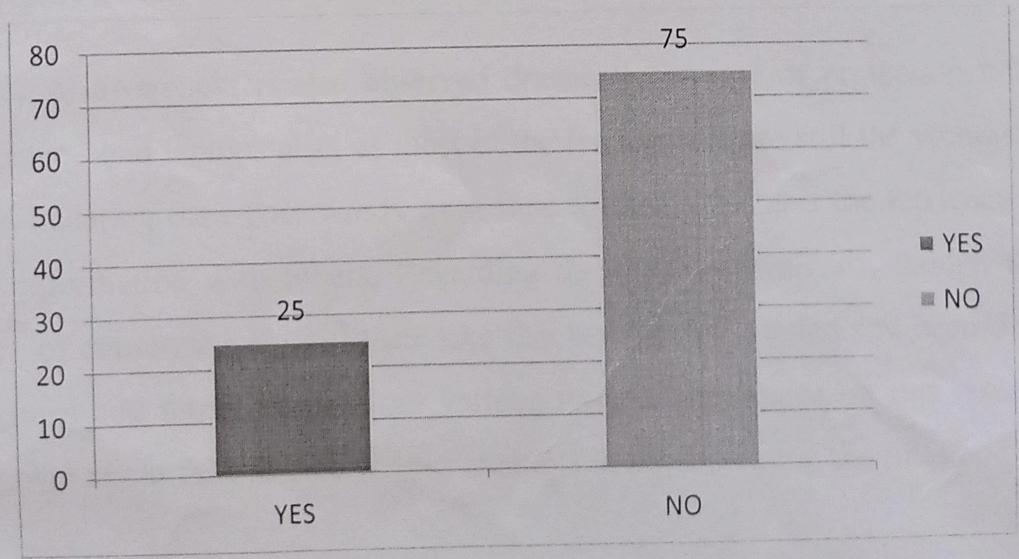
Willing to register the complaint

Complaint registration knowledge

Knowledge of the Participants regarding where to submit complains.

YES	25
NO	75
Total	100

Complain registration knowledge



FINDINGS

1 75% of respondents use internet quite regularly.

2 27% people spend 4 hours on internet.

3 61% have No idea about IT act at all

4 60% doesn't know anything about cyber crime.

5 Nearly 83% participants are not aware about the cyber attack.

6 16% participants were willing to register their complaint with the concerned authority in case of cyber attack.

7 25% know where to register complaint.

CONCLUSION

The study proves that college students in Bhadrachalam are not thoroughly aware of yber laws. A growing net addiction is visible in Bhadrachalam Panchayat. The convergence of mart phones and internet are on stride and quite popular. This means there is more scope for yber crimes. Though many internet users claim to be aware of such crimes, still majority onsider the cyber crime as hi-fi politically motivated attacks on big organizations. They fail to nderstand that it can affect any internet user. Other then hacking, a quiet majority of users are ot aware of crimes link cyber stalking, mobile hacking and deep web crimes copy rights violation , cyber bullying, phishing, child soliciting and abuse, sharing disturbing, content of pornography , identify theft etc. A significant amount of internet users are not even aware whom to contact are report for any grievances regarding cyber crimes.

The lack of awareness is also observed drastically in case of protection towards their personal computers and laptops also, as most of the respondents are still the victims of various virus, not been updating their pass words from time to time, and have the tendency of sharing their personal information with others. Regarding the illegal downloads, though the internet users are aware of consequences, still their take this activity for granted and been downloading movies and games and music easily from various torrents. Ignorance on this issue can grow further if the government fails to take serious attempts in implementing the rules and regulations in this regard.

SUGGESTION

Based on the overall conclusion of the study, few suggestions are observed that can help e potential victims to safeguard from cyber crimes.

1. Every internet user has a right to be aware of the consequences of its threats and misuses. Hence educating them is on high priority on the issues like:-

   (a) Uses and misuses of internet.

   (b) Importance of internet security.

   (c) Awareness about cyber law and regulation.

   (d) On crime impact of technology.

   (e) Hardware & software requirement to protect the data from exploitation and pilfering.

   (f) Knowledge of the internet policies at the organizations.

   (g) Right to protect the personal data from sharing with others.

2. Now a day's internet users are as young. Hence educating them right from the colleges has to be accorded importance. Workshops can be conducted in colleges for both students and parents for better understanding on safe surfing of internet
3. Colleges should take special initiative to incorporate a course work or a paper on cyber crimes and security for a professional outlook and can allot credits for clearing the same.
4. Government should bring out more awareness campaigns in various places of the state to bring more awareness among the people.
5. Main stream Media like Television, News Papers, Radio and new media plat forms like face book can be utilized to the fullest to make all the netizens aware of cyber law

GOVT.DEGREE & P.G. COLLEGE BHADRACHALAM

BHADRADRI KOTHAGUDEM DIST-507111.

JIGNASA STUDENT PROJECT WORK TITLE

"Studies on covid-19, comparative analysis on home isolation and Hospitalization; traditional ayurvedic medicine with allopathy of GDC-Bhadrachalam "

DEPARTMENT OF ZOOLOGY

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6. MD. Zuveria (I BZC)

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1. Project Aim & Objectives
2. Review of the Literature
3. Research Methodology & Materials
4. Analysis of Data
5. Research Findings
6. Conclusions &Suggestions
7. Gallery
8. Abbreviations
9. Reference

BONAFIDE CERTIFICATE

Certified that the study project titled "Studies on covid-19,comparative analysis on home isolation and Hospitalization;traditional ayurvedic medicine with allopathy of GDC- BHADRACHALAM " *is the bonafide work of B.Z.C Students* P.Mounika, B.Sri vidhya,K.Sailaja, B. Revathi ,P.Varsha,MD.Zuveria and is carried under my supervision and is that, this project doesn't represent any other form of project work done earlier.

Signature of Supervisor

Incharge of the Department

TITLE OF THE PROJECT

Studies on covid-19, comparative analysis on home isolation and hospitalization; traditional ayurvedic medicine with allopathy of GDC-Bhadrachalam"

Statement of the Problem:

From the birth of the human race into the world until now the only word that has been most known and pronounced by all the people of the world is COVID-19. Because every country in the world has been its impact it is making danger conditions with anxious with the names of I, II & III… Waves millions of people have effected by its some people died, some people collapsed economically, some people loss their health. Around the world at the time of I & II waves 256 million effected with the Corona 5.1 million died with corona,In India 3.40 Cr effected with the Corona 4.76 L died with corona, In Tealngana 6.78 L effected with the Corona 4008 died with corona.(up to November 2021).

People need to be led from blindness to the relief towards dealing with such pandemic situations for this people require to know awareness on the corona disease. Hence we selected this project on corona to gain insight..

Project Aim:

Collect the students, staff and their families data on corona disease from students and staff at the college to impose covid-19 severity and resistance against corona.

Objectives:

- To collect the general data about corona from college students and staff.
- To identifying the importance of isolation and its role.
- To evaluate the impact of allopathy and ayurvedic medicine on covid-19
- To observe financial and post covid effects.

Introduction:

Among public health emergencies, an infectious disease outbreak is one of the most imminent threats. Infectious diseases are a leading cause of mortality and the biggest disablers of human functions. Pathogenic microorganisms spread diseases resulting in minor ailments to the pandemic crises. In this context, zoonotic diseases or zoonoses are the infectious diseases of animals that cause infections when transmitted to humans. Around the globe, approximately 60% of all infectious diseases are zoonotic and have resulted in millions of deaths in recent years. Furthermore, 30 new human pathogens were identified in the past three decades, 75% of which were originated from animals. An increase in the emergence and transmission of zoonotic diseases is a major health catastrophe, today, and needs both short- and long-term strategies to minimize disease-related com- plications, injuries, and sufferings.

While discussing zoonotic diseases, the coronavirus disease (COVID-19) could be mentioned that was first detected in China, where it spread to 90 international locations. Recognized as a global crisis, efforts around the globe are focused concomitantly on limiting the trans- mission and reducing the impact of the virus. The out- break of COVID-19 is a public health emergency that has generated an environment of uncertainty and chaos in all societies. It is important to highlight that when the prognosis and treatment of the disease are known, it is relatively easier for health-care professionals to manage the disease. However, with a least known disease, like the COVID-19, health-care professionals face multiple challenges because of the limited evidence-based information, circulating myths, and the stigma developed by society. Therefore, healthcare's capacity to respond to a pandemic plays a key role in disease management. At the same time, the mental health and approach of the health-care professionals are also essential in tackling disease-related complications and transmission.

In December 2019, COVID-19 was first identified in Wuhan, China, as a respiratory tract infection causing symptoms, such as fever, chills, dry cough, fatigue, and shortness of breath. This atypical viral pneumonia has disabled the world, causing catastrophic health and economic losses. The novel corona virus belongs to the family of SARS and MERS- CoV, but the impact of the former is more crippling as illustrated by the exponential increase in infectious cases.

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The incubation period of COVID-19 is between 1–14 days, a mean period of 6 days, during which asymptomatic carriers of the virus can transmit the disease to healthy people, as proven by the evidence of human-to-human transmission via droplets or contact.

COVID-19 was declared as a Public Health Emergency of International Concern by the end of January, according to the standards of International Health Regulations (2005) by the World Health Organization.

On 30 January 2020, India reported the country's first case of COVID-19 in Kerala. The index case was a student returning from Wuhan and was isolated in a hospital. As of 3 February, a total of three cases were confirmed in Kerala, with all initial cases coming from different cities. However, after a month lag the number of cases started to surge, affecting more states and union territories by the beginning of March. According to the Ministry of Health and Family Welfare, the transmission of COVID-19 is mainly related to travel and local transmission of imported cases, limited community transmission was first reported on 30 March

Due to the unprecedented spread of the virus, the world has gone into a virtual lockdown as several countries have initiated strict screening of potential cases introduced in their territory. We investigate the medical, social, and economic impact of COVID-19 in our college by conducting questionnaire survey on covid-19.

Review of the Literature:

Literature of SARS-CoV-2:

The word "Corona" describes the meaning of "a usually colored circle often seen around and close to a luminous body (such as the sun or moon) caused by diffraction produced by suspended droplets or occasionally particles of dust".SARS-CoV-2 produced infestation to the whole world.

The new Corona virus belongs to:

Class : *Nidovirales*

Group : *Coronaviruses*

Family : *Coronaviridae*

Genus : *Beta-coronavirus*

Sub-genres : *Sarbecovirus*

Corona virus family was classified into four genera based on phylogeny: Alpha Co-V (group 1), Beta Co-V (group 2), Gamma Co-V (group 3) and Delta Co-V (group 4) within this Beta (4 lineages) A, B, C, D are recognized. SARS-CoV-2 is placed under the classification of Beta-Co-V (group 2)

SARS-CoV-2 has a single stranded large positive RNA genome ranges from 26.2 - 31.7 kilo bases. SARS-CoV-2 RNA genome contains 29,891 nucleotides and 9860 amino acids. It has both structural and non-structurally protein. The most significant basic proteins are spike (S) protein (trimetric), envelop (E) protein, membrane (M) protein, and the nucleocapsid (N) protein. The most important protein which helps to enter and penetrate the human body is spike (S) protein because it can enter into Angiotensin-Converting Enzyme also called the ACE receptor. Spike protein is a trans membrane glycoprotein that mediating viral infection through the binding of the host receptor. The nucleocapsid is the most important sub-unit for the packing of the viral genome through the protein oligo polymerization.

It plays many vital activities and it is responsible for the replication process. It has high polymerase activity which causes fever, tiredness, and dry cough. The viral protein of SARS-CoV-2 attack macrophages alveoli packed TNF alpha interleukin 1 and interleukin 6 which cause high fever for the human being.

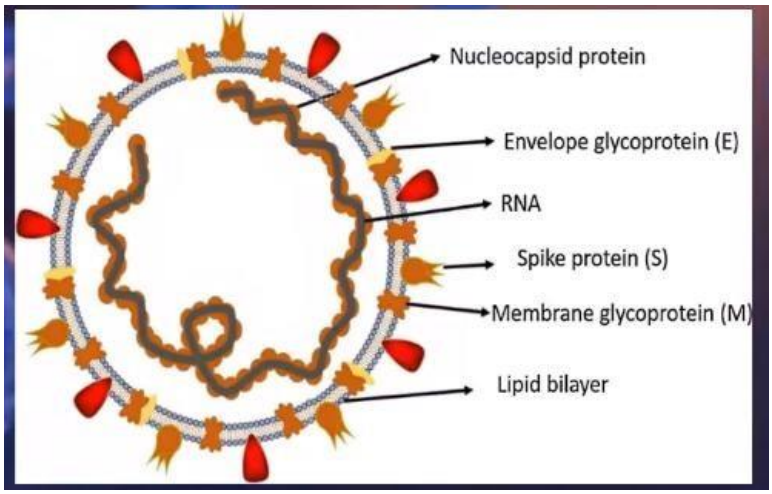

Figure-1: (Common structure of SARS-CoV-2.)

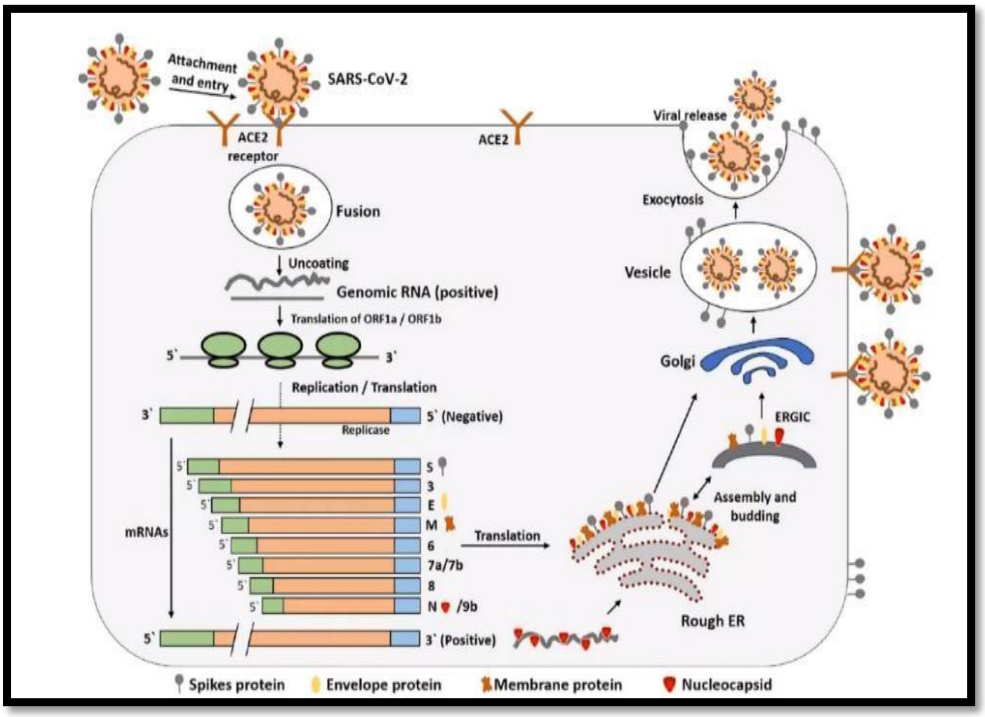

Figure-2: Mechanism of nCoV-2 on human cell

Note- source: W.H. O Information bulletin.

Indian Ayurvedic Medicine:

The most basic and important herbal plant in the AYUSH system is Tulsi. The word Tulsi is in the language of Sanskrit which means “Incomparable one”. The only which shows many medicinal capabilities according to Charaka Samhita, to balance various mechanisms and to increase the life span. The medicinal practitioners of an ayurvedic system of 250,000 herbal plants are registered when compared to about 700,000 modern medicines. In this proportion, Ayurveda has 2000 plants, Siddha 1300, Unani 1000, Homeopathy 800, Tibetan 500, Modern 200, and Folk 4500.

In India, Tulsi assumes a significant job in each house which is planted and simple to devour. It is used as a pain reliever, and to treat diarrhoea, cough, and fever. Tulsi treats numerous viral ailments, for example, Newcastle sickness infection, Vaccinia infection, and irresistible bursal ailments. It helps to cure respiratory parameters and relief of the symptoms of Asthma. It has both physiological and psychological functions. Tulsi plays a role in increasing anti-oxidant molecules to boost up the Defence mechanism of the immune system, enzyme, and to protect the cell and membrane. Tulsi also used to treat the basic symptoms of SARS-CoV-2.

Some therapeutic approach for SARA-CoV2 by symptomatic management are Agastya Haritaki is a powder of Ayurveda consume 5grams twice a day to treat Upper Respiratory Infections (URI), AYUSH-64 is a tablet of Ayurveda consume twice a day to treat a respiratory infection, Anuthaila is ayurvedic oil which taken through nostrils of 2 drops to treat respiratory infections, Adathodai Manapagu is an aqueous of Siddha to cure fever, Bryonia Tablet is under Homeopathy to treat lung infections, Rhus toxico dendron is a tablet of Homeopathy to treat lung diseases such as Asthma and Chronic. Eupatorium Sempervirens is a tablet of Homeopathy to treat asthma. The two important herbs used first to treat SARS-CoV-2 were Ashwagandha and Yashitumadhu. It is provided by the Ayurvedic stream of medicine.

The mainly used ayurvedic medicine to treat SARS-CoV-2 is Vishasura Kudineer in the form of a tablet which consists of the polyherbal formulation of Siddha of 60ml twice a day to treat fever. Another significant one, right now used to treat SARS-CoV-2 Kabasura Kudineer which likewise as a tablet to treat all the side effects of infections, for example, fever, hack, sore throat, and brevity of breath.

In Siddha medication Nilavembu Kudineer is a decoction based polyherbal Siddha plan which is endorsed for fever of obscure inception. Like that covers Kabasura Kudineer has played the job of anticipation of coronavirus these days in famous ways. A few investigations have uncovered that Kabasura Kudineer because of its mitigation properties helps in decreasing growing noticeable all around section while antibacterial and antipyretic properties ease fever. Kabasura Kudineer or churnam has various healing aspects and immunomodulatory properties.

Commercial Drugs:

Commercial drugs are the mixture of substances used in the manufacture of medicinal products and that substances are intended to furnish the pharmaceutical activities in the diagnosis, cure, mitigation, treatment, or prevention of disease. Some commercial drugs are Plaquenil, Aralen, Azithromycin, Remedesivir, Ribavirin, Ritonavir, and Lopinavir.

In India, the Plaquenil, Aralen, and Azithromycin are widely used in the treatment of SARS-CoV-2 because it can inhibit the RNA dependent RNA polymerase (RdRp). Remedesivir was originally developed to treat viral diseases like Ebola and Marburg virus disease but the drug was ineffective for these viral diseases. Still the drug Remedesivir is used for the treatment of SARS-CoV-2 in the country of USA. Ribavirin is otherwise called tribavirin, is an antiviral medication used to treat Respiratory Syncytial Virus (RSV) infection, hepatitis C, and further more used to treat plague ailment SARS-CoV-2. The antiretroviral medicate Lopinavir is a protease inhibitor, which hinders the processing chemical cytochrome P4503A is the fundamental proof of the adequacy of the medication against coronavirus. Some more drugs used for the disease are Sofosbuvir, Favipiravir, Ruxolitinib, Darunavir, Arbidol, Eculizumab, Fedratinb, etc.These are some drugs that have been concluded for the treatment of SARS-CoV-2.

Research Methodology & Materials:

The method we have choosen to do this project is the survey method we designed a questionnaire on COVID-19 and hand over it to students of I, II & III and college teaching and non-teaching staff. Then we asked them to fill the questionnaire . we collected the data on Covid19 I & II waves in the month of October & November 2021.From all the questionnaire papers collected from them and we analyzed the content based on the selected objectives and identified the findings.

Specimen Survey copy on Covid-19

1. Name:

3. Covid Patient name:-

2. Staff/Student:

4. Covid affected month:-

5. Address (Village/Town):

Age	Male/Female	Blood Group	Self	Relatives	Community

Mild/wild Symptoms	Home Isolation	Hospitalized-Private/Govt.	General	ICU	Ventilation

Family affected	Members affected	Adult+ child

Financial Loss:-

Insurance	Self	Government Support

Recovery days:

Post Covid problems:

Home Isolation-Indian-Ayurvedic Medicine:-

Hospitalized-Allopathy Medicine:-

Analysis of Data:

1. Participants- Covid +ve

Table: 1

S.NO	Particulars	Strength	%
1	Total Students and staff (participants)	816	_
2	Covid Effected	607	74.38%
3	Male	402	49.26
4	Covid +ve	328	81.59
5	Female	414	50.73
6	Covid +ve	279	67.39

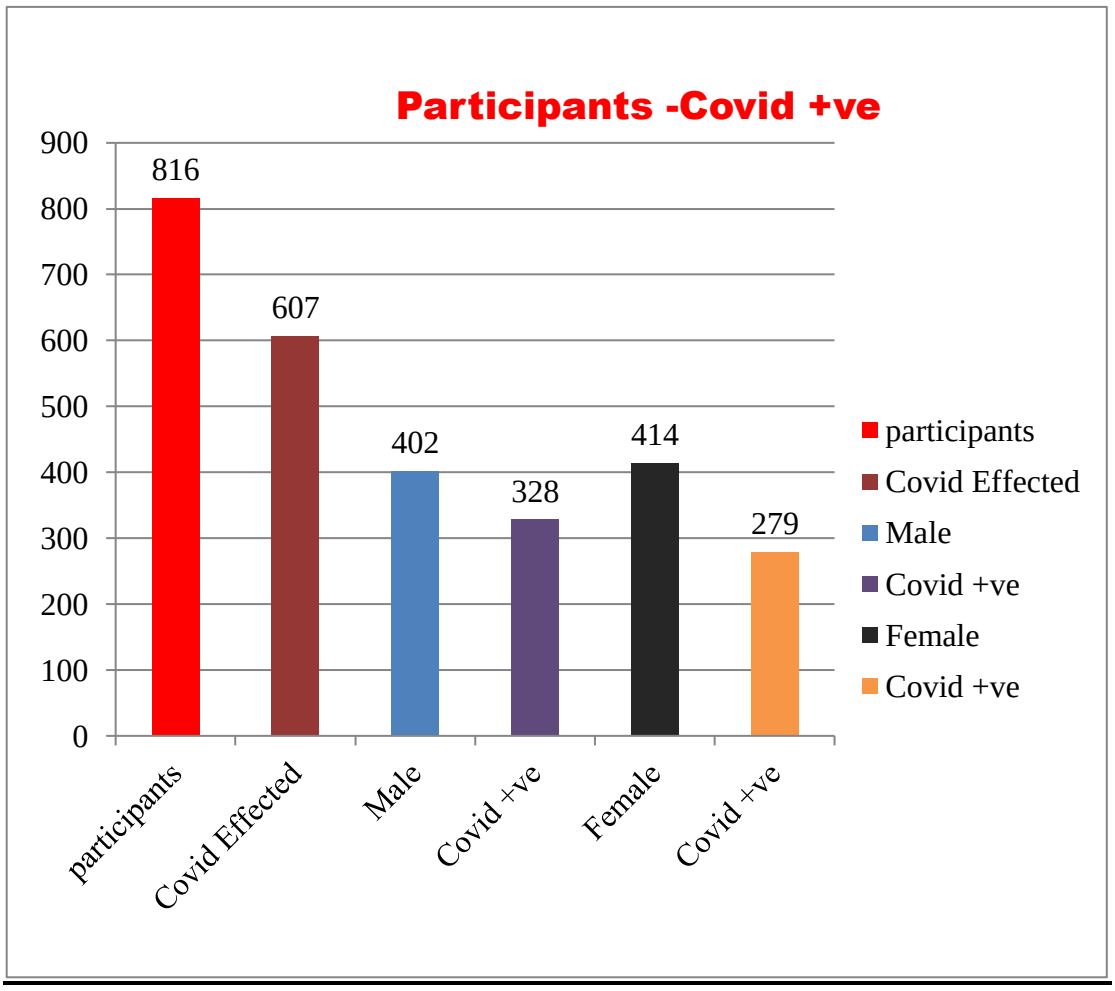

Figure:3 Participants -Covid +ve

2. Community: Covid +ve

Table: 2

Community	Total	Affected	%
ST	331	224	67.67%
SC	144	114	79.16%
BC	261	211	81.83%
BC-E	220	12	54.54%
OC	58	46	79.31%

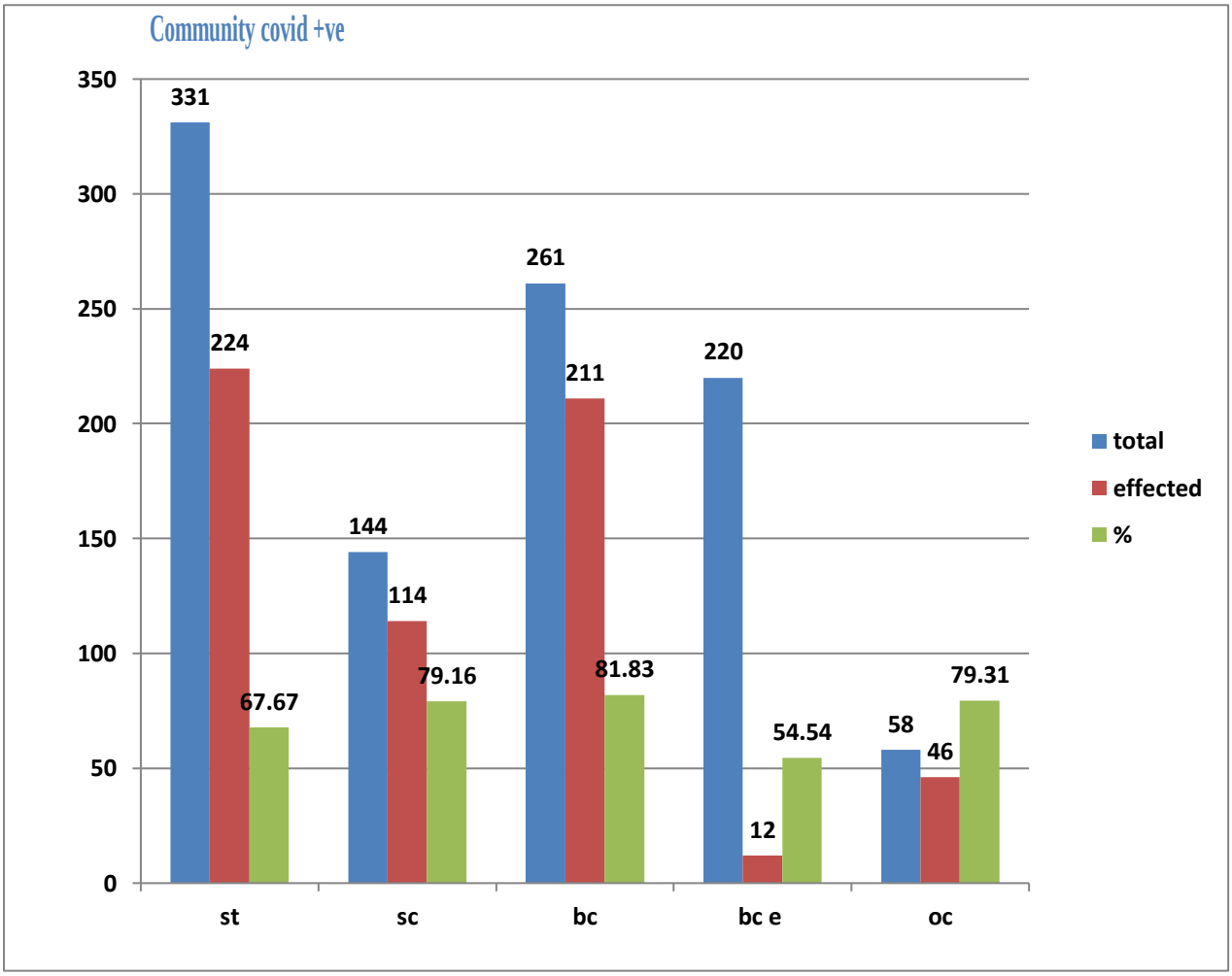

Figure:4 Blood group covid +ve 1

3. Blood Group: Covid +ve

Table: 3

Blood Group	Total	+ve	%
O+	308	234	76%
AB+	57	41	72%
A+	193	136	70%
B+	249	193	77.51%
B-	06	02	66%
A-	03	01	33%

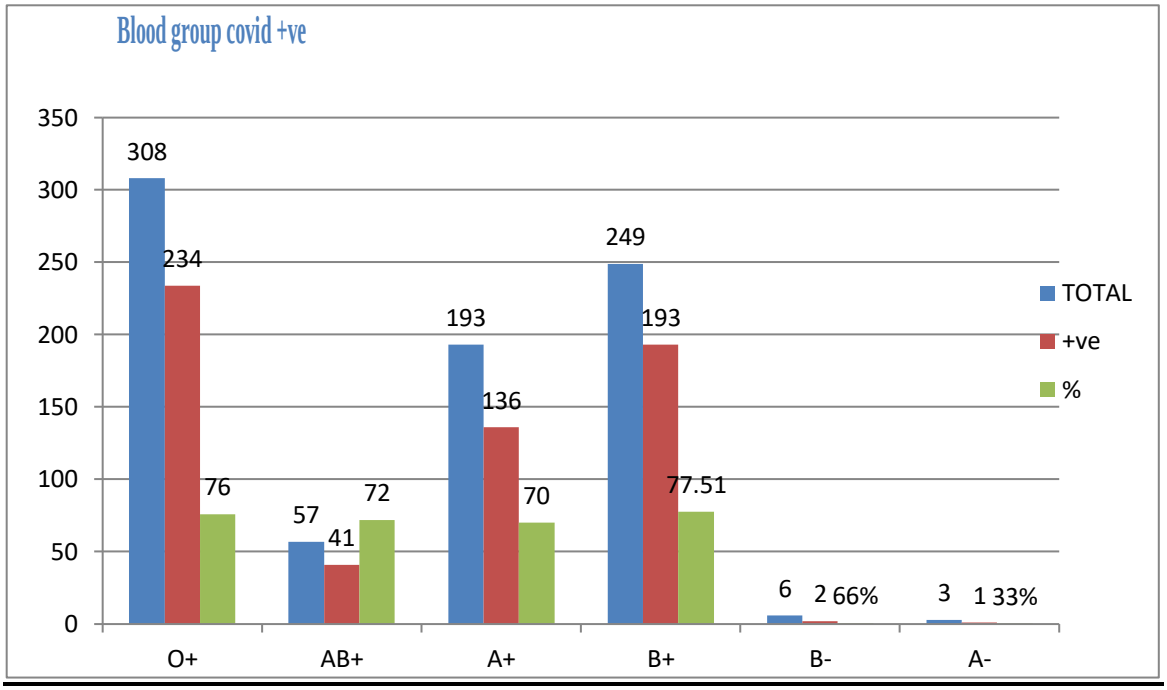

Figure: 5 Blood group covid +ve

4. Hospitalization:

Table: 4

Covid +ve	Hospitalization	Private	Govt.
607	142	41(29%)	101(71%)

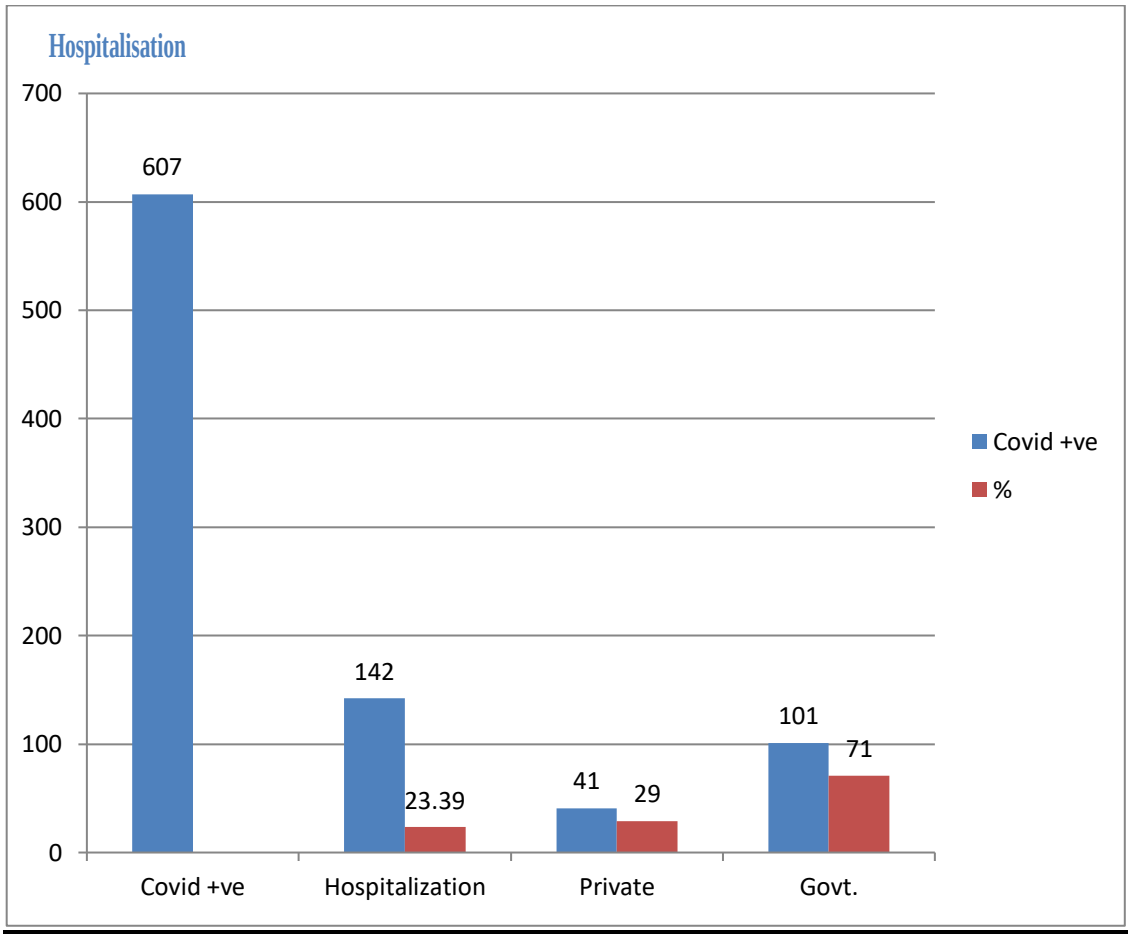

Figure: 6 Hospitalisation

5. Home Isolation:

Table: 5

Covid +ve	Home Isolation	%
607	465	76.60%

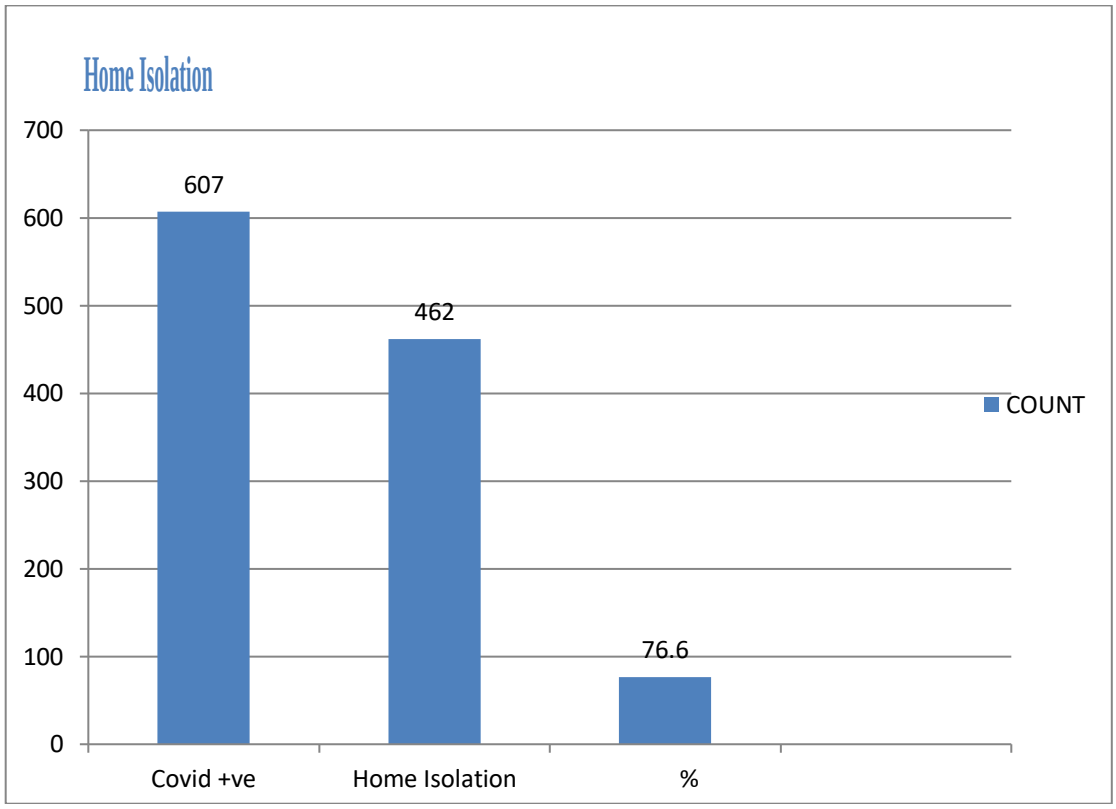

Figure: 7 Home Isolation

6. Mild/wild Symptoms:-

Table: 6

Covid +ve	Mild(%)	Wild(%)
607	505(83.20%)	102(16.80%)

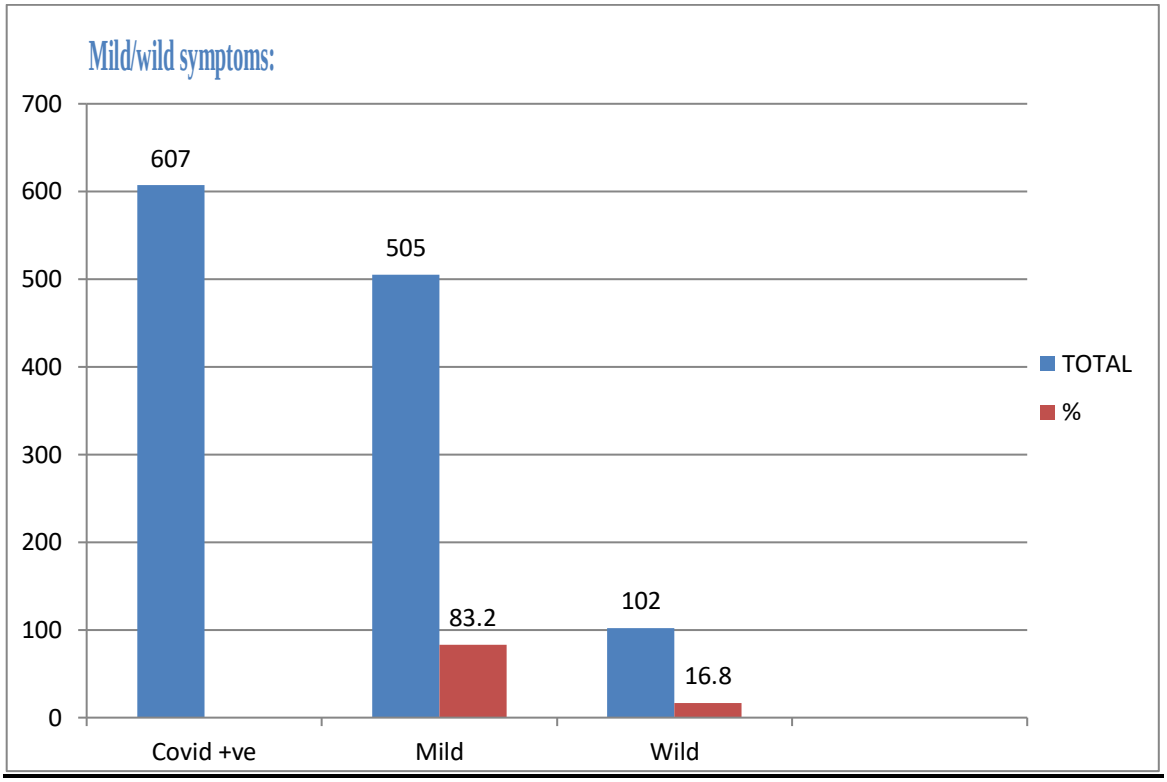

Figure: 8 Mild/wild symptoms:

7. Family Effected:-

Table: 7

Covid +ve	Family Effeted(%)	Student & Staff effected(%)
607	451(74.29%)	156(25.70%)

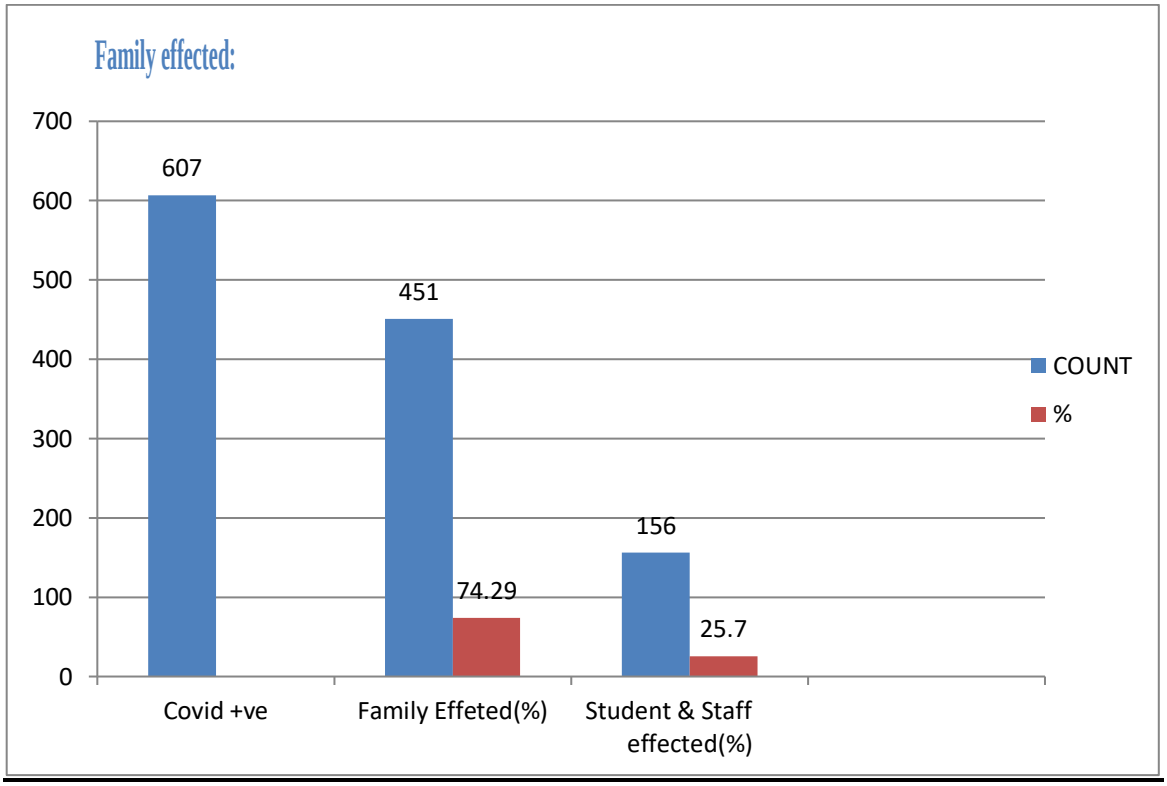

Figure: 9 Family effected:

8. Financial Loss:-

Table: 8

Financial Loss	Count Covid +ve(607)	%

Below-5000	347	57.16%
Below-10,000	213	35%
Below-50,000	38	6.2%
Below - 50,000 to 1,00,000	06	0.98%
Above – 1,00,000	02	0.33%

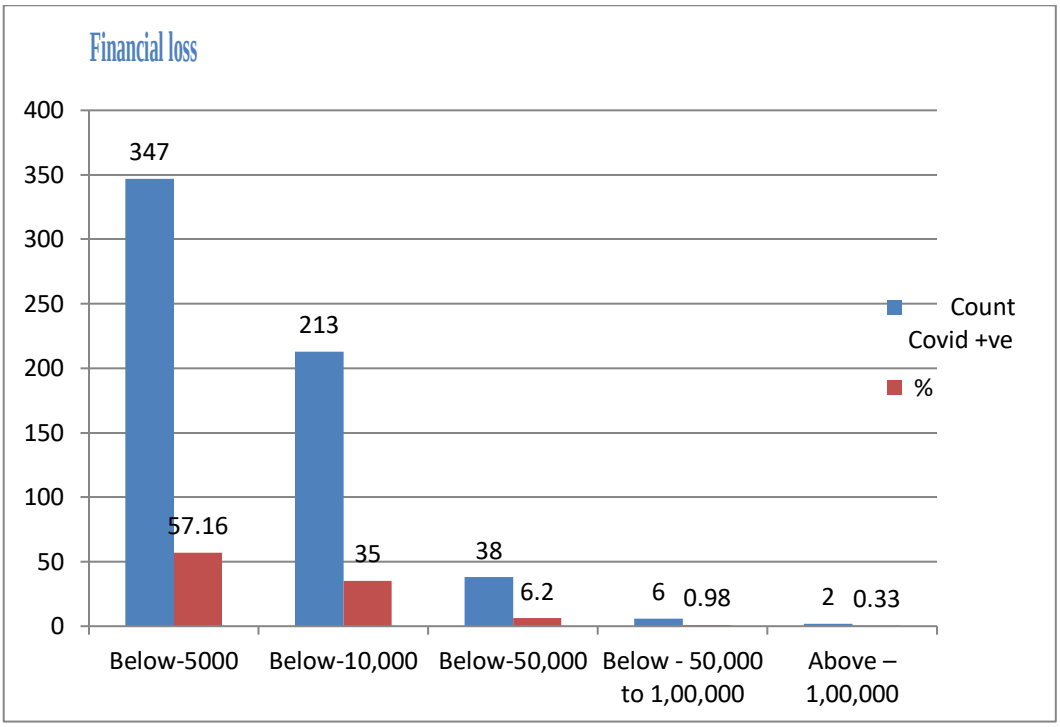

Figure: 10 Financial loss

9.Health insurance count : **Self -** 00 **,Government Support -101**

Recovery days: 3-5days-40%,6-8days-35%,10days-above-25%

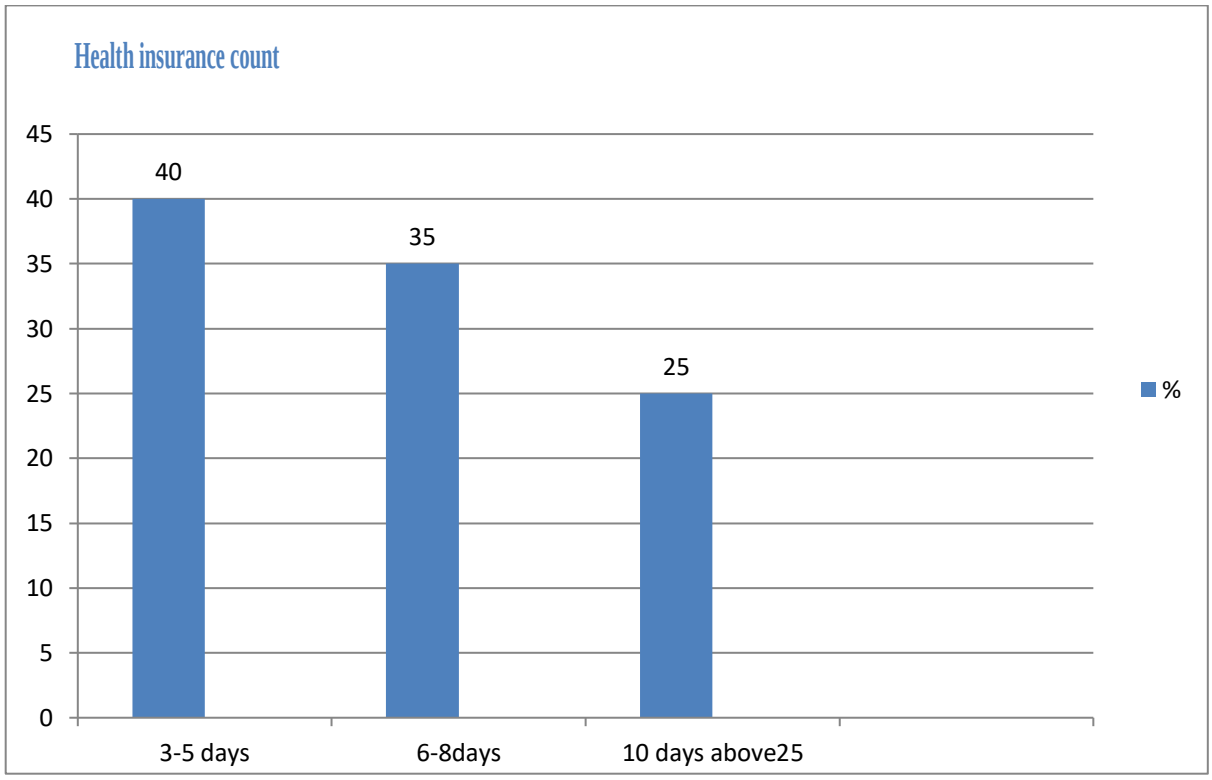

Figure: 11 Health insurance count

10. Post Covid Problems:

Table: 9

Covid +ve	Post covid problem Faced	%	Death Count(%)

607	356	58.64%	2(0.33%)

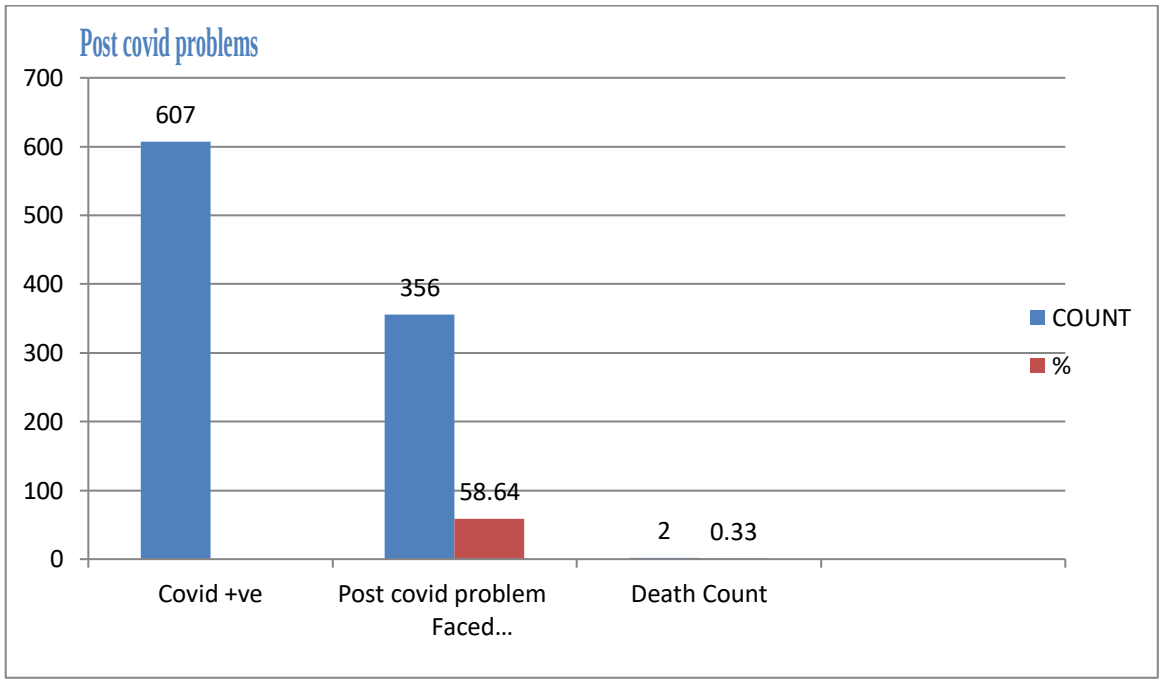

Figure: 12 Post covid problems

Post Covid Problems

Week ness ,body pains, hair loss, headache, cough,acidity,breathing problem, sugar heart problems, motions, joint, chest pains, allergy/rash, sleep problems, blood clots and blood vessel problems. depression

11. Ayurvedic medicine + Allopathy:

Table: 10

Covid +ve	Ayurvedic medicine + Allopathy (%)	Allopathy
607	546(91%)	61(9%)

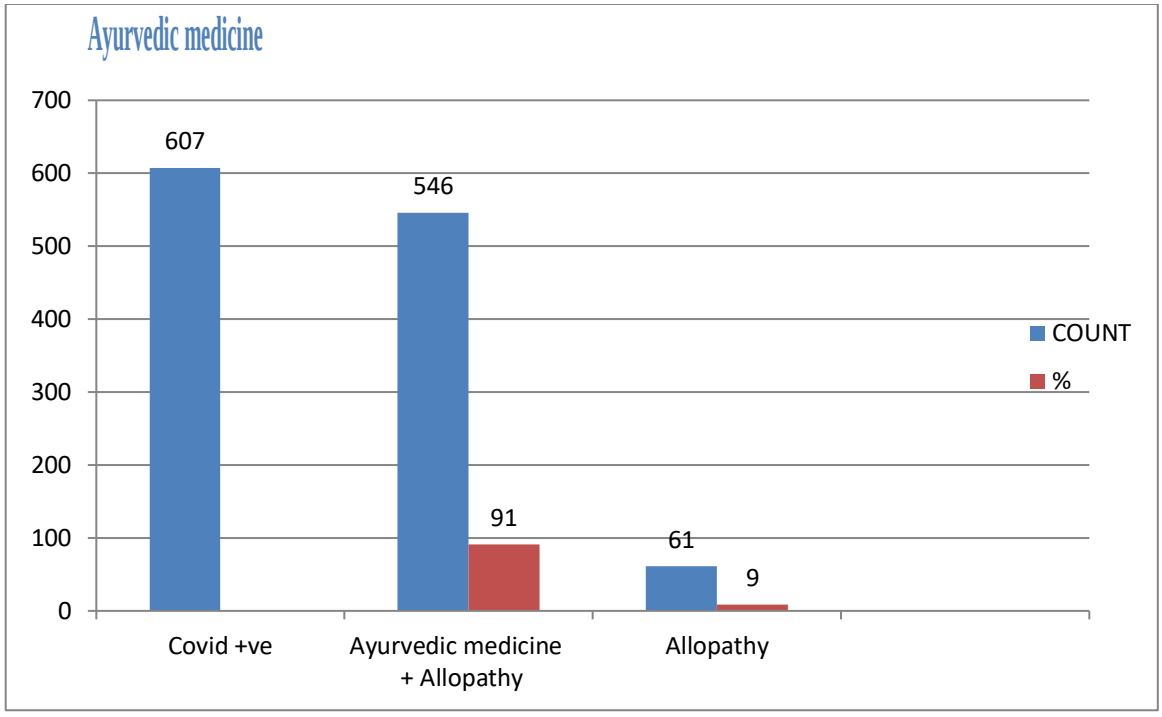

Figure: 13 Ayurvedic medicine

Ayurvedic medicine:

Dry ginger powder, P.K.Medicine , Chyawanprash, Anandhaiah medicine, Tulsi , Agastya Haritaki, Ashwagandha, and Yashitumadhu.

Allopathy medicine:

Dolo-650(Paracetma, Levo citrezine ,Zincovit , Limcie,coldact,S.P.500,Azetromycin,Vitamin-C,Vitamin-D,Monocef,Ciploden,citrazen, Remedesivir, Ribavirin, Lopinavir.

12. Age factor :-

Table: 11

Age factor	Count Covid +ve(607)	%
Below-18	41	6.75%
Below-36	216	35.58%
Below-54	204	33.60%
Above – 55	146	24.05%

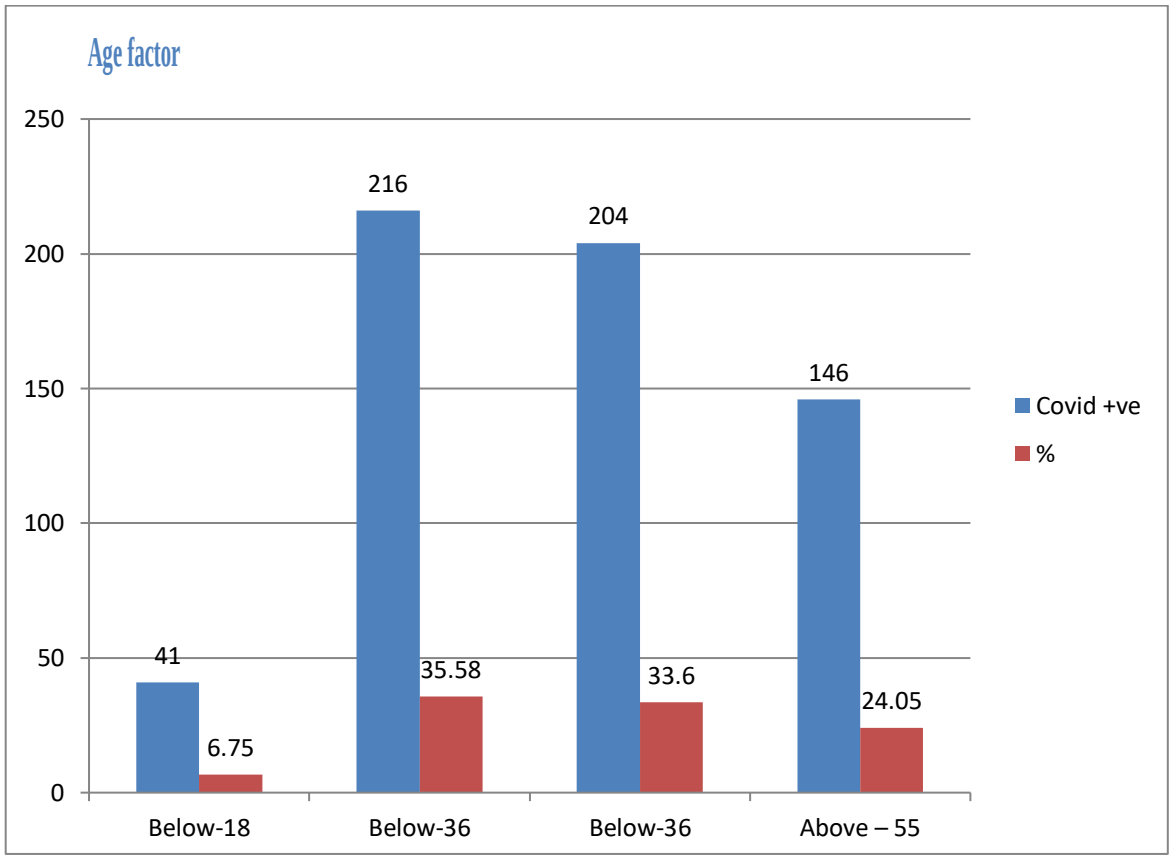

Figure: 14 Age factor

Results & Findings:

Present study showed that the covid infection rate is lower in females than males .13.8% more in males. covid infection seen in terms of community showed that BC(81.83%),OC(79.31%), SC(79.31),ST(67.67%),BC-E(54,54%) respectively. covid infection is seen on the basis of blood group showed that B+ve(,**77.51%)**O+ve(,76%)AB+ve(72%),A+ve(70%),B-ve(66%),A-ve(**33%)**order in respectively**.**in the covid cases showed that 71% are in home isolated,29% hospitalized, in the total covid cases showed that 83.20 cases are mild symptoms,16.80 cases are wild symptoms.74.29% cases are belongs to student and staff family members .in total covid cases57.16 cases showed below 5000Rs financial loss and no one has taken out the health insurance policy.75% cases showed recovery days with in 8 days.58.64% cases showed having post covid problems.91% of cases use Ayurveda and allopathy medicine. 69.18% of cases are between 36-54 age group .

Conclusion & Suggestions:

- Keep on increasing observations in college level by appointing Covid look ahead and prevention team.
- Guide them to have nutritional food to do exercises for better immunity.
- Ayurvedic medicines are suggestable to improve immunity.
- Conduct health camps frequently to guide Covid patients on Post covid problems.
- Everyone should take health insurance for economical support during health problems.
- Develop awareness on corona/covid-19 by conducting awareness programs.encourage vaccination upto rural level.

Gallery:

Figure: 13

Data collect from students.

Figure: 14

Data collect from staff (principal)

Figure: 15

Data examination.

Abbreviations

ACE : Angiotensin-Converting Enzyme.

AYUSH : Ayurveda, Yoga and naturopathy, Unani, Siddha, Homeopathy.

COVID-19 : Corona virus disease 2019.

MERS- CoV :Middle east respiratory syndrome corona virus.

O.R.F : open reading frames.

RdRp : RNA dependent RNA polymerase .

RNA : Ribo nucleic acid.

RSV : Respiratory Syncytial Virus.

SARS-CoV-2 : Severe acute respiratory syndrome corona virus-2.

TNF: :Tumor necrosis factor.

URI :Upper Respiratory Infections .

+VE :Positive.

-VE :Negative.

W.H.O :world health organization.

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ZOOLOGY

PROJECT

WORK

2020 - 21

కోలను వెలా సరస్సు శ్రీవరణావ్యవస్థ

సమాచారాన్ని సేకరించిన

ప్రదేశం :- రామలయంనకి దగ్గరగా 1-2 కిలోమీటర్ల దూరన ఉన్న ప్రదేశం

సేకరించిన తేది :- 10-2-18 వ తేదిన

కోలను చుట్టి ఉవరణా వ్యవస్థ మంచి ఉదాహరణ ఈ కోలను కేవలం 3 మీటర్ల లోతు వరకు మాత్రమే ప్రసరిస్తుంది. కాంతి, ఉష్ణోగ్రత, పీడనాలను ఆధారంగా చేసుకొని 3 భాగాలుగా విభజిస్తారు. ఈ కోలను సుమారు 3 మీటర్ల లోతు ఉండవచ్చును.

అవి:- 1, వేలాంచల మండలం
2, అవక్సిటిక్ మండలం
3, ప్రోఫుండల్ మండలం

వేలాంచల మండలం

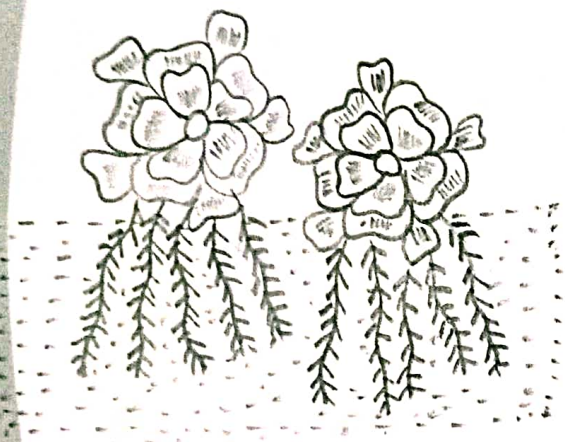
లోతు తక్కువగా ఉన్న ప్రాంతమే "వేలాంచల మండలం" అని అంటారు. కాంతి ఉడుగు వరకు ప్రసరిస్తుంది. కొన్ని రకాల నీటి మొక్కలుండుటం కారణంగా కిరణజన్య సంయోగక్రియ జరుగుతుంది. దీనిలో ఉత్ప్లవ్తి రకాలు, వినియోగదారులు ఉన్నవి ఉంటాయి.

(i) ఉత్ప్లవ్తి రకాలు :- మొక్కలు ఉత్ప్లవ్తి రకాలుగా ఉన్నాయి. వీటిలో మూడు రకాలు గమనించితిని. వీని నీటిలో పూర్తిగా మునిగి ఉంటాయి

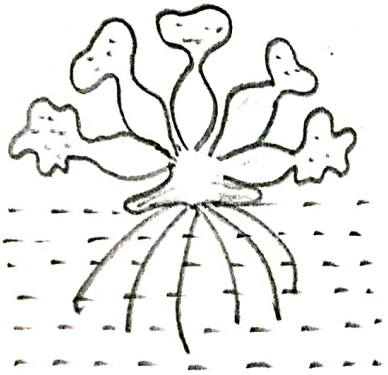
మరి కొన్ని మొక్కలపై చలిమబుడగలూ కొన్ని వేరు వ్యూహక మొక్కలలో భేషంభాగం వాంఛనీయంగా ఉండడం నేను గమనించితిని...

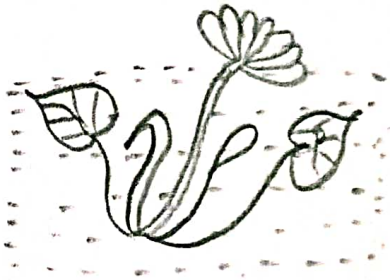
⇒ మొక్కలో స్వేచ్ఛగా చలించుచుండెది – పిస్టియా.

⇒ మొక్కలో పూర్తిగా మునిగి ఉండెది – హైడ్రిల్లా



* పిస్టియా *





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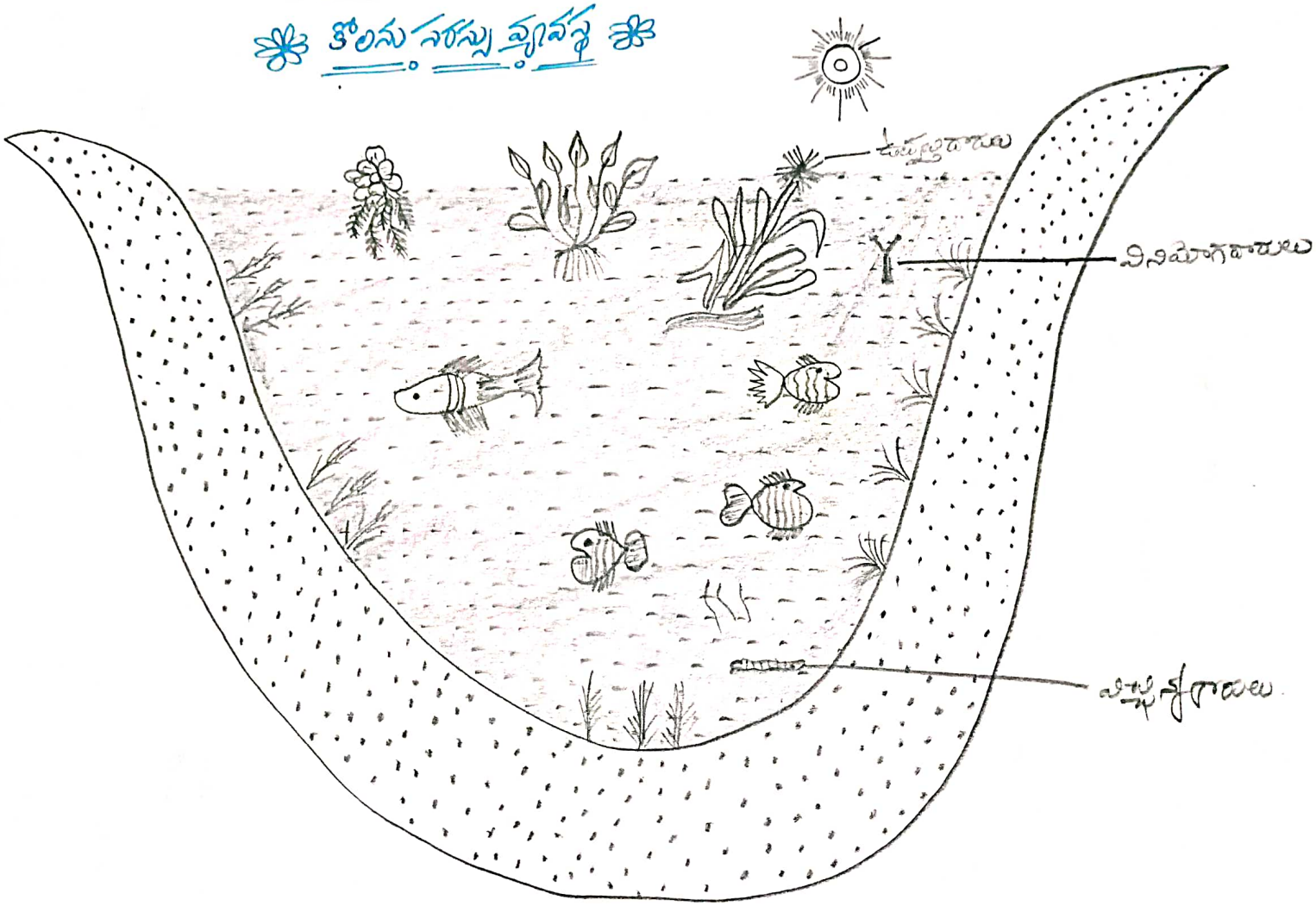
కోలను సరస్సు వ్యవస్థ



(iii) **వినియోగ దారులు** :- కొంతు ప్లవకాలను వినియోగదారులు అనవచ్చు. కొంతు ప్లవకాలు అంటే క్రస్టేషియన్లను మరియు నీటి మొక్కలను మరియు నాచును తినే ఒక రకం చేపలను గమనించితిని.

⇒ నీటి ఉపరితలంపై కొన్ని సాలీళ్లు మాదిరిగా ఉన్నాయి. మరికొన్ని - దోమ లార్వాలుగా గుర్తించితిని.

⇒ స్వేచ్ఛగా ఈదే చేపలుగా చేపలను గమనించితిని. ఉదా:- లాబియో
నీటి పాములు ఉభయచరాలు - చేపలు.

⇒ కొన్ని నీటి మొక్కలపై అంటి పెట్టుకొని కీటకాల మాదిరిగా ఉండడం పరిశీలించితిని.

⇒ లోతైనంగా చూస్తే నీటి అడుగు భాగంలో క్రిములుయూ కొన్ని చేపలు
చేపలు. మరికొన్ని. గమనించవచ్చు.

లిమ్నెటిక్ మండలం :- తీరానికి దూరంగా ఉండే కొలను (ప్రాంతం) కిరణజన్య సంయోగ క్రియ రేటు ఎక్కువగా ఉండవచ్చును. ఈ మండలం కొలనులో ఎక్కువ ప్రాంతాన్ని ఆవరించి ఉంటుంది.

ఈ మండలంలో ఉత్పత్తిదారులుగా పూర్తిగా మునిగిన నీటి మొక్క-లుంటాయి. వినియోగదారులుగా చేపలు. ఉభయచరాలుంటాయి. కొన్ని ప్రదేశాలలో నీరు బాగా లోతుగా ఉన్నాయి. అక్కడ నివసించవచ్చు - శైవలాలు ఉండవచ్చును.

ప్రోఫండల్ మండలం :- కొలనులో అత్యంత లోతైన అడుగుభాగం. కాంతి ప్రసరించదు. కిరణ జన్య సంయోగ క్రియ జరగదు. లోతుగా ఉండటం కారణంగా ఎక్కువగా పరిశీలించలేకపోయాలని. బహుశ వృద్ధి చెందిన మొక్కల కుళ్ళిన శిలాజాలు ఉంటాయి. ఎన్నో రకాల మొక్కలు ఉండి ఉండవచ్చుగా నీరు నిశ్చలంగా ఉండి చల్లగా ఉండటం సాధారణంగా పరిశీలించాలని.

పరిశీలన :- రామలింగాలోని దగ్గరగా 1-2 కిలోమీటర్ల దగ్గరగా ఉన్న ప్రదేశం ఇక్కడ ఒక చిన్న కొలను ఉంది. అందులో దాదాపు చిన్న లోతైన ప్రాంతం అది 8 మీటర్ల లోతు ఉండవచ్చును. కొలను చుట్టు ప్రాంతం చుట్టూ అంతా బాగా చెట్లతో నిండి ఉంది. దగ్గరలో పంట పొలాలు జీవాలు చెట్లలో నిండి అక్కడ వాతావరణం అనేది ఆహ్లాదకరమైన వాతావరణం లాగ ఉంటుంది. కొలను నుండి బట్ట వీధి పైకి రావాలని చిన్న గుడి అనేది కూడా ఉంది. అక్కడకు భక్తులు వస్తూ వెళ్తూ ఉంటారు. బ్రిడ్జి కూడా ఉంది. బ్రిడ్జి సుమారు 25 - అడుగుల ఎత్తు 15-20 మీటర్ల పొడవు ను 3-8 మీటర్ల వెడల్పు లాగ ఉంటుంది.

కొలను ద్వారా ఉపయోగాలు :-

⇒ పంట పొలాలకు నీరు అందుబాటులో ఉంటాయి.

⇒ చుట్టూ చల్లని వాతావరణం అనేది లాగ ఉంటుంది.

⇒ చేపలను పట్టి వాటిని అమ్మటానికి ఉపయోగిస్తారు.

⇒ ఒక పంట తరువాత మరొక పంటను పంట మార్పిడి అనేది చేయవచ్చు.

⇒ భూగర్భ జలాలు ఉపయోగపడుతాయి.

⇒ కొలలో ఎప్పుడు నీరు ఉండటం ద్వారా దోమల సంతతి పెరిగే అవకాశం ఉంటుంది.

కొలను ద్వారా నష్టాలు :-

⇒ అధిక నీటి పారుదలలో బురదగా ఉంటుంది.

⇒ నీరు అపరి కలుషితమైన చర్మ అనారోగ్యం వచ్చే అవకాశం ఉంది.

⇒ అందుకు సరైన జాగ్రత్తలు తీసుకోవాలి.

⇒ అధిక వర్షాలలో మునిగి పోవచ్చు.

⇒ పంటలు వేసిన వారికి అధిక నష్టం కలిగి ఉంటుంది.

⇒ కొలన వల్ల ఇలాంటి నష్టాలు అన్ని కలిగి ఉంటాం.

⑩ కారణాల చేత నీరు కలుషితం అవుతుంది?

⇒ వ్యర్థాలను కొలనులో వేయటం

⇒ పశువులను కొలనులో శుభ్రపరచటం.

⇒ మూత్ర మల విసర్జన లాంటి పనులు చేయరాదు.

⇒ చెత్తను నీటిలో వేయరాదు.

⇒ చనిపోయిన. జంతువులను. నీటిలో వేయరాదు.

⇒ సరైన జాగ్రత్తలు తీసుకోక పోవడం కారణంగా

⇒ కొలలోను ఉన్నటువంటి వాటిని తొలగించాలి.

⇒ కాలుష్యం అవ్వకుండా తగిన చర్యలు చేపట్టాలి.

కోళ్లను దగ్గుపీడ కాకుండా తీసుకోవలసిన జాగ్రత్తలు

- పరిసరాల్లోని చెత్తను నీటిలో వేయరాదు.
- మల, మూత్ర విసర్జన తీరు బయట చేయరాదు.
- వ్యర్థపదార్థాలను సరస్సులో వేయకుండా తీరం దూరంగా వేయాలి.
- నీటిలోను తడిచిన చెట్లను నీటిలో వేయరాదు.
- మిగిలి నీరుని సరస్సులోకి పోనివ్వకుండా ఉండాలి.
- ఆవేవిధంగా రోగాలను మనందరం భూమిని మరింత పచ్చగా చూడాలి.

GOVT.DEGREE & P.G. COLLEGE

BHADRACHALAM

BHADRADRI KOTHAGUDEM DIST-507111.

JIGNASA PROJECT WORK ON

ప్రభుత్వ ఆరోగ్య కేంద్రాలలో గర్భిణీ స్త్రీలనమోదు మరియు ప్రసవాలు,భవిష్యత్ ఆరోగ్య ం పై కే. సి.ఆర్ కిట్‌పధకం ప్రభావం దీని పరిధిపై భద్రాచలం ఏజెన్సీయందు అధ్యయనం

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TITLE OF THE PROJECT

ప్రభుత్వ ఆరోగ్య కేంద్రాలలో గర్భిణీ స్త్రీలనమోదు మరియు ప్రసవాలు,భవిష్యత్ ఆరోగ్య ం పై కే. సి.ఆర్ కిట్‌పధకం ప్రభావం దీని పరిధిపై భద్రాచలం ఏజెన్సీయందు అధ్యయనం

Statement of the Problem

ఆరోగ్యం పరిరక్షణ శిశువు జననం నుండి సహజ మరణం వరకు అందరికి అవసరం దానిపరిరక్షణ అనేది శిశువు జననం ముందు నుంచి జననం తరువాత ,ఆహారపు అలవాట్లు, వాతావరణ స్థితి ,జన్యు సంబంధ అంశాలు, వ్యాధి నివారణ చర్యలు, వాక్సిన్లు మొదలైన అంశాలు ప్రభావితంచేస్తాయి కావున శిశు జనన ప్రక్రియకు ముందునుంచి అవగాహన కలిగి ఉన్నట్లైతే మంచి ఆరోగ్య స్థితి కలుగుతుంది. ఇటువంటి అవగాహనను పెంపొందించడం లో ఆరోగ్య సంరక్షణ పధకాల అమలు ఎంతో ఉపయోగకరము. దానిలో భాగం ఈ కే.సి.ఆర్ కిట్ పధకం దాని అమలు ప్రక్రియలోమౌళిక అంశాలు భవిష్యత్ ఉపయోగంపై అధ్యయనం.

Why the Problem is important

సాధరణంగా అందరికి తెలిసిన విషయం ఏమిటి అంటే చికిత్స కంటే నివారణ ముఖ్యం అంటే ఒక ఆనారోగ్య స్థితిని పొందిన తరువాత చేసే చికిత్స కంటే ఆ స్థితి రాకుండా ముందస్తు నివారణ చర్యలు (Premedical treatment)చాల ఉత్తమమైనవి. ఎందుకంటే పోస్ట్ మెడికల్ ఆక్టివిటీస్ వలన మానసిక,శారీరక ఇబ్బందులు, ఆర్థిక భారం, కుటుంబ సమస్యలు, వ్యాధి వంశపారపర్య అయ్యె అవకాశం, సామాజిక స్థితిలో ఏ మార్పు రాకపోవడం వంటి సమస్యలు వస్తాయి. చివరకు ఎక్కువ మొత్తంలో Post medical Investment చేయవలసి వస్తుంది.
ప్రి మెడికల్ టెక్నోలజి అవగాహన వలన ఎటువంటి సమస్యలు ఉండవు. కాబట్టి ఈ కే.సి.ఆర్ కిట్ పధకం ప్రి మెడికల్ ఆక్టివిటీస్ ను పెంచి Post medical Investments తగ్గించి త ద్వారా సామాజిక స్థితిలో మార్పును తెస్తుంది.

Project Aim:

ఆరోగ్య కేంద్రాలలో గర్భిణీ స్త్రీలనమోదు మరియు ప్రసవాలపై కే.సి.ఆర్ కిట్ పధకం పాత్రను గణాంకాలతో అధ్యయనం చేయుట.

Objectives:

- భద్రాచలం నందు స్థానిక ఒక ప్రైవేట్ మరియు ప్రభుత్వ ఏరియా వైద్యశాల లలో గర్భిణీ స్త్రీలనమోదు మరియు ప్రసవాల గణాంకాలను అధ్యయనం చేయుట.
- భద్రాచలానికి సమాన దూరంలో గల రెండు తెలంగాణ, రెండు ఆంధ్రప్రదేశ్ P.H.C.లలో గర్భిణీ స్త్రీల నమోదు మరియు ప్రసవాల గణాంకాలను అధ్యయనం చేయుట.
  - తెలంగాణ రాష్ట్రంలోని నమూనాలుగా తీసుకున్న ఆరోగ్యకేంద్రాలలో కె.సి.ఆర్ కిట్ పధకం ముందు 5నెలలు, పధకం తరువాత 5నెలలు గర్భిణీ స్త్రీల నమోదు మరియు ప్రసవాల గణాంకాలను అధ్యయనం చేయుట.
- నమూనాలుగా తీసుకున్న అన్ని వైద్యశాలలలో ప్రసవించిన శిశువుల SEX RATIO,

  IMR,MMR, Vaccination Position,

  Baby Mother Health Condition,

  Tubectomy గణాంకాలను అధ్యయనం చేయుట.
- ఈ పధకం అమలులో ఉన్న ఆటంకాలను గుర్తించటం.

- ఫలితాలను అనుసరించి మెరుగైన స్థితిని పెంచుటకు సమస్యలు నివారణకు సూచనలు తెలియపరచటము.

Introduction:

ప్రభుత్వ ఆసుపత్రులు సాధారణ మానవుడి ఆరోగ్య పరిరక్షణ కేంద్రాలు. ప్రభుత్వం నడిపే చిన్న స్థాయి ఆరోగ్య కేంద్రంనుండి పెద్ద స్థాయి మల్టి స్పెషాలిటి హాస్పిటల్స్ వరకు మెరుగైన ,అందరికి అందుబాటులో ఉండే వైద్యంను అందించడం జరుగుతుంది.ప్రతి మండల స్థాయి వరకు ఈ వ్యవస్థ ఉంటుంది. గ్రామ స్థాయిలో ఏ.ఎన్.ఎమ్ అంగన్‌వాడిలు, ఆశా కార్యకర్త ల ద్వారా సేవను అందించడం జరుగుతుంది.ఐతే ప్రభుత్వం అన్నిరకాల వైద్యంను అందించిన కొన్ని అంశాలలో సరైన వైద్య సేవలు అందరికి అందుబాటులోకి రావటంలేదు. ముఖ్యంగా ఇప్పటికి గ్రామాలలో గర్భిణీల ఇళ్లల్లోనే ప్రసవ ప్రక్రియలు జరుగుతున్నాయి. దాని వలన మాతా-శిశుమరణాలు జరుగుతున్నాయి. ఒకవేల మరణం సంభవించక పోయిన గృహాలలో ప్రసవాల వలన వారికి కొన్ని రకాల వ్యాధులు వ్యాపించటం తద్వారా భవిష్యత్ లో వారికి అనేక వ్యాధులు రావటం జరుగుతున్నాయి. ఎందుకంటే ప్రసవ ప్రక్రియ అనంతరం జరగవలసిన తప్పనిసరి చర్యలు అక్కడ చేయకపోవడం వలన అలాగే స్త్రీ గర్భందాల్చిన తర్వాత తీసుకోవాల్సిన నియమాలు నిబంధనలు ఆహారంపై పూర్తి అవగాహన రాహిత్యం జరుగుతుంది. వాక్సినేషన్ ప్రక్రియ కూడా తెలపడం లేదు. దీనివల్ల భవిష్యత్ లో అనేక సమస్యలకు మూలం అవుతున్నాయి. దీనిని దృష్టిలో ఉంచుకుని తెలంగాణ రాష్ట్ర ప్రభుత్వం గర్భిణి స్త్రీలకు మరియు నవజాత శిశువులకు ఉపయోగ కరమైన ఒక మంచి ఆరోగ్య పధకంను ప్రవేశపెట్టినారు. అదే కే.సి.ఆర్ కిట్ పధకం. దీనిని గౌరవ ముఖ్యమంత్రి కె.చంద్ర శేఖర్ రావు గారు 03-06-2017 న వారి చేతుల మీదగా ప్రారంభించినారు.

Review of the Literature:

K.C.R KIT Scheme:

- కే.సి.ఆర్ కిట్ అనగా పేద గర్భిణి మహిళలకు నవజాత శిశువులకు తెలంగాణ ప్రభుత్వం ప్రవేశ పెట్టిన ఒక ఆరోగ్య పధకం.
- KCR

  KIT పధకం జాతీయ ఆరోగ్య మిషన్‌లో భాగమైన"జననీ శిశు సురక్ష కార్యక్రమం" నకు అనుబంధంగా ఏర్పాటు చేయటం జరిగింది.

KCR Kit Scheme Aim: Providing all essentials for Pregnant woman and New born baby thus helping to manage Pregnancy complication.

Budget – 2017-18

605 కోట్లు కేటాయింపు ఈ పధకం కోసం జరిగినది.

KCR Kit Scheme Official Website ID :

www.http://kcrkit.Telangana.gov.in

కే.సి.ఆర్ కిట్ పధకంలో గర్భిణి స్త్రీల పేరు నమోదు ప్రక్రియ :

ఇది పూర్తిగా ఆన్ లైన్‌లో ANM login /MO login

ద్వారా గర్భిణి స్త్రీలు నమోదు చేసుకోవచ్చు .

KCR Kit Image :

KCR- kit Item wise list :(Total Worth Rs/- : 2000/-)

- Special Mother
- Child care soap
- Newborn Baby bed
- Baby Oil
- Baby mosquitoes net
- Sarees for mother(2)
- Hand Bags
- Towel
- Napkin
- Dresses for baby(2)
- Baby Powder
- Diapers
- Baby Shampoo
- Kid Toys

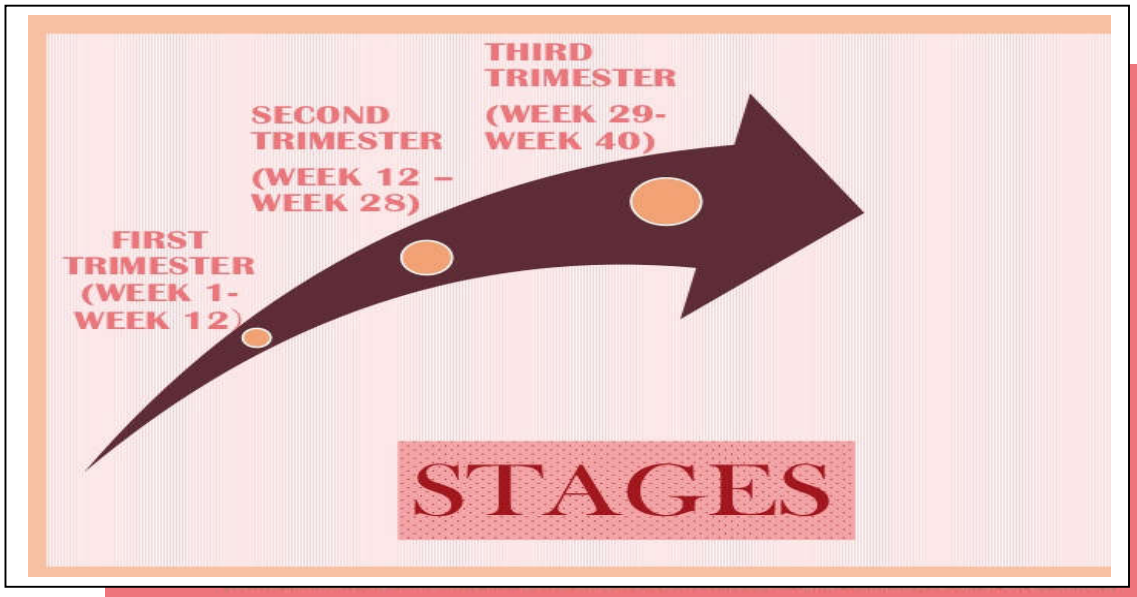
Amount Dispersal Procedure

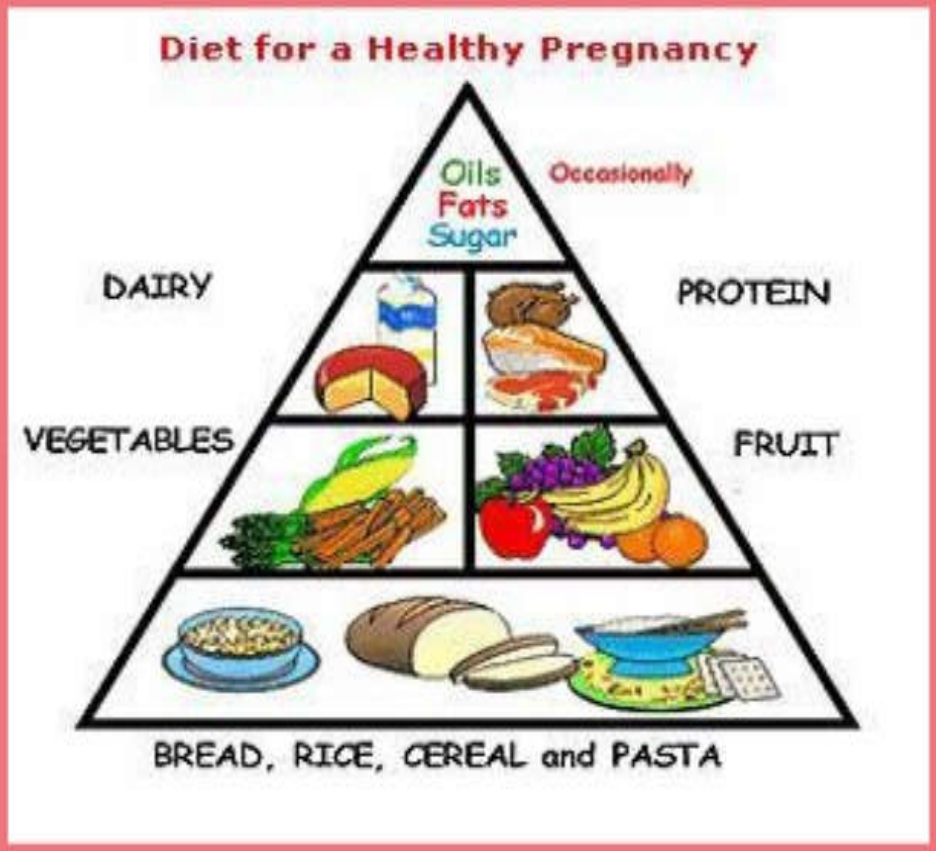
Installment	Amount	Conditions	Timeline (after conception)
1st	3000/-	Registration of pregnancy at Public Health Facility. 5-6 months	5-6 months
		At least 2 ANC checkups by the Medical Officer with IFA tablets & Inj.TT within 5-6 months.	
2nd	5000/- (Female Child), 4000/- (Male Child)	Delivery in public health institution	9 months
		The Child has to receive BCG, OPV 0 dose and Birth Dose of Hep.B.	
		KCR Kit will also be given	
3rd	2000/-	Child has to receive OPV 1, 2 & 3 and IPV 1 & 2 doses.	12 ½ months
		At the age of child 3 ½ months.	
4th	3000/-	Child has to receive Measles vaccine, Vitamin A and JE 1st dose at the age of child 9 months.	18 months

గర్భధారణ - ప్రసవాలు

పుట్టుక అనేది అనుభవ పూరక ప్రయాణం. ప్రతి పుట్టుక తల్లికి పునర్జన్మ. తల్లి శిశువుకు ఒక కొత్త ప్రపంచంను, సంతోషాన్ని ,శక్తిని ఇస్తుంది. గర్భధారణ అనగా జనన మునకు ముందు తల్లి గర్భమందు కల కాలం.శుక్రకణం అండం కలయిక జరిగి ఫలదీక రణ జరిగి సంయుక్త బీజం ఏర్పడి అది గర్భాశయం నందు స్థాపన జరిగి పెరిగి పిండం గా మారి శిశువుగా మారుట జరుగును. గర్భధారణకు 40 వారాలు (9నెలలు సమయం) పడుతుంది.

సాధారణ స్త్రీలలో రుతుచక్రం ఆగడం వలన గర్భధారణ మొదలవుతుంది. గర్భధారణ మూడు దశలుగా పేర్కొంటారు. ప్రతి దశకు మూడు నెలల కాలం

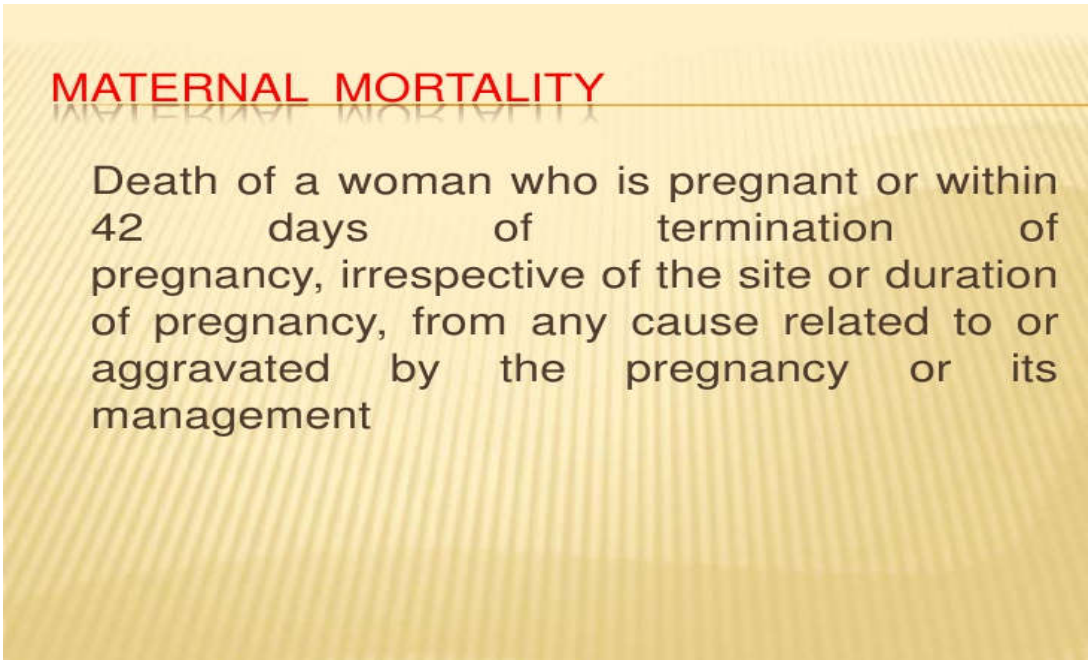


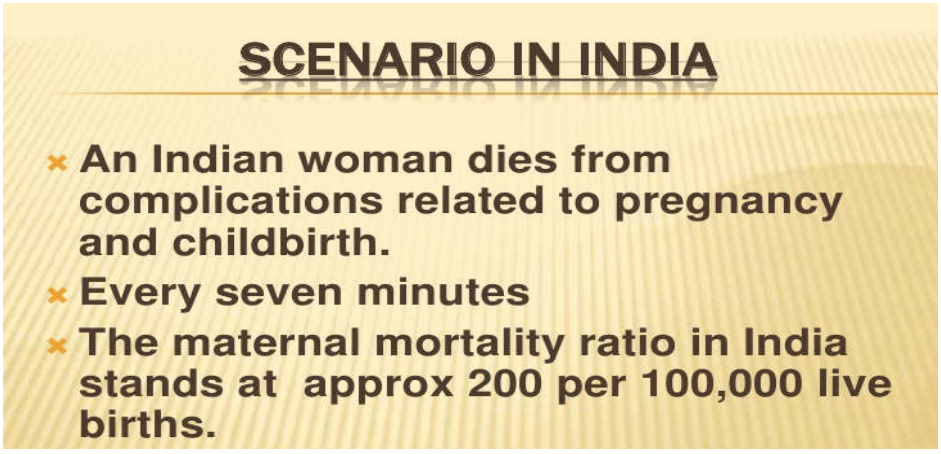


ప్రసవం ; శిశుజనన ప్రక్రియను ప్రసవంగా పేర్కొంటారు. ప్రసవ ప్రక్రియ అనేది పురాతణకాలం నుంచి సాదారణ ప్రసవం చేసెడివారు కాని ఆధునిక కాలంలో చాలామంది. గర్భిణులు సిజేరియన్ పద్ధతి ద్వారానే ప్రసవం జరుపుకుంటున్నారు. దీనికి కారణం ప్రైవేటు హాస్పిటల్

యాజమాన్యాలు, నొప్పులు భరించలేనివారు , భయంవంటి కారణాలు .సాధారణంగా భారత దేశంలో శిశుజనన ప్రక్రియకు సాధారణ ప్రసవంకు 85% అవకాశం ఉంది.ఇతర పద్ధతులకు 10 -15 % అవకాశం ఉంది.

MMR :Mother Mortality Rate





GLOBAL BURDEN

- 5,29,000 deaths / yr or 400/ 1 lakh live births
- 1 death per minute
- 1% in developed countries
- Range – 24 to 830 / 100,000 live births
- 19/20 countries with high MMR – Sub Saharan Africa

NOTE - MMR

- *The appropriate **denominator** for the maternal mortality ratio would be the total number of pregnancies (live births, fetal deaths or stillbirths, induced and spontaneous abortions, ectopic and molar pregnancies).*
- *However, this figure is seldom available and thus number of live births is used as the denominator.*
- *In countries where maternal mortality is high denominator used is per 1000 live births but as this indicator is reduced with better services, the denominator used is per 1,00,000 live births to avoid figure in decimals.*

'DELAY' MODEL

- Delay in seeking care
- Delay in transport to appropriate health facility
- Delay in provision of adequate care

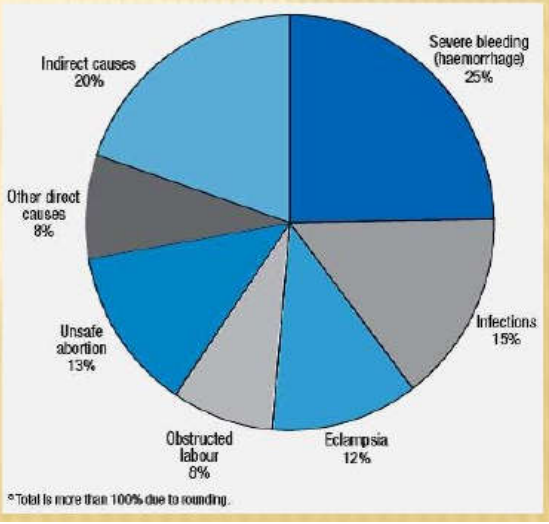
CAUSES OF MATERNAL MORTALITY

20 % - indirect

80 % - direct

Four Major causes

- **Haemorrhage**
- **Infection (sepsis)**
- **Eclampsia**
- **Obstructed Labour**



SOCIAL ISSUES

- Early marriage
- Gender discrimination
- Illiteracy
- Desire for selective sex of child- female feticide
- Domestic violence

ECONOMIC ISSUES

- Lack of money
- Lack of timely transport and communication
- Delay in taking decision to shift
- Improper dietary habits

MEDICAL ISSUES

- Lack of ANC
- Lack of emergency obstetric care
- Lack of blood and blood products
- Lack of essential drugs
- Junior staff dealing with high risk cases without supervision
- Delay in diagnosis / wrong diagnosis

IMPACT OF MATERNAL DEATHS

- Children who lost their mothers are more likely to die within two years of maternal death
- 10 times the chance of death for the neonate
- 7 times the chance of death for infants older than one month
- 3 times the chance of death for children 1 to5 years
- Enrolment in school for younger children is delayed and older children often leave school to support their family.

IMR

INFANT MORTALITY RATE

- the ratio of infant deaths registered in a given year to the total number of live births registered in the same year; usually expressed as a rate per 1000 live births.
- it is given by the formula:

$$\text{IMR} = \frac{\text{Number of deaths of children less than one year of age in a year}}{\text{Number of live births in the same year}} \times 1000$$

4 May 2015 2

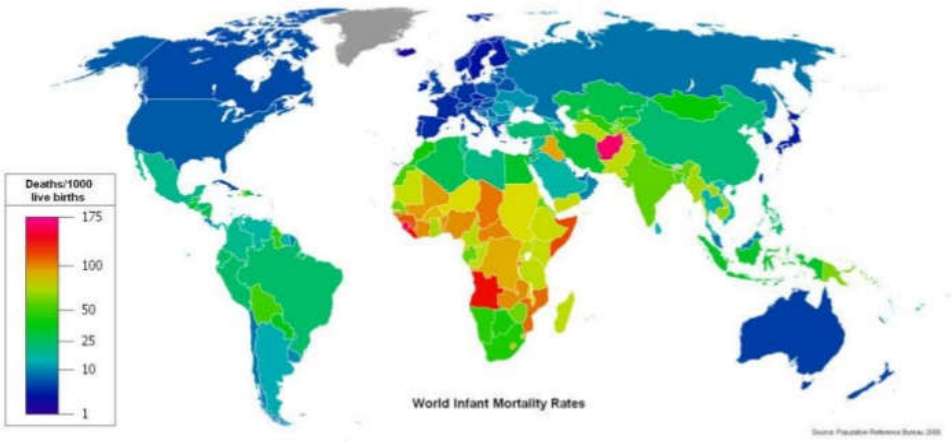
Infant mortality in India

- 41 in the year 2012
- 204 during 1911-15
- Madhya Pradesh- IMR of 56, & Kerala- as low as 12 per 1000 live births during the year 2012.
- Kerala, Maharashtra, Punjab, T.N, W.B, A.P, Haryana, K'taka, Gujarat, H.P and Jharkhand have achieved IMR below national average of 42.
- Odisha, M.P, U.P, Assam and Rajasthan- IMR > 42!

Medical causes of infant mortality

Neonatal mortality (0-4 weeks)	Post-neonatal mortality (1-12 months)
1. Low birth weight and prematurity 2. Birth injury and difficult labour 3. Sepsis 4. Congenital anomalies 5. Haemolytic diseases of newborn 6. Conditions of placenta and cord 7. Diarrhoeal diseases 8. Acute respiratory infections 9. Tetanus	1. Diarrhoeal diseases 2. Acute respiratory infections 3. Other communicable diseases 4. Malnutrition 5. Congenital anomalies 6. Accidents

Infant Mortality Rate over the World



Vaccination

- Immunization is a process of protecting an individual from a disease through introduction of live, or killed or attenuated organisms in the individual system. Immunization against vaccine-preventable diseases is essential to reduce the child mortality, morbidity and handicapped condition.

Six Killer disease

- Poliomyelitis,
- Tuberculosis,
- Diphtheria,
- Pertussis,
- Tetanus
- Measles

Immunizing agents

- Vaccines
- Immunoglobulin
- Antisera or Antitoxins

Vaccines

- vaccines are immune-biological substance which produce specific protection against a given disease.
- It stimulate active production of protective antibody and other immune mechanisms.
- Vaccines are prepared from live attenuated organisms and killed attenuated vaccines

Cont...

- Live attenuated vaccines-
  - Bacterial- BCG, Typhoid(oral), Plague
  - Viral- oral polio, measles, mumps, rubella, yellow fever, influenza
  - Rickettisal- Epi. Typhus.
- Killed vaccines –
  - Bacterial- pertussis, typhoid, cholera,
  - Viral- Rabies, Hepatitis B, Influenza, Japanese encephalitis
  - Combinations- DTP, MMR, DT, Hib-Hep B,

Immunoglobulin

- the human immunoglobulin (Ig) system is composed of 5 major classes (IgG, IgM, IgA, IgD, & IgE) and subclasses within them.

Antisera or Antitoxins

- The term antisera is applied to the material prepared in animal. Organically passive immunity was achieved by the administration of antisera or antitoxins prepared from non- human sources like horse.
  - ***Bacterial***- Diphtheria, tetanus, Gas gangrene
  - **Viral**- Rabies.

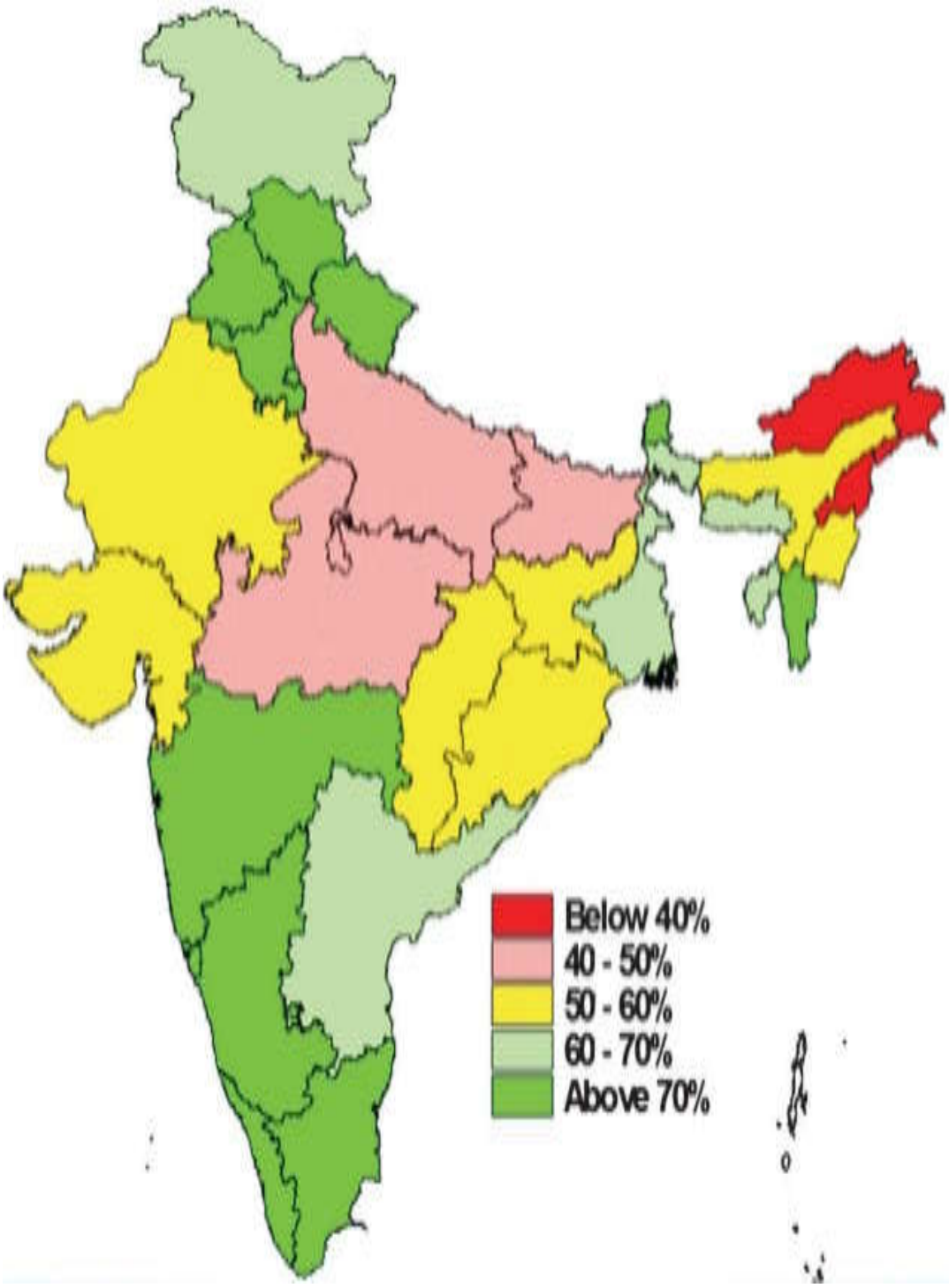
National immunization Schedule

- Immunization schedule should be planned according to the needs of the community.
- It must be effective, feasible and acceptable by the community. Every country has its own immunization schedule.

•The **WHO** launched global immunization program in **1974**, known as **E**xpended **p**rogram on **I**mmunization**(EPI)** to protect all children of the world against **six killer disease**.

Cont...

- In **INDIA** **EPI** was launched in **January 1978**.
- The EPI is now renamed as Universal Child Immunization, as per declaration sponsored by **UNICEF**.
- IN India, it is called as **U**niversal **I**mmunization **P**rogram(**UIP**) and was launched in **1985**, November, for the universal coverage of immunization to the eligible population.


Below 40%
40 - 50%
50 - 60%
60 - 70%
Above 70%

National Immunization Schedule

Age	Vaccines
Birth	BCG, OPV-O, Hep B
6 weeks	DPT -1, OPV -1, Hep B
10 weeks	DPT -2, OPV -2, Hep B
14 weeks	DPT -3, OPV-3, Hep B
9 months	Measles with vitamin A
16-24 months	DPT booster 1st , OPV - Booster,
5 years	DPT Booster 2nd
10 years	TT
16 years	TT

AGE	VACCINES
16-24 months	Measles 2nd dose
16-24 months	Japanese Encephalitis
18 , 24, 30, 36, 42, 48, 54, 60 months	Vitamin A

VACCINES	AGE
TT-1	Early in pregnancy
TT-2	4 weeks after TT-1
TT booster	if received 2 TT doses in last pregnancy within last 3 years

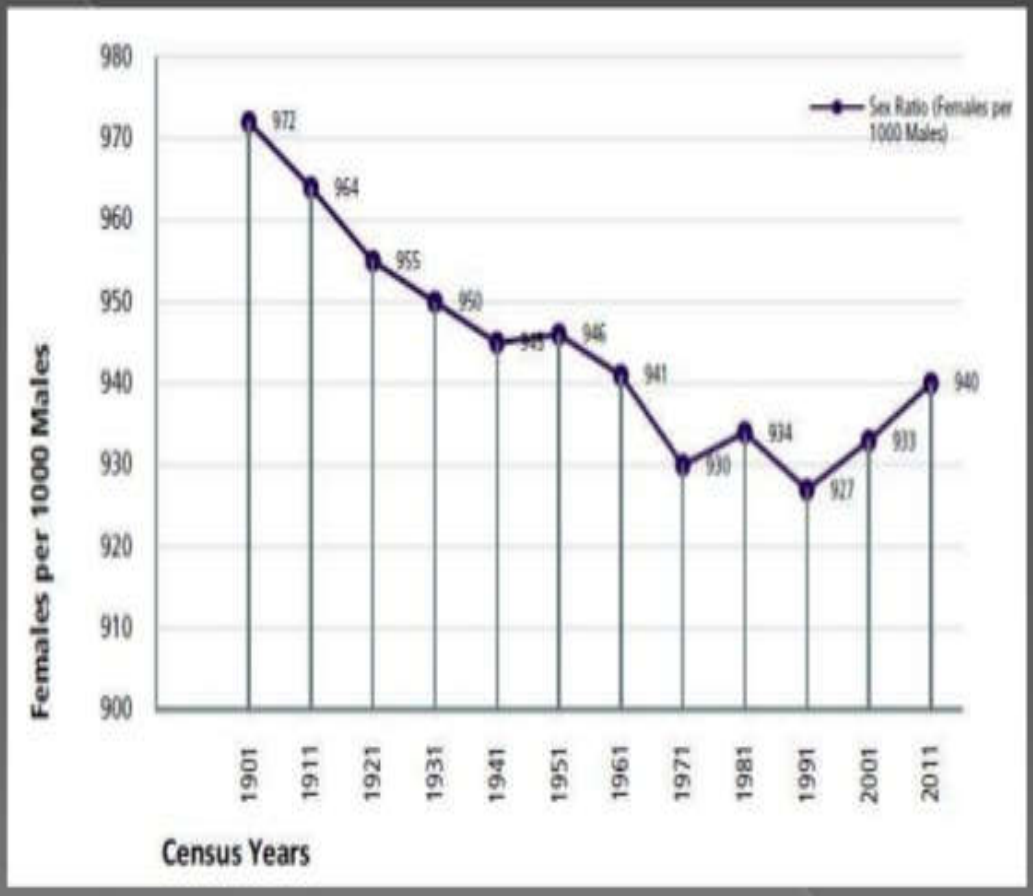
SEX RATIO

- It is an index of male - female (im)balance in population.
- Sex ratio, in India, is defined as the number of females per 1000 males in the population. Internationally sex ratio is defined as number of males per 100 females.
- At the Census 2001, sex ratio of population stood at 933 females per 1000 males a marginal increase from 927 recorded at the 1991 Census

- 586.46 million.
- 48.46% of total.

- 623.7 million.
- 51.54% of total.

Sex Ratio Trend in India



The sex ratio in India has been historically negative or in other words, unfavourable to females. Sex ratio reached its lowest in 1991 but since then has kept rising.

IMPLICATIONS

- By 2020 there could be more than 35 million young "surplus males" in China and 25 million in India.

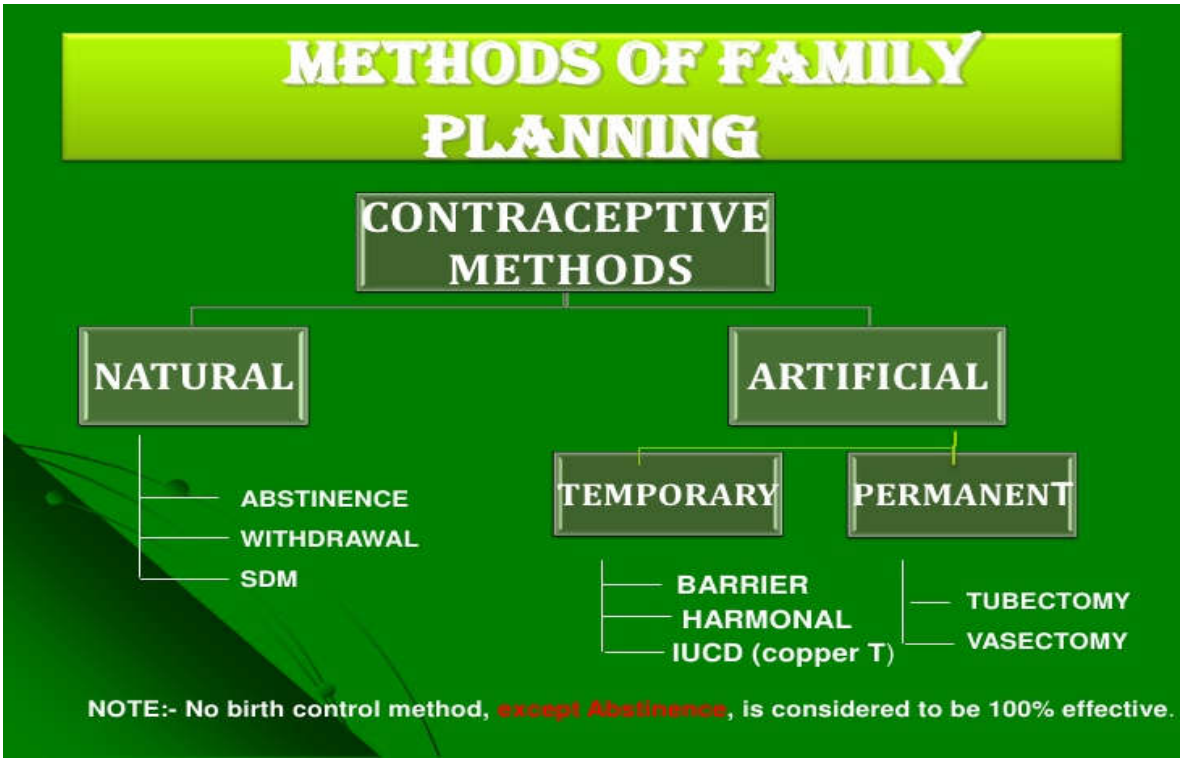
Because of :

- Practices such as infanticide.
- Trafficking ?.
- Violence against women and girls.

Reasons of such declination:

- Female Foeticide
- Son Prefrence & Daughter Aversion
- Post Birth Sex Selection
- **Social** Attitude & Perceptions
- Lack of education & Awareness
- Demographic
- **Commercial**
- Logical

TUBECTOMY



II. TUBECTOMY:

- **FEMALE STERILIZATION:**
- **PART OF THE FALLOPIAN TUBE IS REMOVED.**
- **THE TWO ENDS ARE TIGHTLY LIGATED.**
- **CAN BE DONE AS:**
  - **POST PARTUM STERILIZATION**

LAPAROSCOPIC STERELIZATION

Material and Methodology

ఈ ప్రాజెక్టు వర్కు ను మేము చేయుటకు శాంప్లింగ్ మరియు డేటా కలెక్షన్ పద్ధతులను, సర్వే విధానాన్ని ఎన్నుకోవడం జరిగినది.

Research site ;

భద్రాచల పట్టణము మరియు భద్రాచలానికి సమాన దూరంలో ఉన్న రెండు తెలంగాణ రెండు ఆంధ్ర P.H.C. లను ఎన్నుకోవడం జరిగింది.భద్రాచలం పట్టణంలో ఉన్న ఒక ప్రభుత్వ (ఏరియా హాస్పిటల్) మరియు ఒక ప్రైవేట్ హాస్పిటల్‌ను మొదటి ల క్ష్య ం చేయుట కు ఎన్ను కోవడం జరిగింది.రెండవ లక్ష్య ం కు భద్రాచలంకు 12 కిలోమీటర్లలో,25 కిలోమీట ర్లలో ఉన్న తెలంగాణ P.H.C. లు వరుసగా నరసాపురం, దుమ్ముగూడెం లను అంతే దూరం లో ఉన్న ఆంధ్ర ప్రదేశ్ P.H.C. లు నెల్లిపాక మరియు గౌరిదేవి పేటలను ఎన్నుకోవడం జరిగినది. మూడవ లక్ష్యమునకు తెలంగాణ ప్రభుత్వ వైద్యశాలలు (ఒక ఏరియా + రెండు P.H.C. లు) లలో కెసిర్ కిట్ పధకం కు ముందు 5నెలలు పధకం తరువాత 5నెలలుఉన్న దేటాను శాంప్లింగ్ గా తీసుకొన్నాము. నాలుగవ లక్ష్యం ను అన్ని వైద్యశాలలలో ఉన్న దేటాను శాంపిల్ గా తీసుకున్నాము.అధికారికంగా అన్ని వైద్యశాలలకు ప్రిన్సిపాల్ గారి అనుమతి పత్రంఅందజేసి తగిన డేటాను వారి నుండి తీసుకోవడంజరిగినది.

వారినుండి తీసుకున్న వివరములు :

Enrollment of Pregnant Women

Total Deliveries

Normal Deliveries

Cesarean Deliveries

IMR
MMR
Male / Female
Vaccination Position
Baby Mother Health Condition
Tubectomy
Monitory Support(Govt.)
Issue of KCR Kit (TS Government)

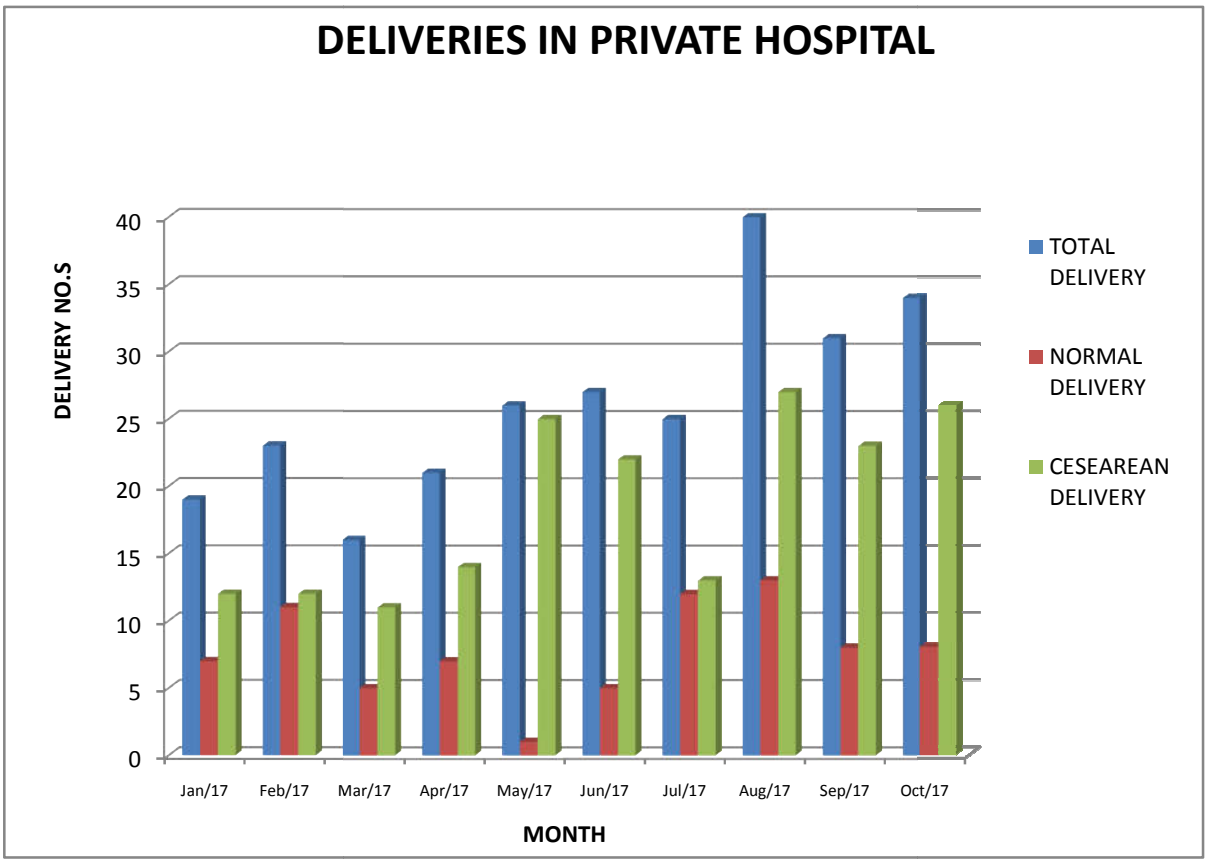
Data collection from Area Hospital – Bhadrachalam

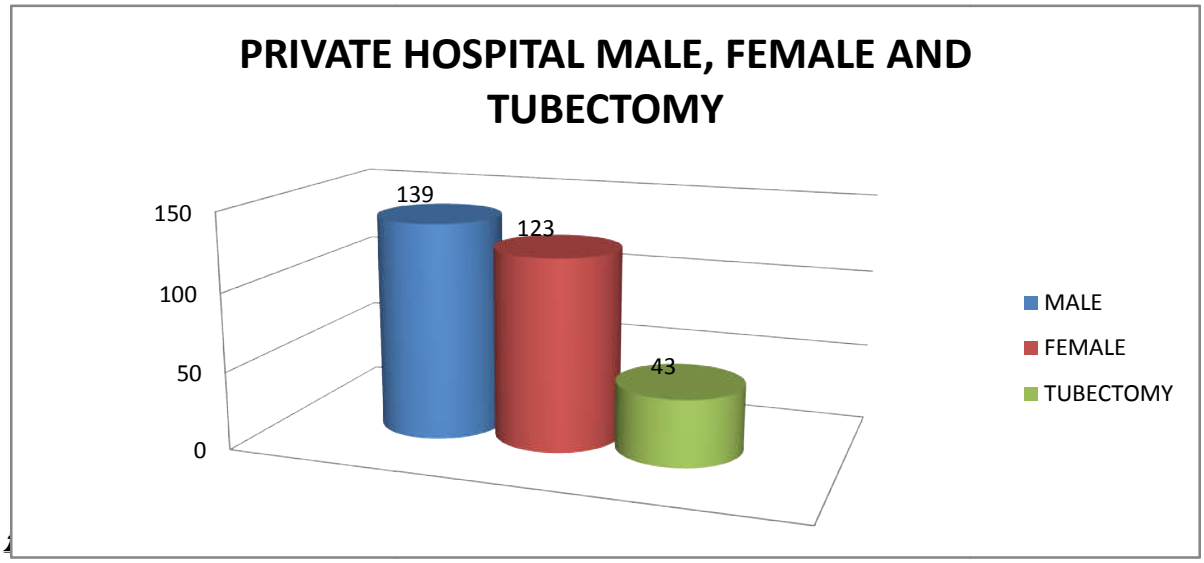
Data Collection form Private Hospital – Bhadrachalam

Research Results:

PRIVATE HOSPITAL DATA IN BHADRACHALAM (TS)

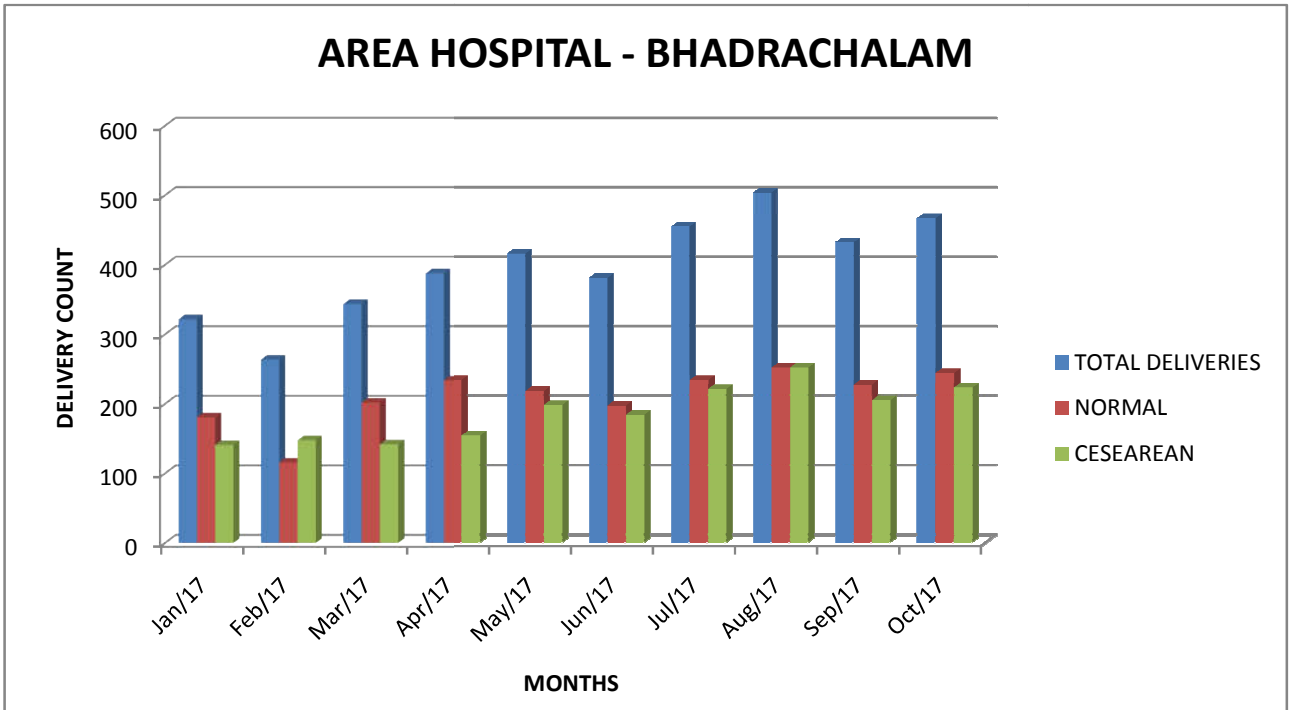
MONTH	PREGNANT WOMEN ENROLMENT	DELIVERY NO.S		IMR	MMR	SEX		VACCINATION	HEALTH CONDITION		TUBECTOMY
		NORMAL	CESEAREAN			MALE	FEMALE		BABY	MOTHER	
Jan-17	19	7	12	0	0	12	7		FINE	3	0
Feb-17	23	11	12	0	0	15	8		FINE	8	0
Mar-17	16	5	11	0	0	9	7		FINE	4	0
Apr-17	21	7	14	0	0	11	10		FINE	7	5
May-17	26	1	25	0	0	10	16		FINE	14	2
Jun-17	27	5	22	0	0	17	10		FINE	13	7
Jul-17	25	12	13	0	0	11	14		FINE	8	4
Aug-17	40	13	27	0	0	22	18		FINE	15	7
Sep-17	31	8	23	0	0	15	16		FINE	11	12
Oct-17	34	8	26	0	0	17	17		FINE	12	6
TOTAL	**262**	**77**	**185**	**0**	**0**	**139**	**123**				**43**

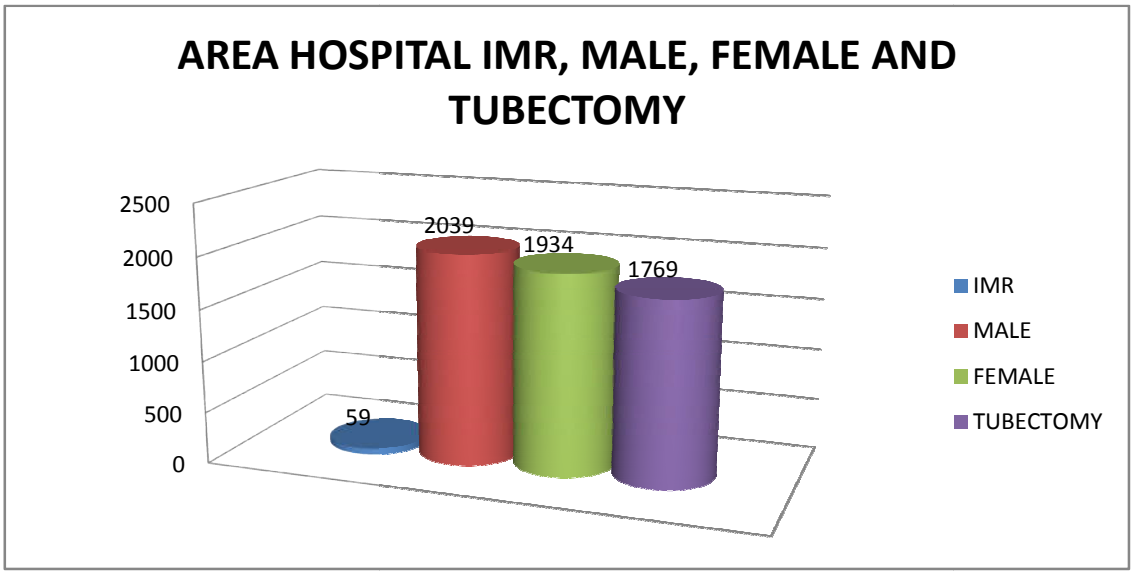

DELIVERIES IN PRIVATE HOSPITAL
DELIVERY NO.S
40
35
30
25
20
15
10
5
0
Jan/17
Feb/17
Mar/17
Apr/17
May/17
Jun/17
Jul/17
Aug/17
Sep/17
Oct/17
MONTH
TOTAL DELIVERY
NORMAL DELIVERY
CESEAREAN DELIVERY


PRIVATE HOSPITAL MALE, FEMALE AND TUBECTOMY
150
100
50
0
139
123
43
MALE
FEMALE
TUBECTOMY

AREA HOSPITAL DATA IN BHADRACHALAM (TS)

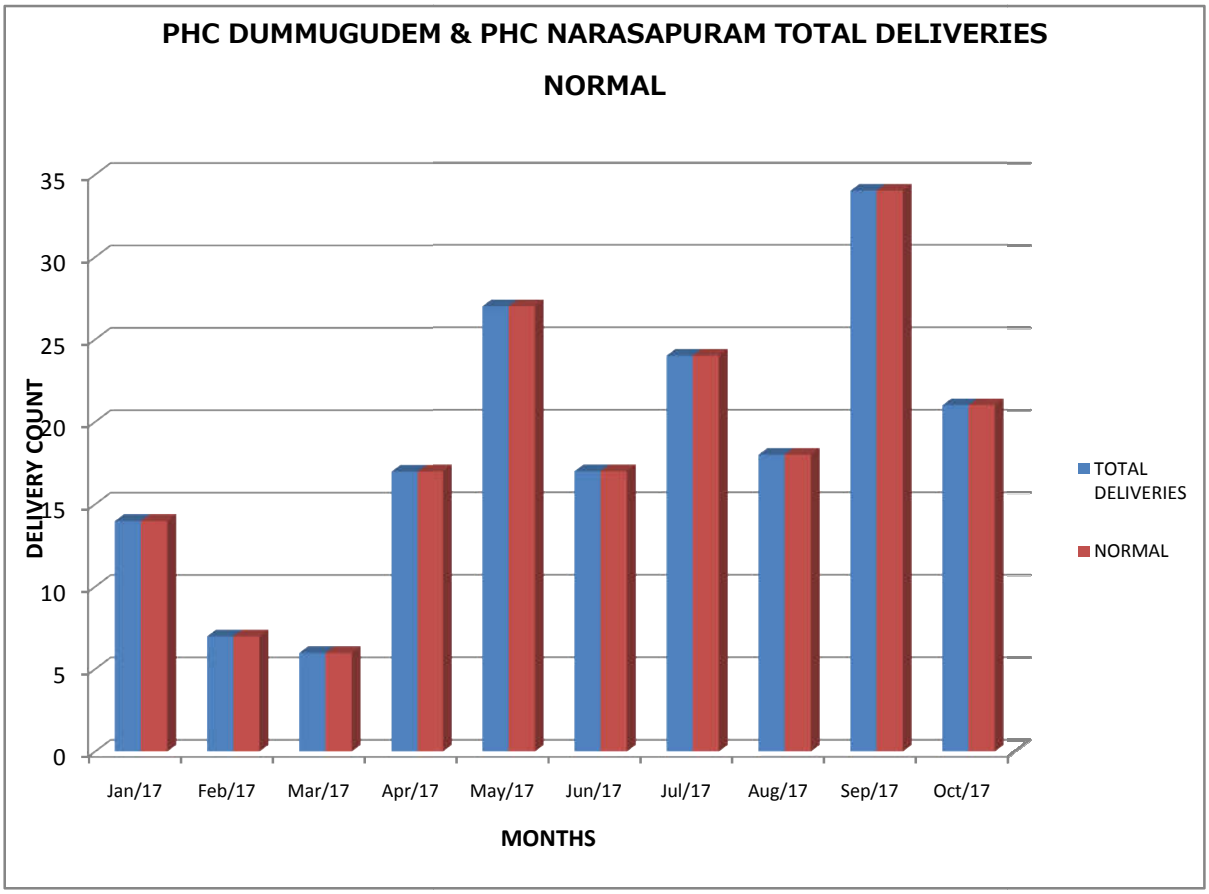
MONTH	PREGNANT WOMEN ENROLMENT	TOTAL DELIVERIES	DELIVERY NO.S		IMR	MMR	SEX		VACCINATION	HEALTH CONDITION		TUBECTOMY	MONETORY SUPPORT	ISSUE OF KCR KIT
			NORMAL	CESEAREAN			MALE	FEMALE		BABY	MOTHER			
Jan-17	865	322	181	141	4	0	142	180	FOLLOWED	2	1	168	12000/13000 + KCR KIT	---
Feb-17	835	264	116	148	2	0	124	140	FOLLOWED	FINE	FINE	158	12000/13000 + KCR KIT	---
Mar-17	1150	344	202	142	11	0	176	168	FOLLOWED	2	FINE	191	12000/13000 + KCR KIT	---
Apr-17	1230	388	234	154	4	0	202	186	FOLLOWED	FINE	FINE	123	12000/13000 + KCR KIT	---
May-17	1575	416	218	198	4	0	225	191	FOLLOWED	3	1	98	12000/13000 + KCR KIT	---
Jun-17	1333	381	197	184	10	0	195	186	FOLLOWED	1	2	176	12000/13000 + KCR KIT	273
Jul-17	1506	455	234	221	6	0	240	215	FOLLOWED	2	1	205	12000/13000 + KCR KIT	283
Aug-17	1052	504	252	252	5	0	261	243	FOLLOWED	1	1	243	12000/13000 + KCR KIT	315
Sep-17	1130	432	227	205	7	0	238	194	FOLLOWED	FINE	FINE	175	12000/13000 + KCR KIT	253
Oct-17	1259	467	244	223	6	0	236	231	FOLLOWED	FINE	FINE	232	12000/13000 + KCR KIT	302
TOTAL	**11935**	**3973**	**2105**	**1868**	**59**	**0**	**2039**	**1934**				**1769**		**1426**

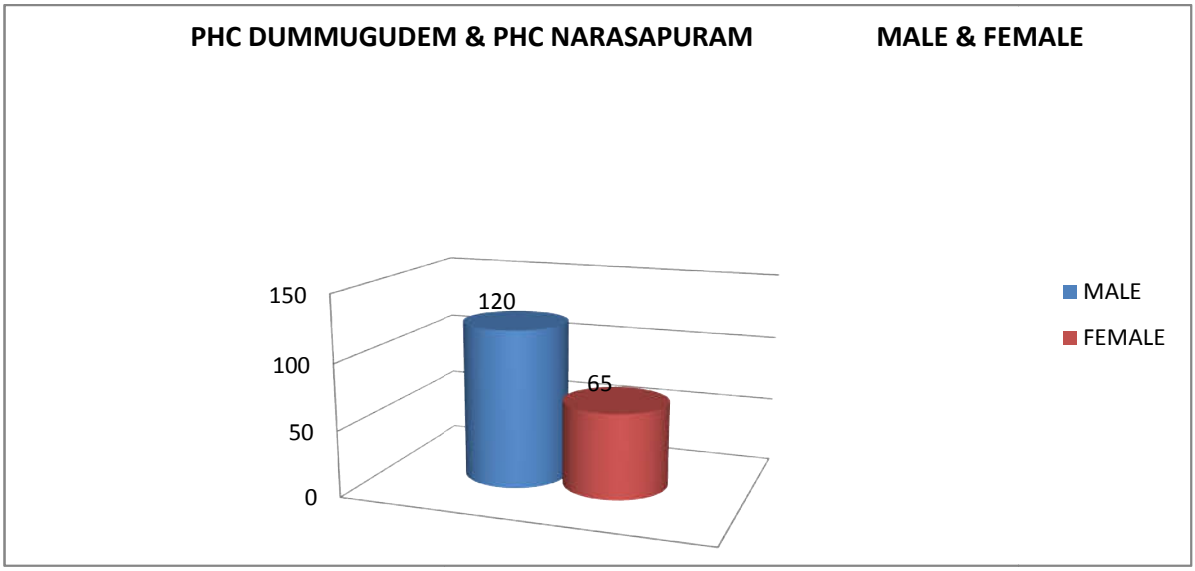




PHC DUMMUGUDEM & PHC NARASAPURAM DATA (TS)

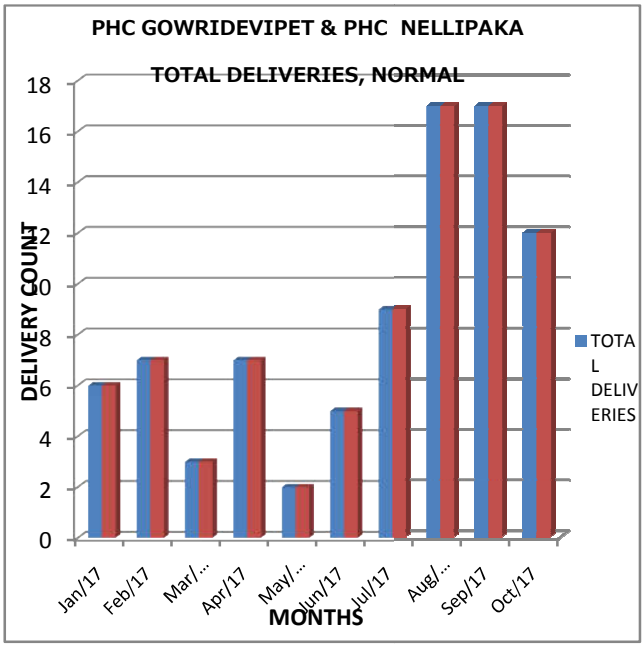
MONTH	TOTAL DELIVERIES	DELIVERY NO.S		IMR	MMR	SEX		VACCINATION	HEALTH CONDITION		TUBECTOMY	MONETORY SUPPORT	ISSUE OF KCR KIT
		NORMAL	CESEAREAN			MALE	FEMALE		BABY	MOTHER			
Jan-17	14	14	0	0	0	9	5	FOLLOWED	FINE	FINE	0	12000/13000 + KCR KIT	---
Feb-17	7	7	0	0	0	2	5	FOLLOWED	FINE	FINE	0	12000/13000 + KCR KIT	---
Mar-17	6	6	0	0	0	2	4	FOLLOWED	FINE	FINE	0	12000/13000 + KCR KIT	---
Apr-17	17	17	0	0	0	16	1	FOLLOWED	FINE	FINE	0	12000/13000 + KCR KIT	---
May-17	27	27	0	0	0	19	8	FOLLOWED	FINE	FINE	0	12000/13000 + KCR KIT	---
Jun-17	17	17	0	0	0	11	6	FOLLOWED	FINE	FINE	0	12000/13000 + KCR KIT	8
Jul-17	24	24	0	0	0	15	9	FOLLOWED	FINE	FINE	0	12000/13000 + KCR KIT	14
Aug-17	18	18	0	0	0	14	4	FOLLOWED	FINE	FINE	0	12000/13000 + KCR KIT	11
Sep-17	34	34	0	0	0	18	16	FOLLOWED	FINE	FINE	0	12000/13000 + KCR KIT	22
Oct-17	21	21	0	0	0	14	7	FOLLOWED	FINE	FINE	0	12000/13000 + KCR KIT	10
TOTAL	**185**	**185**		**0**	**0**	**0**		**120**	**65**				**65**

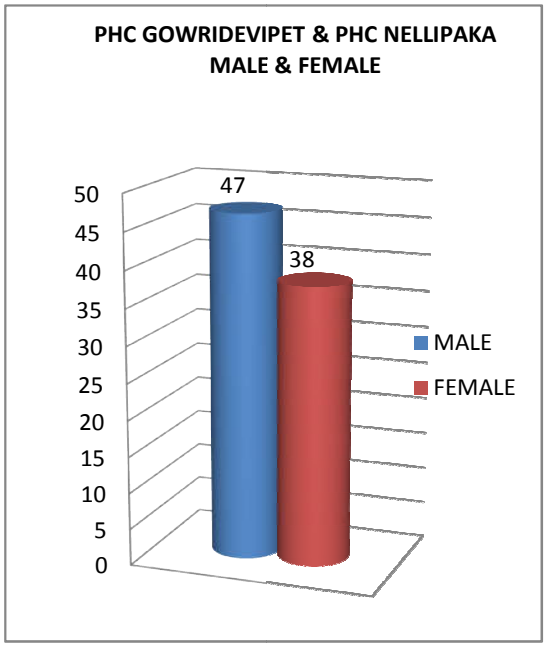

PHC DUMMUGUDEM & PHC NARASAPURAM TOTAL DELIVERIES
NORMAL
DELIVERY COUNT
35
30
25
20
15
10
5
0
Jan/17
Feb/17
Mar/17
Apr/17
May/17
Jun/17
Jul/17
Aug/17
Sep/17
Oct/17
MONTHS
TOTAL DELIVERIES
NORMAL


PHC DUMMUGUDEM & PHC NARASAPURAM
MALE & FEMALE
150
100
50
0
120
65
MALE
FEMALE

PHC GOURIDEVIPET & PHC NELLIPAKA DATA (AP)

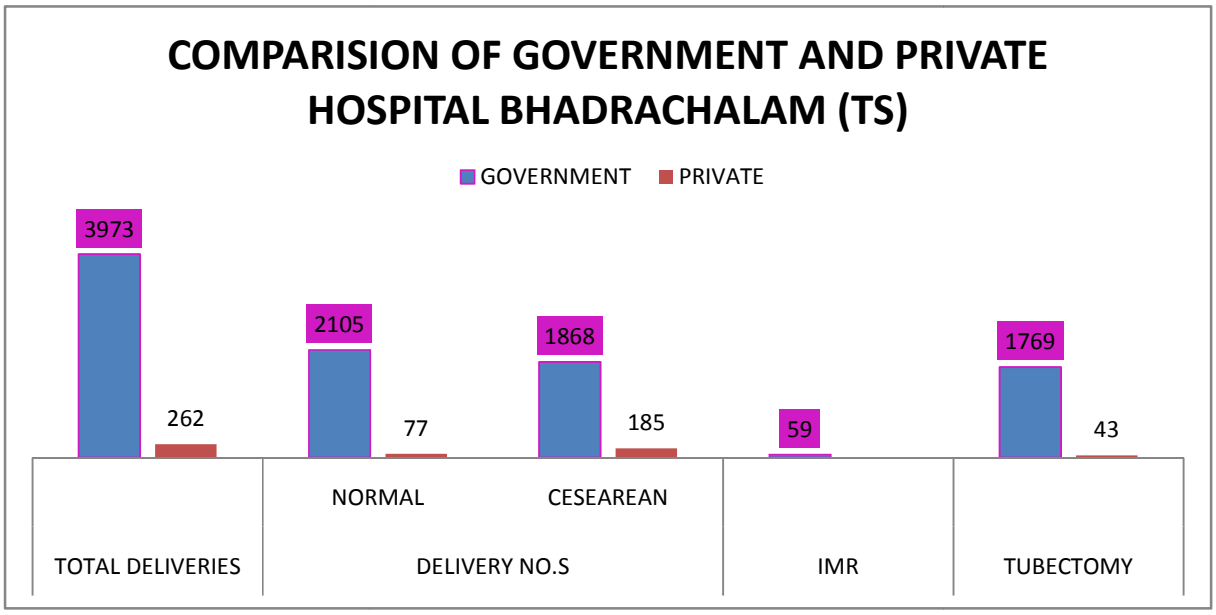
MONTH	TOTAL DELIVERIES	DELIVERY NO.S		IMR	MMR	SEX		VACCINATION	HEALTH CONDITION		TUBECTOMY	MONETORY SUPPORT
		NORMAL	CESEAREAN			MALE	FEMALE		BABY	MOTHER		
Jan-17	6	6	0	0	0	2	4	FOLLOWED	FINE	FINE	0	1000
Feb-17	7	7	0	0	0	3	4	FOLLOWED	FINE	FINE	0	1000
Mar-17	3	3	0	0	0	1	2	FOLLOWED	FINE	FINE	0	1000
Apr-17	7	7	0	0	0	4	3	FOLLOWED	FINE	FINE	0	1000
May-17	2	2	0	0	0	1	1	FOLLOWED	FINE	FINE	0	1000
Jun-17	5	5	0	0	0	3	2	FOLLOWED	FINE	FINE	0	1000
Jul-17	9	9	0	0	0	8	1	FOLLOWED	FINE	FINE	0	1000
Aug-17	17	17	0	0	0	7	10	FOLLOWED	FINE	FINE	0	1000
Sep-17	17	17	0	0	0	11	6	FOLLOWED	FINE	FINE	0	1000
Oct-17	12	12	0	0	0	7	5	FOLLOWED	FINE	FINE	0	1000
TOTAL	**85**	**85**	**0**	**0**	**0**	**47**	**38**				**0**	

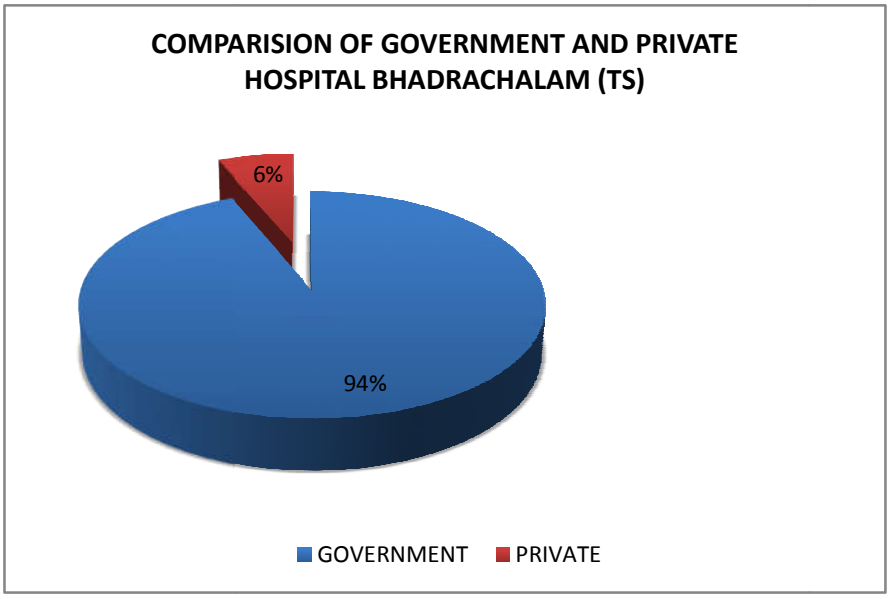




OMPARISION OF GOVERNMENT & PRIVATE HOSPITAL - BHADRACHALAM

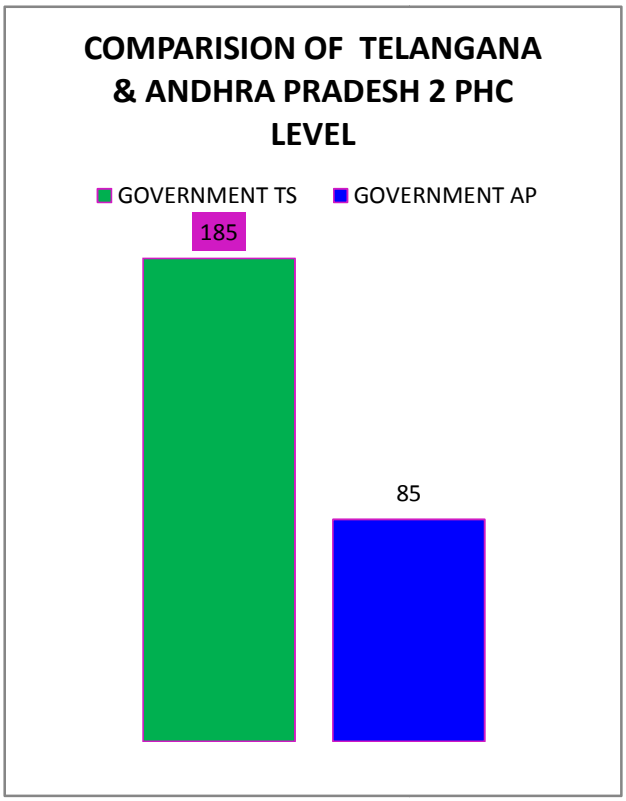
HOSPITAL NAME	TOTAL DELIVERIES	DELIVERY NO.S		IMR	TUBECTOMY	% OF DELIVERIES
		NORMAL	CESEAREAN			
GOVERNMENT	3973	2105	1868	59	1769	94%
PRIVATE	262	77	185		43	6%
TOTAL	4235					100%

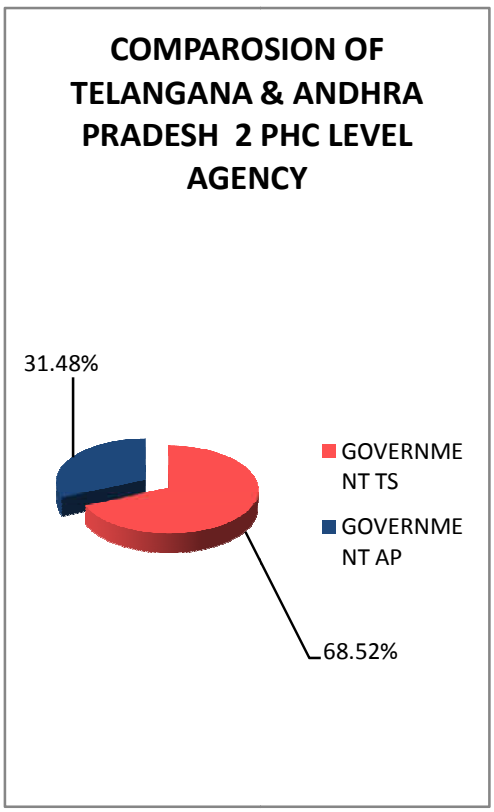




COMPARISION OF GOVERNMENT HOSPITALS IN TELANGANA & ANDHRA PRADESH AGENCY AREA

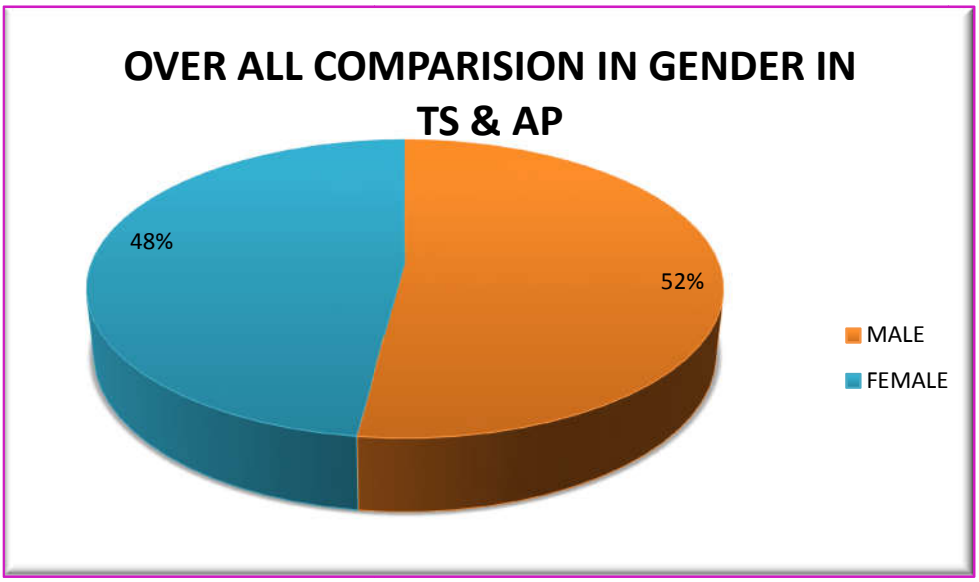
HOSPITAL NAME	TOTAL DELIVERIES	% OF DELIVIERS
GOVERNMENT TS	185	68.52%
GOVERNMENT AP	85	31.48%
TOTAL	270	100.00%





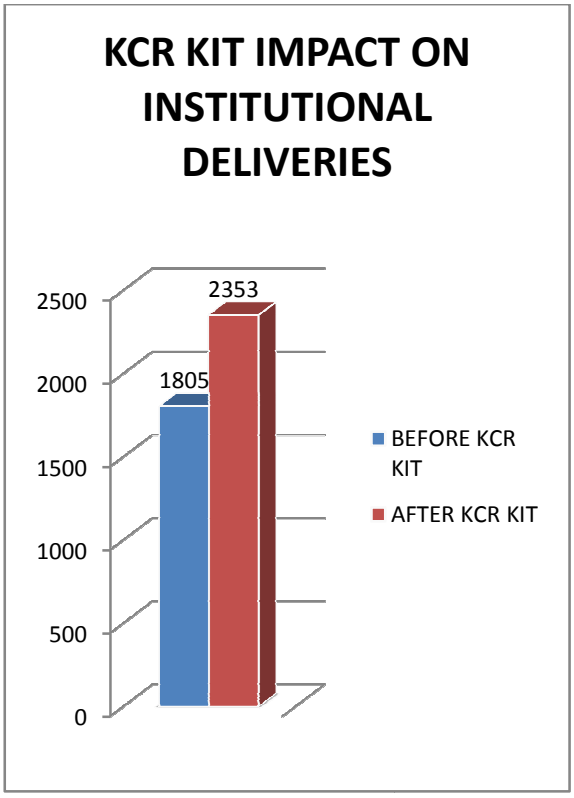
COMPARISION OF GOVERNMENT & PRIVATE HOSPITAL IN TELANGANA & PHC IN ANDHRA PRADESH

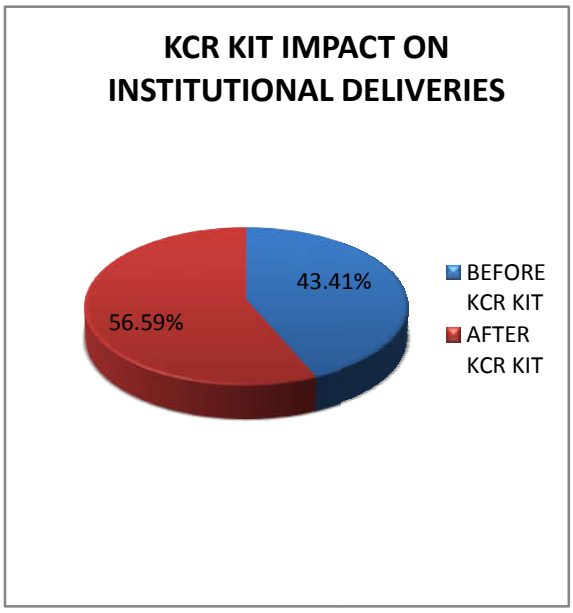
HOSPITAL NAME	TOTAL DELIVERIES	DELIVERY NO.S		IMR	TUBECTOMY	GENDER	
		NORMAL	CESEAREAN			MALE	FEMALE
GOVERNMENT (AREA) TS	3973	2105	1868	59	1769	2039	1934
PRIVATE TS	262	77	185	0	43	139	123
PHC (2) TS	185	185	0	0	0	120	65
PHC (2) AP	85	85	0	0	0	47	38
TOTAL	**4505**	**2452**	**2053**	**59**	**1812**	**2345**	**2160**
						52 %	**48%**



KCR KIT IMPACT ON INSTITUTIONAL DELIVERIES

	TOTAL DELIVERIES (TS AREA & PHC)	%
BEFORE KCR KIT	1805	43.41%
AFTER KCR KIT	2353	56.59%
TOTAL	4158	100.00%





Research Findings

మొదటిలక్ష్యం అనగా స్థానిక ప్రభుత్వ, ప్రై వేటు వైద్యశాలల ఫలితాలను పరిశీలించినట్లయితే మొత్తం డెలివరీలలో ప్రైవేటు వైద్యశాలల శాతం కేవలం 6% ప్రభుత్వ వైద్యశాలల శాతం 94%. దీనిని బట్టి ఎక్కువ శాతం(88) ప్రసవ రేటును ప్రభుత్వ వైద్యశాల కలిగి వుంది. ప్రభుత్వ వైద్యశాలలో సాధారణ కాన్పు 53%, సిజెరియన్ 47% కాని ప్రైవేటు వైద్యశాలలో సాధారణ కాన్పు 29% సిజేరియన్ 71% దీనిని బట్టి ప్రభుత్వ వైద్యశాలలో సాధారణ కాన్పు ఎక్కువ శాతం(24)కలిగి వుంది. వాక్సినేష న్ ప్రభుత్వ వైద్యశా లలో క్రమంగా జరుపబడుతుంది. కాని ప్రైవేటులోవాక్సినేషన్ పిల్లల వైద్యశాలకు వెల్లవలసి ఉంటుంది. రెండవ లక్ష్యం అనగా ఆంధ్ర ప్రదేశ్ రాష్ట్ర రెండు P.H.C. లు, తెలంగాణ రాష్ట్ర రెండు P.H.C లు పరిశీలించినట్లయితే తెలంగాణ పి.హెచ్.సి లు 69% ప్రసవ రేటును కలిగి ఉండగా ఆంధ్ర ప్రదేశ్ రాష్ట్ర P.H.C లు కేవలం 31% కలిగి ఉన్నాయి. తెలంగాణ రాష్ట్ర రెండు P.H.C లు ఎక్కువ ప్రసవ శాతం(38) కలిగి వుంది. మూడవ లక్ష్యం అనగా తెలంగాణ ప్రభుత్వ వైద్యశాలలు (ఒక ఏరియా + రెండు P.H.Cలు) లలో కెసిర్ కిట్ పధకం కు ముందు 5నెలలు, పధకం తరువాత 5నెలలుఉన్న దేటాను పరిశీలించినట్లయితే కెసిర్ కిట్ పధకం ముందు ప్రసవాలు 43% పధకం మొదలు 5నెలల వరకు 57% గా ఉన్నాయి.నాలుగవ లక్ష్యం లింగ నిష్పత్తి అబ్బాయిలు 52% అమ్మాయిలు48%. ప్రభుత్వ వైద్యశాలలో IMR కేవలం 59 మంది టుబెక్టమి 812 గా నమోదయినవి. పై ఫలితాలను బట్టి కెసిర్ కిట్ పధకం ప్రభుత్వ Institutional ప్రసవాలను పెంచుట, సాధారణ కాన్పులను పెంచుట, సిజెరియన్ తగ్గించు ట వాక్సినేషన్‌ను పెంచుట మరియు క్రమం పాటించుటకు అనుకూలంగా ఉంది.కెసిర్ కిట్ పధకం లక్ష్యమే కాక అంతకు మించి మేలుకరంగా ఉంది

- Pre Medical activities ఈ పధకం ద్వారా జరగబడుతున్నాయి. తద్వారా Post medical investment

  ను తగ్గించడం జరుగుతుంది. అంటే దీనివలన ఒక కుటుంబంలో అయ్యే వైద్యఖర్చును మరొక రూపంలోనికి అనగా ప్రామాణిక జీవనం మెరుగుపరచుటకు అవకాశం ఉంటుంది. తద్వారా కుటుంబం యొక్క ఆర్థిక స్థితి మెరుగవుతుంది. సామాజిక మార్పు ఆ కుటుంబంలో కనిపిస్తుంది.

- ఒక ప్రైవేటు హాస్పిటల్లో ఒక ప్రసవానికి తక్కువలో తక్కువ మాతాశిశువులిద్దరికి 20,000/- రూపాయల దాకా అవుతుంది.కానిప్రభుత్వ వైద్యశాలలో కెసిర్ కిట్ నగదు వాక్సిన్లు,వైద్య పరీక్షలు, ప్రయాణం (అమ్మఒడి) ఖర్చు తో సుమారుగా 25,000/- రూపాయలు ఆదా అవుతుంది.

కెసిర్ కిట్ పధకంఅమలు లో ఉన్న ఆటంకాలు - పరిష్కారాలు :-

ఈ పధకంకు ఊహించనంత స్పందన రావటంవల్ల చాలా పి.హెచ్ఈసి మరియు ఏరియా వైద్యశాలల పరిధిలో సరైన సదుపాయాలు అందుబాటులో లేవు

- **పి.హెచ్ సి స్థాయిలో కాన్పుల గది ఆదునికీకరణ పూర్తిస్థాయి పరికరాలను సమకూర్చాలి.**
- **వైద్యులు, నర్సులు, గైనకాలజిస్టులు, పిల్లల వైద్యనిపుణులు,అనస్థీషియన్లు, రేడియాలజిస్టులను అవసరం మేరకు నియామకాలు జరగాలి.**
- **ప్రయోగ శాలలను పూర్తిస్థాయిలో ఆధునీకరించి ప్రమాణాలు పాటించాలి.**
- **గర్భిణిలకు ప్రత్యేకంగా మొబైల్ల్యాబ్ వాహనాలను ఏర్పాటు చేయాలి.**
- **ప్రత్యేకంగా ఎక్కువ పడకలను తల్లి పిల్లలకు ఏర్పాటు చేయాలి.**
- **శస్త్ర చికిత్సల అనంతరం వార్డును అత్యంత పరిశు భ్ర ంగా ఉండేటట్లు చేసి ఇన్ఫెక్షన్లను నివారించాలి.**
- **వాక్సినేషన్ను బాగా క్రమపరచాలి.**
- **అమ్మఒడి వాహనాలు పెంచాలి.**
- **పరీక్ష ల నిమిత్తం వచ్చే వారికి భోజన సదుపాయం కల్పించాలి.**
- **రెండవ కాన్పుకు తప్పనిసరిగా కుటుంబ నియంత్రణ చికిత్స చేయాలి.**
- **సాధారణ కాన్పులను ప్రోత్సహించి ప్రోత్సాహకాలను అందించాలి.**
- **ప్రభుత్వ వైద్యశాలలో ప్రసవాలపై నమ్మకంకలగడం కోసం స్థాని క రాజకీయ నాయకులు ప్రభుత్వ అధికారులు ఉద్యోగులు NGO సంస్థల వ్యక్తులు స్థానిక పేరుప్రఖ్యాతులు గల వ్యక్తులకుటుంబాలలోని గర్భిణీలు ప్రభుత్వ వైద్యశాలలోనే ప్రసవం చేయించుకొని ప్రోత్సహించాలి.**

- గిరిజన ప్రాంతాలలో ఎక్కువ ప్రాచుర్యం పొందేటట్లు చేయాలి. దాని కోసం నగదు ప్రోత్సాహం పెంచడం స్థానిక విద్యాసంస్థల సహాయం తీసుకోవడం.ఇంటింటి ప్రచారం వంటి కార్యక్రమాలు చేపట్టడం.
- వైద్య మరియు నర్సింగ్ విద్య కోర్సులు చదువుచున్న వారందరికి గర్భిణిల ఎన్‌రోల్‌మెంట్ చేయించే బాధ్యతను తప్పనిసరిచేయడం.కసిర్‌కిట్ వెబ్‌సైటు పూర్తిస్థాయి సమాచారం తెలిసేటట్లు చెయ్యడం.

Project Team with Guide

Data Collection from Sample Hospitals






Abbreviations:

ANM : Auxiliary Nurse Midwife

PHC: Primary Health Centre

CHC: Community Health Centre

AH: Area Hospital

DH: District Hospital

MCP: Maternal check up card

UPHC: Urban Primary Health Centre

MO : Medical Officer

EDD: Expected delivery Date

LMP : Last Menstrual Period Dy.

DHMO: Deputy District Medical & Health officer

DEO: Data Entry Operator

ANC : Antenatal check up3

AP: Andhra Pradesh

TS: Telangana State

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8. Assessment of infant mortality rate by Dharshak patel & Dhruv patel

Government of Telangana

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Certificate of Participation

Awarded to

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Gdc, Bhadrachalam

for presenting study project on

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at

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DEPARTMENT OF ZOOLOGY

Academic Year:(2017 -18)

PROJECT WORK ON:---Ecosystem---.

SUBMITTED TO DEPARTMENT OF ZOOLOGY

GUIDED BY:

SUBMITTED BY:

1.	Ch. Priyanka	6.	K. Thirupathi
2.	K. Anitha	7.	
3.	K. Saraswathi	8.	
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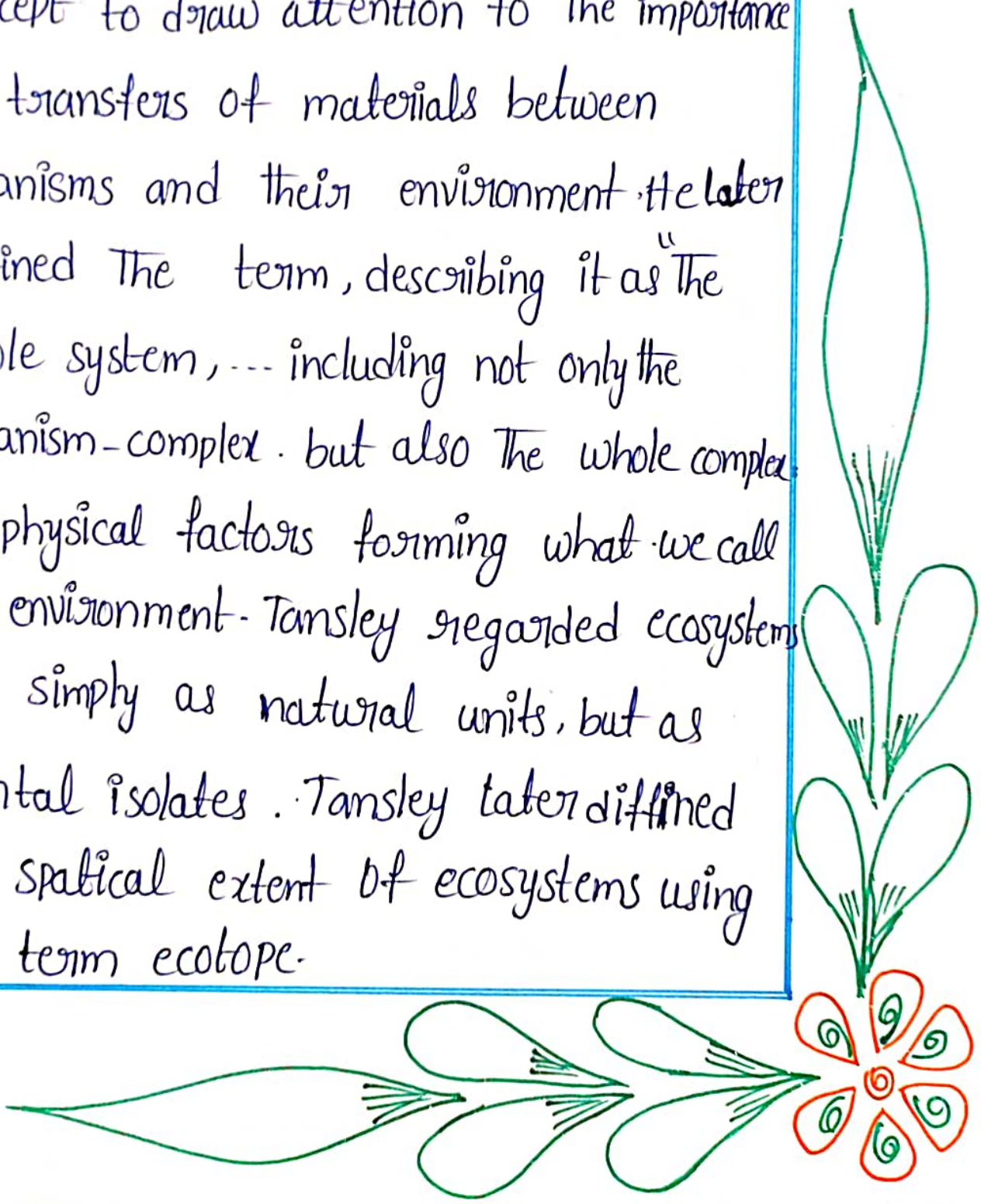
(AFFILIATED TO KAKATIYA UNIVERSITY,WARANGAL.)

ECOSYSTEM

ECOSYSTEM

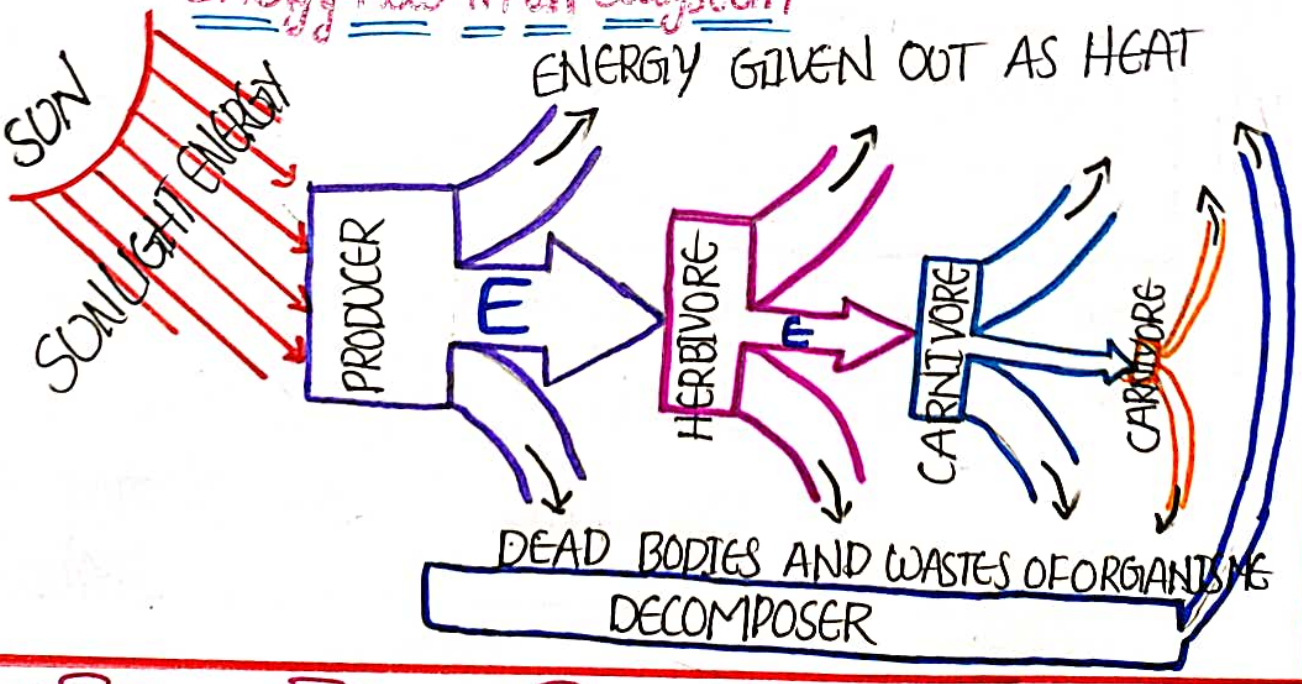
The term ecosystem was first used in 1935 in a publicaton by British ecologist Arthur Tansley. Tansley devised The concept to draw attention to the importance of transfers of materials between organisms and their environment. He later refined The term, describing it as "The whole system, ... including not only the organism-complex. but also The whole complex of physical factors forming what we call The environment. Tansley regarded ecosystems not simply as natural units, but as mental isolates. Tansley later diffined The spatical extent of ecosystems using The term ecotope.



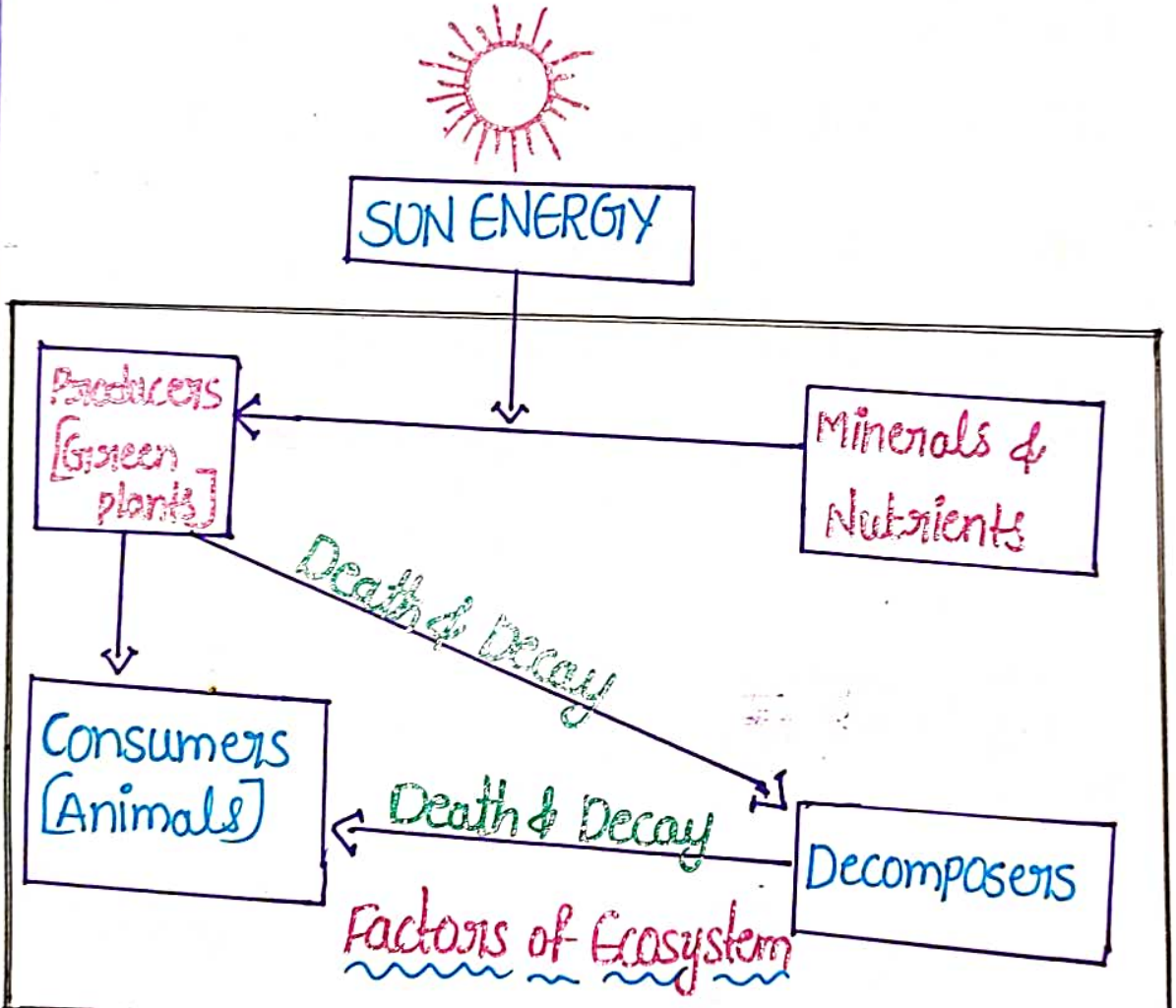
It is inevitable for the organisms to live in some medium or other. organisms establish reciprocal relationship with its biotic and abiotic components of the environment. through this contact they meet their daily needs and lead successful life. the branch of science dealing with the above study is called ecology. the above factors or biotic and abiotic components.

It is a naturally formed active system located in a specified area of the environment with all the primary components. the main source of energy is the solar energy. It passes from one trophic level to the other in the form of food materials, minerals and nutrients.

Energy Flow in an ecosystem



Main factors of the Ecosystem :- Solar energy, nutrients, mineral salts etc, constitute the abiotic factors while the producers, consumers and decomposers constitute the biotic factors in any environment.



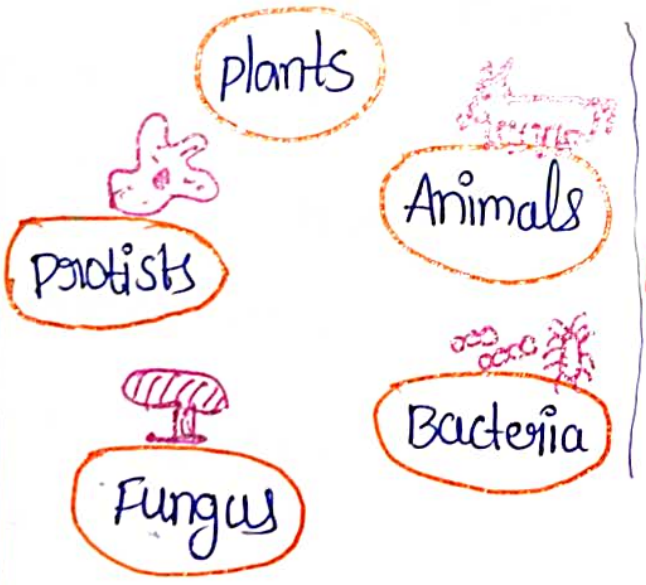
Abiotic factors :- Environmental temperature, air, humidity, light, oxygen, carbon dioxide and decomposing organic substances constitute abiotic factors.

Abiotic factors of the pond :- Water, oxygen, carbondioxide, nutrients, soil, rocks of the lakes, ammonia released due to the disintegration of organic compounds, methane gas, Sulphur dioxide etc., are the abiotic factors of the pond. Gases like Methane, Hydrogen and Nitrogen are in more quantities in polluted waters.

Biotic factors :- producers, consumers and decomposers constitute the biotic factors.

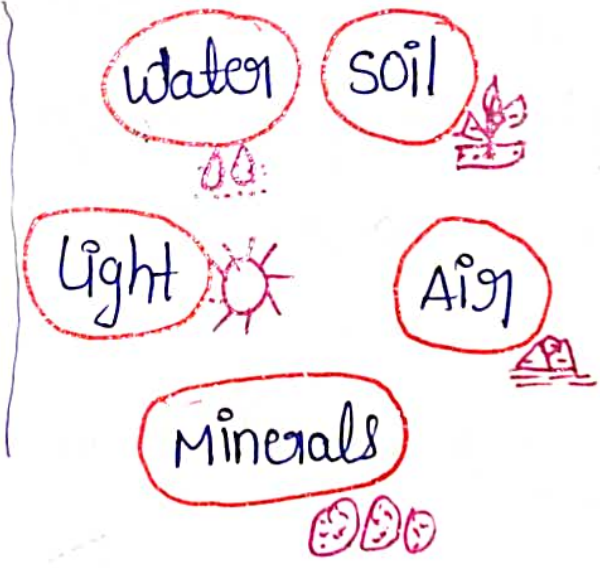
a] Biotic factors.

Living Things



b] Abiotic factors

Non Living Things

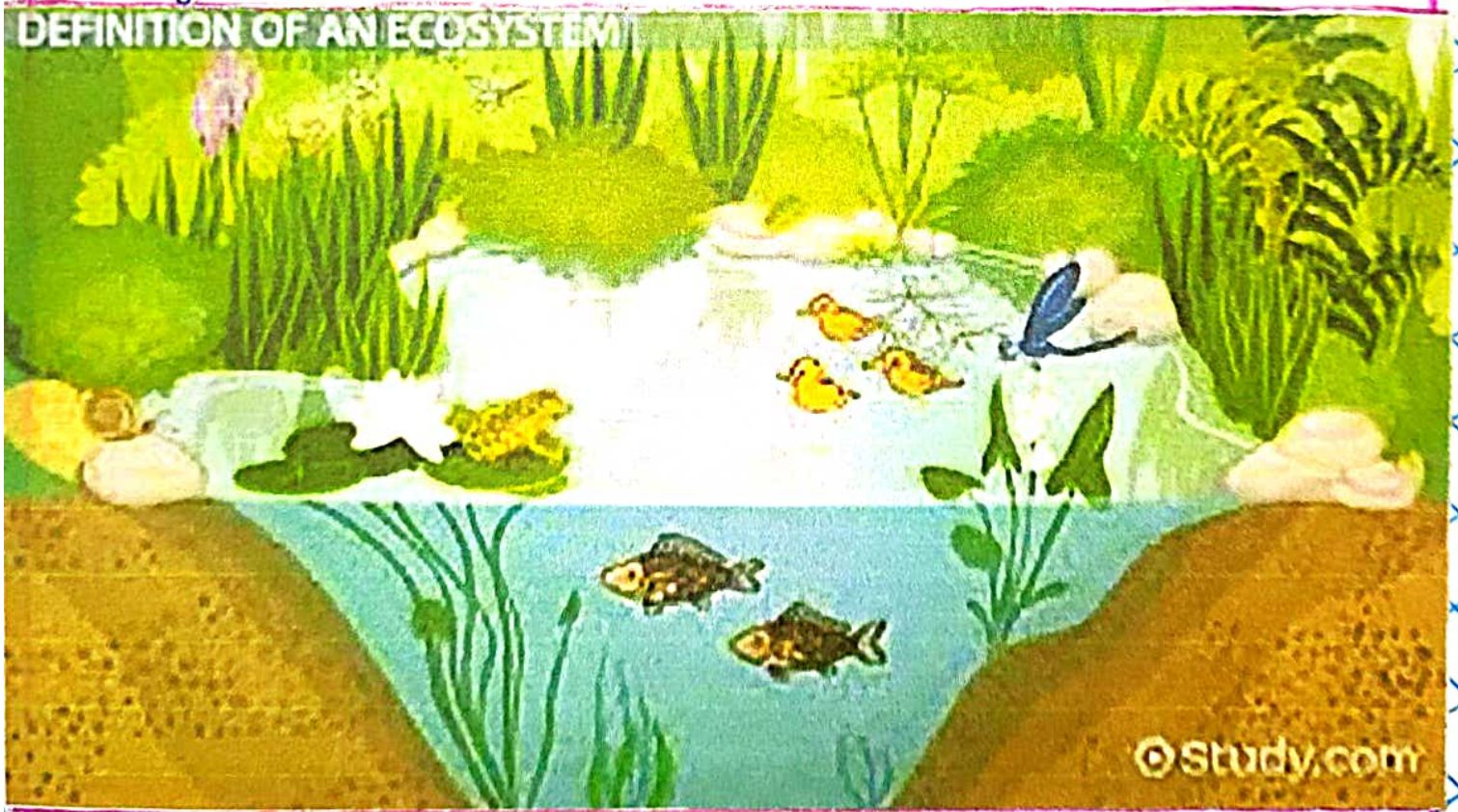


Producers :- A number of plant varieties exist in any ecosystem they not only synthesize the food materials but also provide substratum for several species to grow. These producers can change the abiotic factors and encourage the formation of substratum or the soil. Shrubs, herbs, grass plants and gigantic trees are seen.

Consumers :- Several varieties of animals such as ants, termites, flies, beetles, grass hoppers spiders, snails, elephants, deers, coyotes, rats, bats, monkeys, chimps, gorillas, mongooses etc., are seen in large numbers depending primarily on plant food [herbivores]. Primary carnivores include snakes, birds, lizards, rats, bandicoots, foxes etc. Lions, tigers, wolves, cheetahs, hyenas etc., are the secondary carnivores.

Decomposers :- Bacteria, fungi and moulds appear as decomposers helping in the decomposition of dried and fallen leaves, dead organisms, wastes and excretory products. Because of this, soil is always rich in its mineral content and highly fertile.

Lake or a Pond as an ideal ecosystem :- A Pond is a deep water body logged on all sides by land. It contains a self sufficient and a self contained ecosystem.



a] Producers :- All the plants constitute the producers of the pond as they are autotrophic and synthesize the food material through phy· photosynthesis · Eudorina, Pandorina, volvox, chlamydomonas, clasterium, Microcystic, Anabena, Oscillatoria, potamogeton, Vallisnaria, Lemna, Typha, pistia, Eichornia etc., are the submerged plants of the pond

b] Consumers - Herbivores :- they feed on plant products, surface zooplancton like worms, insects, insect·larvae, parmecium, Amoebe Euglena etc., and free swimming organisms like tadpoles, fish fry and finger lings, tailed frogs, oysters, snails, planarians etc. are seen as herbivores in the pond

Carnivores :- Large fishes, frogs, tortoises etc. are the primary carnivores depending upon · herbivores; Snakes, water birds, cranes etc. are the secondary

- carnivores living in pond areas.

c] Decomposers :- Bacteria and fungi of the waters decompose the wastes, dead organisms, excretory products etc., and release organic nutrients into the aquatic environment.

other characters :-

* In the pond biotic organisms are seen as plankton [surface living], periphylon [attached to the aquatic plants], necton [freely swimming under water] and neuston [free swimming over water surface].
* Still water ponds are called lentic lakes and flowing water bodies are called lotic lakes.
* Surface water zone of the pond is called littoral zone. pond upto 6m. depth is the sub-littoral zone and beyond 10m is the profundal zone.

Grass Land ecosystem :-

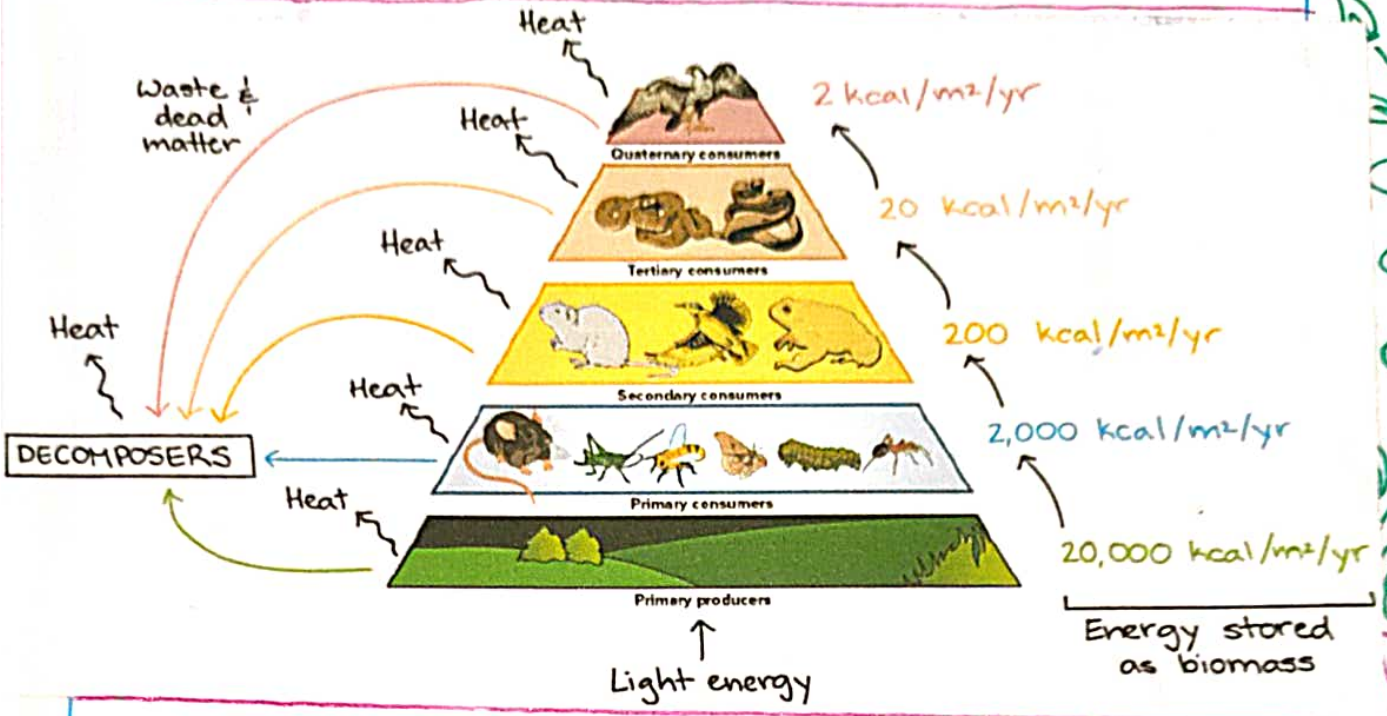
19% of the total land is with grass lands. These grass lands possess high amounts of nutrients. Abiotic factors like hydrogen, oxygen, carbon dioxide, phosphorus, sulphur occur in the form of nitrates:, sulphates and phosphates to the plants: Water is provided Through rains and irrigation canals. High variations in humidity, sunlight, air, temperature are very common. Besides macro minerals like sodium, potassium and calcium, micro nutrients like cobalt, boron, molybdenum, venedium, zinc and copper also are avilable in grass land ecosystems.

The chief producers are the grass plants belonging to the family graminae; cootons, parthenia, zizypus, oscimum, calotropis, tephrocia, tridax. etc., grow in grass lands.

As these plants bear leaves, they are photosynthetic and produce food meterials.

cows, buffaloes, oxen, goats, sheep, rabbits, snails, deers, insects, white ants and centipeds are seen as herbivores.

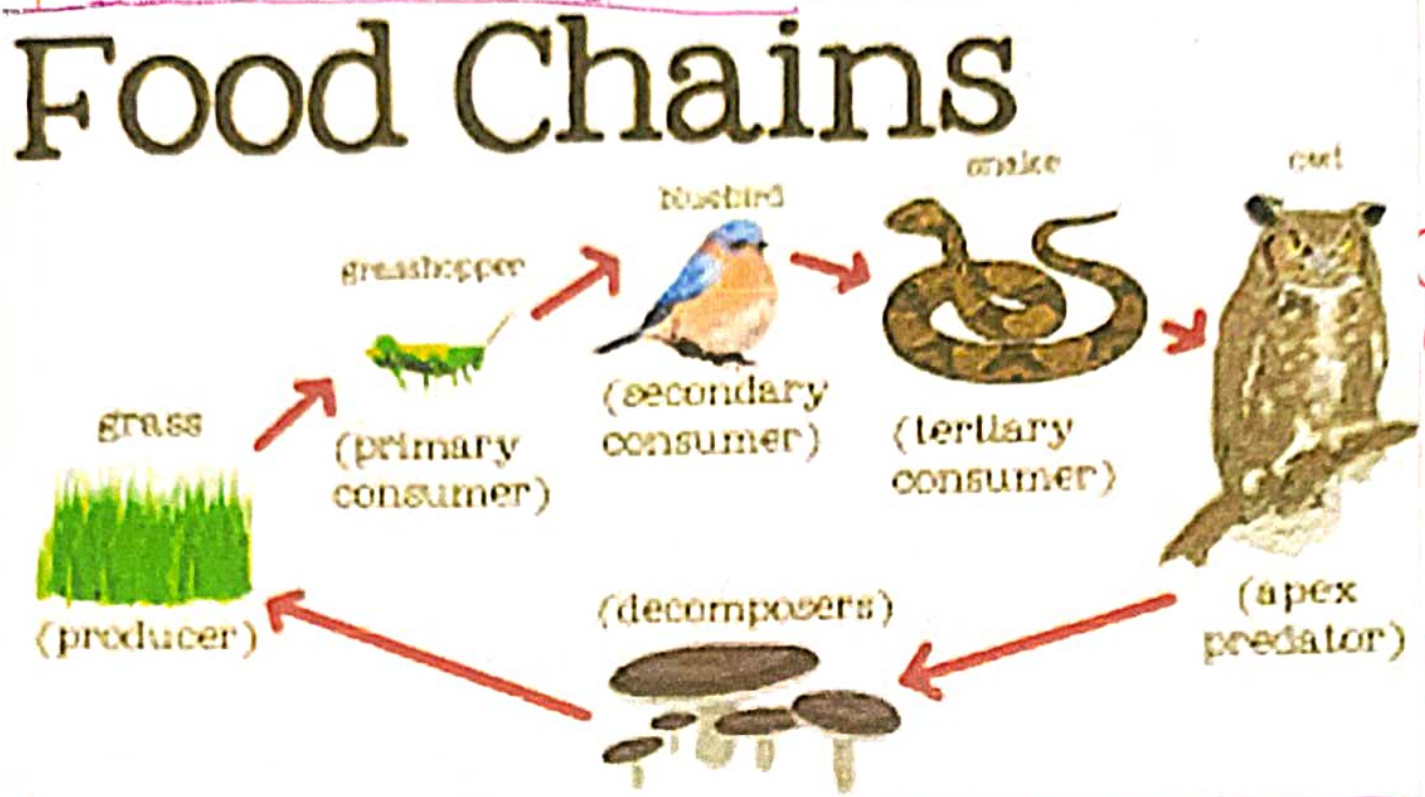
Energy transfer in Ecosystem



* Solar energy is trapped at the producers [plants] Level. These producers form the basal or first trophic level of an ecosystem or ecological pyramid.

* The energy is transferred from one level to the other without deviating from the principles of energy dynamics. There occurs a loss of energy at each level of consumption but never destroyed.

Food chain



One organism depends on the other for its food. Food chain is the one way relation between the organisms of differents trophic levels. Each food chain contains a producer, a herbivore, a primary carnivore, and a secondary carnivore.

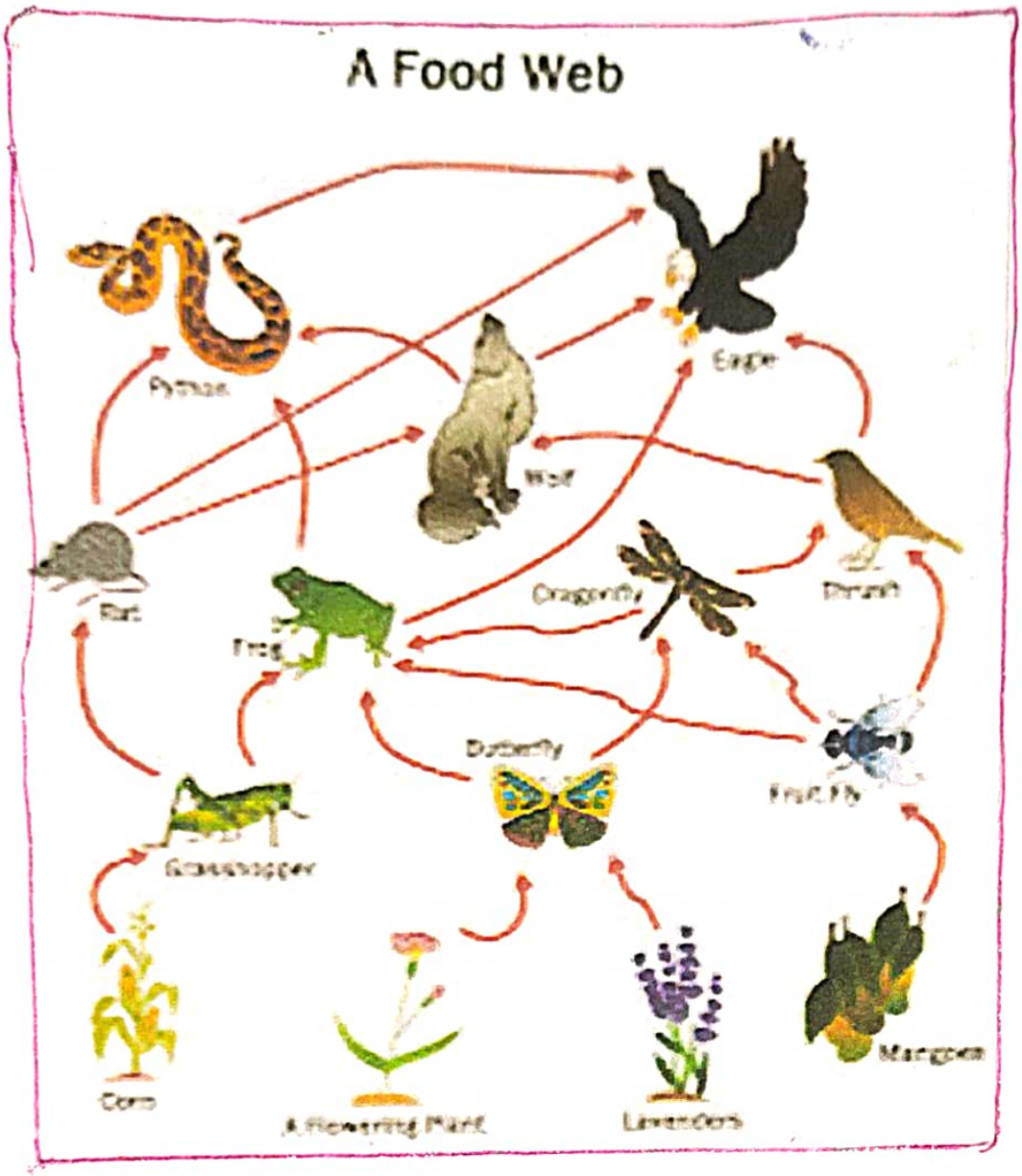
In the figure, rat is described as a primary consumer.

It can be considered as a carnivore feeding upon another animal or as a herbivore feeding upon the plant food. Arrow marks between these organisms indicate the flow of energy from one trophic level to the other as each one of them is a representative of one trophic level. The died organisms of any trophic level are collected and decomposed into organic manure and nutrients by micro organisms such as bacteria, fungi etc.

Food chain are of three types basing on the mode of living and kind of relation between the organisms.

1. Predator food chain.
2. Parasitic food chain.
3. Saprozoic food chain.

Food Web



Various trophic levels of the ecosystem possess different types of organisms. Several types of food relations are established between the available food organisms of different trophic levels. One organism may

form food as shown in figure. Thus several food chains of one ecosystem get mixed to form a food web. Producers, herbivores, primary and secondary carnivores are seen in these food webs.

Food webs signify the organisms of different trophic levels, path of energy transfer, biomass, number of organisms and the dynamics of ecosystems.

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