GOVERNMENT DEGREE COLLEGE

1.3.2 Percentage of students undertaking project work/fi

Name of the department	Nature of the work	Title of the project work/field work/ internships	Programme name
Mathematics	Project work	THE POWER OF PYTHAGORAS	M.St.Ds
			M.P.Cs
			M.P.Cs
			M.P.Cs
			M.P.Cs
Mathematics	Project work	HISTORY OF INDIAN MATHEMATICIANS	B.Sc M.P.Cs
			B.Sc M.P.Cs
			B.Sc M.P.Cs
			B.Sc M.P.Cs
			B.Sc M.P.Cs
Physics	Project work	The effect of temperature and magnetic strength .	B.Sc. MPCs
			B.Sc. MPCs
			B.Sc. MPCs
			B.Sc. MPCs
			B.Sc. MPCs
physics	Project work	A STUDY OF HOUSE HOLD ELECTRICAL POWER CONSUME IN A HOUSE	B.Sc, MPC
			B.Sc, MPC
			B.Sc, MPC
physics	Project work	ENERGY AUDIT	B.SC; MPCs
			B.SC; MPCs
			B.SC; MPCs
			B.SC; MPCs
MATHEMATICS	Project work	Problems of series	M.P.C
			M.P.C
			M.P.Cs
			M.P.Cs
			M.P.Cs

Biochemistry	Project work	Project works	B.Sc(Biochemistry)
			B.Sc(Biochemistry)
			B.Sc(Biochemistry)
			B.Sc(Biochemistry)
			B.Sc(Biochemistry)
			B.Sc(Biochemistry)
			B.Sc(Biochemistry)
			B.Sc(Biochemistry)
			B.Sc(Biochemistry)
			B.Sc(Biochemistry)
			B.Sc(Biochemistry)
Mathematics	Project work	History of Indian Mathematicians	M.P.C
			M.P.C
			M.P.C
			M.P.C
			M.P.C
Mathematics		ABLE PRIZE	M.P.Cs
			M.P.Cs
			M.P.C
Mathematics		PASCAL TRIANGLA	M.P.Cs
			M.P.Cs
			M.P.Cs
			M.P.C
			M.P.C
Mathematics		PRINCIPLES OF CROP MODELING AND	M.P.Cs
			M.P.Cs
			M.P.Cs
			M.P.C
			M.P.C
Mathematics		ABOUT MATHEMATICIANS	M.P.Cs
			M.P.Cs
			M.P.Cs
			M.P.Cs
			M.P.Cs
Mathematics		USE OF MATEMATICS IN EVERYDAY LIFE	M.P.C
			M.P.C
			M.P.Cs
			M.P.Cs
			M.P.Cs
Mathematics		TO REDUCE THE APPLICATIONS OF	M.P.C

			M.P.C
			M.P.Cs
			M.P.Cs
			M.P.Cs
	Internship	Internship	B.COM
	Internship	intership s	B.COM

FOR WOMEN, KARIMNAGAR, TELANGANA

eld work/internship (Data for the latest completed a

Programme Code	List of students undertaking project work/field work/internship (Upload excel file)
	AFIFA KOUSAR
	Y.VANDANA
	FALAK NAAZ
	R. GANGA
	R. GOURI
	CH. TIRUMALA
	M. REVATHI
	E. SUSHMITHA
	G. NANDINI
	NISHA ANJUM
	K. JYOTHI
	B. RAMYA
	AFREEN
	FARHEEN
	LIMRA NOUSHEEN
	M. DIVYA
	A. RAMYA SREE
	SAI BHAVANA
	S. REKHA
	K.ARCHANA
	A. AKILA
	G. LAVANYA
	K. ANUSHA
	T SWAPNA
	K. BHAVANI
	J. SAWATHI
	G. KAVYA

	2018-19
	Athika Ummul Khair
	Gatla Madhuri
	K Madhumitha
	2019-20
	Mora Shivani
	Hajra Asma
	2020-21
	Afsha Fathima
	Pravallika Priya Kumari
	Pandrala Sripriya
	J.SHIVANI
	A. PAVITHRA
	S.PRITHI
	J.ANUSHA
	T. KARUNA
	E. RENUKA
	K.SANDHYA
	KHATIJA KOUSER
	D. RAJITA
	D.MADHAVI
	G,GANGA DIVYA
	A.VARSHINI
	G.REKHA
	K. SAIBHAVANA
	L. ABHIGNIYA
	S. ASHVANI
	P.NIKHITHA
	S.RAMYA
	CH.TIRUMALA
	M.REVATHI
	E.SUSHMITHA
	G.NANDINI
	NISHA ANJUM
	A.PRASANNA
	D.SRIJA
	A.CHANDANA
	H. KRITIKA
	M.SUPRITHA
	A. PAVITHTRA

	E. RESHMA
	A.SAISHIRISHA
	K.ARCHANA
	P.AKHILA

cademic year)

Link
https://drive.google.com/open?id=1HSv9Zwhhhp_ZBEHRMOGKxRkD5vyAlg28
https://drive.google.com/open?id=1tEJdHi2RkXQPwed_6YTycnripSdQdqMt
https://drive.google.com/open?id=12KTrJugsMSfbozS_V40uHzCw3hvCAmy9
https://drive.google.com/open?id=1_ClInOg6p21qOF5z2wK92igWYIvcRx3i
https://drive.google.com/open?id=1jNrsiJ1WL2e8ycM6tD3lBR6x8tXm3Nmk
https://drive.google.com/open?id=1s5_6RXBIleFqDSn1HcLeBHLW1Zr9fEw-

https://drive.google.com/open?id=1MCcvChip_EI5Fazvoka2G-Zo8n-UdPki
https://drive.google.com/open?id=1loyxqe_xLwz_Qp2lmdMehCWtydSxYUBe
https://drive.google.com/open?id=1loyxqe_xLwz_Qp2lmdMehCWtydSxYUBe
https://drive.google.com/open?id=1loyxqe_xLwz_Qp2lmdMehCWtydSxYUBe
https://drive.google.com/open?id=1loyxqe_xLwz_Qp2lmdMehCWtydSxYUBe
https://drive.google.com/open?id=1loyxqe_xLwz_Qp2lmdMehCWtydSxYUBe
https://drive.google.com/open?id=1loyxqe_xLwz_Qp2lmdMehCWtydSxYUBe
https://drive.google.com/open?id=1loyxqe_xLwz_Qp2lmdMehCWtydSxYUBe

fUJaCsjU3zqxAMzhZRIDlFX
RIP8v1HQxq2q8ujKBeDMKdfV

GOVERNMENT DEGREE COLLEGE

1.3.2 Percentage of students undertaking project work/fi

Name of the department	Nature of the work	Title of the project work/field work/ internships	Programme name
Mathematics	Project work	THE POWER OF PYTHAGORAS	M.St.Ds
			M.P.Cs
			M.P.Cs
			M.P.Cs
			M.P.Cs
Physics	Project work	The effect of temperature and magnetic strength .	B.Sc. MPCs
			B.Sc. MPCs
			B.Sc. MPCs
			B.Sc. MPCs
			B.Sc. MPCs
physics	Project work	A STUDY OF HOUSE HOLD ELECTRICAL POWER CONSUME IN A HOUSE	B.Sc, MPC
			B.Sc, MPC
			B.Sc, MPC
physics	Project work	ENERGY AUDIT	B.SC; MPCs
			B.SC; MPCs
			B.SC; MPCs
			B.SC; MPCs
MATHEMATICS	Project work	Problems of series	M.P.C
			M.P.C
			M.P.Cs
			M.P.Cs
			M.P.Cs
Biochemistry	Project work	Project works	B.Sc(Biochemistry)
			B.Sc(Biochemistry)
			B.Sc(Biochemistry)

			B.Sc(Biochemistry)
			B.Sc(Biochemistry)
			B.Sc(Biochemistry)
			B.Sc(Biochemistry)
			B.Sc(Biochemistry)
			B.Sc(Biochemistry)
			B.Sc(Biochemistry)
			B.Sc(Biochemistry)
Mathematics	Project work	History of Indian Mathematicians	M.P.C
			M.P.C
			M.P.C
			M.P.C
			M.P.C
Mathematics		ABOUT MATHEMATICIANS	M.P.Cs
			M.P.Cs
			M.P.Cs
			M.P.Cs
			M.P.Cs
Mathematics		USE OF MATEMATICS IN EVERYDAY LIFE	M.P.C
			M.P.C
			M.P.Cs
			M.P.Cs
			M.P.Cs
Mathematics		TO REDUCE THE APPLICATIONS OF MATRICES AND DETERMINENTS	M.P.C
			M.P.C
			M.P.Cs
			M.P.Cs
			M.P.Cs
	Internship	Internship	B.COM
	Internship	interships	B.COM
Mathematics	Project work	Applications of differential equations	M.P.Cs
			M.P.Cs
			M.P.Cs
			M.P.Cs

			M.P.Cs
Mathematics	Project work	MATHS PROJECT -VEDIC MATHS	M.ST.CS
			M.P.Cs
			M.P.C
			M.ST.CS
			M.ST.CS

FOR WOMEN, KARIMNAGAR, TELANGANA

eld work/internship (Data for the latest completed a

Programme Code	List of students undertaking project work/field work/internship (Upload excel file)
	AFIFA KOUSAR
	Y.VANDANA
	FALAK NAAZ
	R. GANGA
	R. GOURI
	K. JYOTHI
	B. RAMYA
	AFREEN
	FARHEEN
	LIMRA NOUSHEEN
	M. DIVYA
	A. RAMYA SREE
	SAI BHAVANA
	S. REKHA
	K.ARCHANA
	A. AKILA
	G. LAVANYA
	K. ANUSHA
	T SWAPNA
	K. BHAVANI
	J. SAWATHI
	G. KAVYA
	2018-19
	Athika Ummul Khair
	Gatla Madhuri

	K Madhumitha
	2019-20
	Mora Shivani
	Hajra Asma
	2020-21
	Afsha Fathima
	Pravallika Priya Kumari
	Pandrala Sripriya
	J.SHIVANI
	A. PAVITHRA
	S.PRITHI
	J.ANUSHA
	T. KARUNA
	CH.TIRUMALA
	M.REVATHI
	E.SUSHMITHA
	G.NANDINI
	NISHA ANJUM
	A.PRASANNA
	D.SRIJA
	A.CHANDANA
	H. KRITIKA
	M.SUPRITHA
	A. PAVITHTRA
	E. RESHMA
	A.SAISHIRISHA
	K.ARCHANA
	P.AKHILA
	P.ANUSHA
	K.LAYA
	K.AMULYA
	A.NIKHITHA

	D.PRANEETHA
	Y.MEGHANA
	ARSHIA TABASSUM
	RUKHSAR EGUM
	ZOYA SAMEEM
	CH.HARIPRIYA

cademic year)

Link
https://drive.google.com/open?id=1HSv9Zwhhhp_ZBEHRMOGKxRkD5vyAlg28
https://drive.google.com/open?id=12KTrJugsMSfbozS_V40uHzCw3hvCAmy9
https://drive.google.com/open?id=1_ClInOg6p21qOF5z2wK92igWYIvcRx3i
https://drive.google.com/open?id=1jNrsiJ1WL2e8ycM6tD3lBR6x8tXm3Nmk
https://drive.google.com/open?id=1s5_6RXBIleFqDSn1HcLeBHLW1Zr9fEw-
https://drive.google.com/open?id=1MCcvChip_EI5Fazvoka2G-Zo8n-UdPki

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https://drive.google.com/open?id=1loyxqe_xLwz_Qp2lmdMehCWtydSxYUBe
https://drive.google.com/open?id=1loyxqe_xLwz_Qp2lmdMehCWtydSxYUBe
https://drive.google.com/open?id=1loyxqe_xLwz_Qp2lmdMehCWtydSxYUBe
https://drive.google.com/open?id=1FvnbSAo2hfUJaCsjU3zqxAMzhZRIDlFX
RIP8v1HQxq2q8ujKBeDMKdfV

GOVERNMENT DEGREE COLLEGE FOR WOMEN, KARIMNAGAR, TELANGANA

1.3.2 Percentage of students undertaking project work/field work/internship (Data for the latest completed academic year)

Name of the department	Nature of the work	Title of the project work/field work/ internships	Programme Name	Programme Code	List of students undertaking project work/field work/internship (Upload excel file)	Link
Zoology	Project work	Study on water quality parameters and benthic	B.Sc(Life Science)		A.Mamatha	https://gdcts.cgg.gov.in//Uploads/files/Recent_Updates/109997.pdf
			B.Sc(Life Science)		Ariba	https://gdcts.cgg.gov.in//Uploads/files/Recent_Updates/109997.pdf
			B.Sc(Life Science)		A.Pooja	https://gdcts.cgg.gov.in//Uploads/files/Recent_Updates/109997.pdf
			B.Sc(Life Science)		A.Ramya	https://gdcts.cgg.gov.in//Uploads/files/Recent_Updates/109997.pdf
			B.Sc(Life Science)		Syed Nisha	https://gdcts.cgg.gov.in//Uploads/files/Recent_Updates/109997.pdf
Zoology	Project work	Ecology of aquatic insects in manakonduru lake,	B.Sc(Life Science)		B.Sandya	https://gdcts.cgg.gov.in//Uploads/files/Recent_Updates/109997.pdf
			B.Sc(Life Science)		B.Sravanthi	https://gdcts.cgg.gov.in//Uploads/files/Recent_Updates/109997.pdf
			B.Sc(Life Science)		B.Soumya	https://gdcts.cgg.gov.in//Uploads/files/Recent_Updates/109997.pdf
			B.Sc(Life Science)		B.Keerthi,	https://gdcts.cgg.gov.in//Uploads/files/Recent_Updates/109997.pdf
			B.Sc(Life Science)		B.Anjali	https://gdcts.cgg.gov.in//Uploads/files/Recent_Updates/109997.pdf
Zoology	Project work	Geckos, the Amazing Wall Climbers	B.Sc(Life Science)		Ch.Mounika	https://gdcts.cgg.gov.in//Uploads/files/Recent_Updates/109997.pdf
			B.Sc(Life Science)		D.Jayanthi	https://gdcts.cgg.gov.in//Uploads/files/Recent_Updates/109997.pdf
			B.Sc(Life Science)		D.Jyosna	https://gdcts.cgg.gov.in//Uploads/files/Recent_Updates/109997.pdf

			B.Sc(Life Science)		E.Richa	https://gdcts.cgg.gov.in//Uploads/files/Recent_Updates/109997.pdf
			B.Sc(Life Science)		Fiza	https://gdcts.cgg.gov.in//Uploads/files/Recent_Updates/109997.pdf
Zoology	Project work	Chemical Basis for Ant Behavior	B.Sc(Life Science)		G.Niharika	https://gdcts.cgg.gov.in//Uploads/files/Recent_Updates/109997.pdf
			B.Sc(Life Science)		G.Sumitra	https://gdcts.cgg.gov.in//Uploads/files/Recent_Updates/109997.pdf
			B.Sc(Life Science)		Hafsa Shireen	https://gdcts.cgg.gov.in//Uploads/files/Recent_Updates/109997.pdf
			B.Sc(Life Science)		K.Samatha	https://gdcts.cgg.gov.in//Uploads/files/Recent_Updates/109997.pdf
			B.Sc(Life Science)		Safiya Kousar	https://gdcts.cgg.gov.in//Uploads/files/Recent_Updates/109997.pdf
Zoology	Project work	Sugar's Effects on Ants	B.Sc(Life Science)		T.Rajitha	https://gdcts.cgg.gov.in//Uploads/files/Recent_Updates/109997.pdf
			B.Sc(Life Science)		T.Madavi	https://gdcts.cgg.gov.in//Uploads/files/Recent_Updates/109997.pdf
			B.Sc(Life Science)		Umme Maheen	https://gdcts.cgg.gov.in//Uploads/files/Recent_Updates/109997.pdf
			B.Sc(Life Science)		Afsa	https://gdcts.cgg.gov.in//Uploads/files/Recent_Updates/109997.pdf
			B.Sc(Life Science)		Firdouse	https://gdcts.cgg.gov.in//Uploads/files/Recent_Updates/109997.pdf
Zoology	Project work	What's in the Gut	B.Sc(Life Science)		G.Akhila	https://gdcts.cgg.gov.in//Uploads/files/Recent_Updates/109997.pdf
			B.Sc(Life Science)		Tabassum	https://gdcts.cgg.gov.in//Uploads/files/Recent_Updates/109997.pdf
			B.Sc(Life Science)		J.Pravalika	https://gdcts.cgg.gov.in//Uploads/files/Recent_Updates/109997.pdf
			B.Sc(Life Science)		J.Priyanaka	https://gdcts.cgg.gov.in//Uploads/files/Recent_Updates/109997.pdf
			B.Sc(Life Science)		K.Srinitha	https://gdcts.cgg.gov.in//Uploads/files/Recent_Updates/109997.pdf
		Regenration in Earthworms	B.Sc(Life Science)		B.Ramya	https://gdcts.cgg.gov.in//Uploads/files/Recent_Updates/109997.pdf

Zoology	Project work		B.Sc(Life Science)		B.Swetha	https://gdcts.cgg.gov.in//Uploads/files/Recent_Updates/109997.pdf
			B.Sc(Life Science)		E.Sravani	https://gdcts.cgg.gov.in//Uploads/files/Recent_Updates/109997.pdf
			B.Sc(Life Science)		G.Sony	https://gdcts.cgg.gov.in//Uploads/files/Recent_Updates/109997.pdf
			B.Sc(Life Science)		G.Geetha	https://gdcts.cgg.gov.in//Uploads/files/Recent_Updates/109997.pdf
Zoology	Project work	Ontogeny of Honey Bee Orientation Flights	B.Sc(Life Science)		Gousia Jabeen	https://gdcts.cgg.gov.in//Uploads/files/Recent_Updates/109997.pdf
			B.Sc(Life Science)		G.Deepika	https://gdcts.cgg.gov.in//Uploads/files/Recent_Updates/109997.pdf
			B.Sc(Life Science)		Lubna Nazneem	https://gdcts.cgg.gov.in//Uploads/files/Recent_Updates/109997.pdf
			B.Sc(Life Science)		Nilofia Anjum	https://gdcts.cgg.gov.in//Uploads/files/Recent_Updates/109997.pdf
			B.Sc(Life Science)		Nousheen Fathima	https://gdcts.cgg.gov.in//Uploads/files/Recent_Updates/109997.pdf
Zoology	Project work	Influence on Yolk Color and Size	B.Sc(Life Science)		Romana Raheem	https://gdcts.cgg.gov.in//Uploads/files/Recent_Updates/109997.pdf
			B.Sc(Life Science)		Subia Tahreem	https://gdcts.cgg.gov.in//Uploads/files/Recent_Updates/109997.pdf
			B.Sc(Life Science)		Sumayya Afreen	https://gdcts.cgg.gov.in//Uploads/files/Recent_Updates/109997.pdf
			B.Sc(Life Science)		Ayesha Fathima	https://gdcts.cgg.gov.in//Uploads/files/Recent_Updates/109997.pdf
			B.Sc(Life Science)		Zareena Begum	https://gdcts.cgg.gov.in//Uploads/files/Recent_Updates/109997.pdf
Zoology	Project work	How Does Hydra littoralis Regenerate	B.Sc(Life Science)		Afreen Begum	https://gdcts.cgg.gov.in//Uploads/files/Recent_Updates/109997.pdf
			B.Sc(Life Science)		D.Vennela	https://gdcts.cgg.gov.in//Uploads/files/Recent_Updates/109997.pdf
			B.Sc(Life Science)		Maheen	https://gdcts.cgg.gov.in//Uploads/files/Recent_Updates/109997.pdf
			B.Sc(Life Science)		Sheema Afnan	https://gdcts.cgg.gov.in//Uploads/files/Recent_Updates/109997.pdf

			B.Sc(Life Science)		Ayesha	https://gdcts.cgg.gov.in//Uploads/files/Recent_Updates/109997.pdf
Zoology	Project work	How do ants find their food	B.Sc(Life Science)		Iffath Unnisa	https://gdcts.cgg.gov.in//Uploads/files/Recent_Updates/109997.pdf
			B.Sc(Life Science)		Zuha	https://gdcts.cgg.gov.in//Uploads/files/Recent_Updates/109997.pdf
			B.Sc(Life Science)		V.Pooja	https://gdcts.cgg.gov.in//Uploads/files/Recent_Updates/109997.pdf
			B.Sc(Life Science)		A.Sravani	https://gdcts.cgg.gov.in//Uploads/files/Recent_Updates/109997.pdf
			B.Sc(Life Science)		J.Sravya	https://gdcts.cgg.gov.in//Uploads/files/Recent_Updates/109997.pdf
Zoology	Project work	Are Bees Most Attracted to the Fragrance,Taste or	B.Sc(Life Science)		Asma	https://gdcts.cgg.gov.in//Uploads/files/Recent_Updates/109997.pdf
			B.Sc(Life Science)		B.Kasthwii	https://gdcts.cgg.gov.in//Uploads/files/Recent_Updates/109997.pdf
			B.Sc(Life Science)		Ch.Pavani	https://gdcts.cgg.gov.in//Uploads/files/Recent_Updates/109997.pdf
			B.Sc(Life Science)		G.Sony	https://gdcts.cgg.gov.in//Uploads/files/Recent_Updates/109997.pdf
			B.Sc(Life Science)		M,Anjali	https://gdcts.cgg.gov.in//Uploads/files/Recent_Updates/109997.pdf
Zoology	Project work	Ants as Habitat Quality Indicators	B.Sc(Life Science)		K.Vennela	https://gdcts.cgg.gov.in//Uploads/files/Recent_Updates/109997.pdf
			B.Sc(Life Science)		Misbah	https://gdcts.cgg.gov.in//Uploads/files/Recent_Updates/109997.pdf
			B.Sc(Life Science)		Mubeena	https://gdcts.cgg.gov.in//Uploads/files/Recent_Updates/109997.pdf
			B.Sc(Life Science)		Neha	https://gdcts.cgg.gov.in//Uploads/files/Recent_Updates/109997.pdf
			B.Sc(Life Science)		N.Harika	https://gdcts.cgg.gov.in//Uploads/files/Recent_Updates/109997.pdf
		Effects of Moisture and Temperature on the	B.Sc(Life Science)		Nida	https://gdcts.cgg.gov.in//Uploads/files/Recent_Updates/109997.pdf
			B.Sc(Life Science)		P.Soumya	https://gdcts.cgg.gov.in//Uploads/files/Recent_Updates/109997.pdf

Zoology	Project work		B.Sc(Life Science)		P.Shyamala	https://gdcts.cgg.gov.in//Uploads/files/Recent_Updates/109997.pdf
			B.Sc(Life Science)		Sadiya	https://gdcts.cgg.gov.in//Uploads/files/Recent_Updates/109997.pdf
			B.Sc(Life Science)		Sana	https://gdcts.cgg.gov.in//Uploads/files/Recent_Updates/109997.pdf
Zoology	Project work	Composit or Fertilizer	B.Sc(Life Science)		B.Nandini	https://gdcts.cgg.gov.in//Uploads/files/Recent_Updates/109997.pdf
			B.Sc(Life Science)		Arbeya	https://gdcts.cgg.gov.in//Uploads/files/Recent_Updates/109997.pdf
			B.Sc(Life Science)		Bisma	https://gdcts.cgg.gov.in//Uploads/files/Recent_Updates/109997.pdf
			B.Sc(Life Science)		G.Maneesha	https://gdcts.cgg.gov.in//Uploads/files/Recent_Updates/109997.pdf
			B.Sc(Life Science)		J.Nandini	https://gdcts.cgg.gov.in//Uploads/files/Recent_Updates/109997.pdf
Zoology	Project work	Mitosis in Onion Root Tip Cells	B.Sc(Life Science)		Areeba	https://gdcts.cgg.gov.in//Uploads/files/Recent_Updates/109997.pdf
			B.Sc(Life Science)		K.Vijaya Laxmi	https://gdcts.cgg.gov.in//Uploads/files/Recent_Updates/109997.pdf
			B.Sc(Life Science)		Meeraj	https://gdcts.cgg.gov.in//Uploads/files/Recent_Updates/109997.pdf
			B.Sc(Life Science)		K.Mounika	https://gdcts.cgg.gov.in//Uploads/files/Recent_Updates/109997.pdf
			B.Sc(Life Science)		Sana	https://gdcts.cgg.gov.in//Uploads/files/Recent_Updates/109997.pdf
Zoology	Project work	Eye diseases	B.Sc(Life Science)		N.Manasa	https://gdcts.cgg.gov.in//Uploads/files/Recent_Updates/109997.pdf
			B.Sc(Life Science)		Nisha	https://gdcts.cgg.gov.in//Uploads/files/Recent_Updates/109997.pdf
			B.Sc(Life Science)		P.Geetha	https://gdcts.cgg.gov.in//Uploads/files/Recent_Updates/109997.pdf
			B.Sc(Life Science)		Arishya	https://gdcts.cgg.gov.in//Uploads/files/Recent_Updates/109997.pdf
			B.Sc(Life Science)		G.Meghamala	https://gdcts.cgg.gov.in//Uploads/files/Recent_Updates/109997.pdf

Zoology	Project work	Recombinant dna technology in todays	B.Sc(Life Science)		G.Pooja	https://gdcts.cgg.gov.in//Uploads/files/Recent_Updates/109997.pdf
			B.Sc(Life Science)		G.Lavanya	https://gdcts.cgg.gov.in//Uploads/files/Recent_Updates/109997.pdf
			B.Sc(Life Science)		Habeeba	https://gdcts.cgg.gov.in//Uploads/files/Recent_Updates/109997.pdf
			B.Sc(Life Science)		Hafsa	https://gdcts.cgg.gov.in//Uploads/files/Recent_Updates/109997.pdf
			B.Sc(Life Science)		K.Sriya	https://gdcts.cgg.gov.in//Uploads/files/Recent_Updates/109997.pdf
Zoology	Project work	Detailed Study on Infertility its Causes and	B.Sc(Life Science)		K.Anvitha	https://gdcts.cgg.gov.in//Uploads/files/Recent_Updates/109997.pdf
			B.Sc(Life Science)		M.Krishnaveni	https://gdcts.cgg.gov.in//Uploads/files/Recent_Updates/109997.pdf
			B.Sc(Life Science)		N.Bhavani	https://gdcts.cgg.gov.in//Uploads/files/Recent_Updates/109997.pdf
			B.Sc(Life Science)		,Neha	https://gdcts.cgg.gov.in//Uploads/files/Recent_Updates/109997.pdf
			B.Sc(Life Science)		Rebbas	https://gdcts.cgg.gov.in//Uploads/files/Recent_Updates/109997.pdf
Zoology	Project work	Possible Effects of Maternal Behaviour on	B.Sc(Life Science)		Tahaseen	https://gdcts.cgg.gov.in//Uploads/files/Recent_Updates/109997.pdf
			B.Sc(Life Science)		Sara Siddiqua	https://gdcts.cgg.gov.in//Uploads/files/Recent_Updates/109997.pdf
			B.Sc(Life Science)		Sunniya Jabeen	https://gdcts.cgg.gov.in//Uploads/files/Recent_Updates/109997.pdf
			B.Sc(Life Science)		Ayyuba	https://gdcts.cgg.gov.in//Uploads/files/Recent_Updates/109997.pdf
			B.Sc(Life Science)		Syeda Ummami	https://gdcts.cgg.gov.in//Uploads/files/Recent_Updates/109997.pdf

Afifa kousar
Y.vandana
Falak naaz
R. Ganga
R. Gouri
K. Anusha
T swapna
K. Bhavani
J. Sawathi
G. Kavya
Ch.tirumala
M.revathi
E.sushmitha
G.nandini
Nisha anjum
P.anusha
K.laya
K.amulya
A.nikhitha
D.praneetha
Y.meghana
Arshia tabassum
Rukhsar egum
Zoya sameem
Ch.haripriya
S. Rekha
K.archana
A. Akila
G. Lavanya
J.sruthi
K. Ravali
M. Kaveri
Noursheen
U.sharadha
A. Sukanya
Ch. Manasa
G. Abhinaya
G. Meghana
S. Prathyusha
A. Archana
A. Abhinaya
J.. Nandhini
T. Shreya

V. Ramya
A. Akshara
A. Sai pranavi
G. Lavanya
P. Navya
P. Sushmitha
B.manasa
L.pallavi
Ayesha siddiqua
U.bhavani
U.mamatha
J.sruthi
M.kaveri
V.ramya
A. Archana
Ch.manasa
G.sharanya
G.anjali
Md. Afreen
S.priya
T.shreya
M.kaveri
V.ramya
J.nandhini
K.shyamala
S.soumya
V.soundarya
N. Jyothi laxmi
N.gangothri
P.ramani
Potta supriya
Sherla lavanya
Boddula swathi
Bommena chintu
Madepu laya
Dommati rajani
Farheen begum
Jittaveni shirisha
Kadudula pooja
Thydala shailaja
Adulapuram anusha
Sampathi ashwini
Pothu vinitha
Arena mamatha
Thatla divya

Myadari priyanka
Madavi mamatha
Punna pranitha
Battu ganga
Ajmeera lavanya
Samala priyanka
Maddela akhila
Avunuri latha
Madupu saiprasanna
Chilumula mamatha
Suddala harika
Konda shirisha
Yama supriya
Pottavarthini vaishali
Thatla meena
Avudutha akhila
Nageena
Madipelly spandana
Y. Meghana
Aashiya tabassum
Ruksar begum
Zoya sameem
Ch. Haripriya
Ch. Tirumala
M. Revathi
E. Susmitha
G. Nandhini
Nish anjum
K. Anusha
P. Swapna
K. Bhavani
J. Swathi
G. Kavya
G. Sai sruthiya
Y. Vandhana
Falaz naaz
R. Ganga
R. Gouri
B. Harika
K. Anusha
M. Manusha
M. Vineetha
N. Tejaswini
A. Ahsritha

A. Anvitha
A. Sulthana
B. Sanjana
B. Sharmila
A. Bhavna
A. Abhinaya
B. Neraja
B. Ramya
B. Haritha
A. Nikitha
A. Rachana
A. Akhila
A. Sruthi
B. Rashmitha
G. Srija
G. Samatha
J. Ravali
J. Khanam
J. Narmadha
Ch. Pravalika
D. Anila
D. Charmi
E. Sirisha
E. Pooja
Ch. Akshaya
Ch. Ammulya
E. Meghana
J. Sravani
K. Dheekshitha
C. Kavya
G. Shivani
K. Prathyusha
S. Akhila
V. Sumitha
G. Saritha
G. Navya
G. Lavanya
G. Priyanka
G. Swathi
M. Vennela
M. Malathi
M. Samatha
P. Lavanya
K. Swapna
K. Srivani

K. Ramya
K. Rasagna
L. Hemalatha
A. Sukanya
B. Ramya sri
Chana. Mounika
K. Indrani
K. Sai sri
S. Kavya
T. Mounika
T. Lavanya
T. Pravalika
V. Sharanya
S. Anitha
S. Samatha
T. Alekya
T. Rashi
T. Nishitha
A. Mahanthi
B. Sandhyarani
J. Srija
K. Nandhini
M. Shravani
E. Susmitha
K. Kalyani
K. Lath
P. Sathyapriya
P . Vidya
Dasam prasanna
Juveria khanam
Nasera butool
Arutla ramya
Donta susmitha
Esampally saisri
Golle supriya
Jadi aishwarya
Janjarla rasagna
Konkata srilekha
Lavudya prathyusha
Rabia amber
Rabiya khatoon
Sankasala ishwarya
Sanober khanam
Shimaila maheen
Uzma siddiqua

Edipelly lavanya
Talari sriya
Ravula priyanka
Ayesha fathima
Thahaseen
Sumera anjum
M.supriya
Sanober tabassum
B. Vaishnavi
J. Supriya
P.pujinitha
Ch.jyothi
B.shirisha
R.manasa
Ch.supraja
J.sravya
Syeda madihatul ifrah
B.sonali bindre
Madiha afreen
K.rajeshwari
B.kalyani
S.soujanya
Md.afreena
D.geethanjali
M.sandhya rani
Bindhu reddy
V.shravani
Sara shahewar
A.madhumitha
Sumera khamar
Syeda habeebunnisa
J.akanksha
G.prathyusha
E.ramya
E.anjali
A.anjali
A.sravani
K.ravali
K.vikasitha
K.thirumala
K.shalini
L.srinitha
R.sandhya
1. G.puja
2. G.lavanya

3. G.mamatha
4.gouthami
5. G.saritha
G.navya
G.rakshitha
Sushma
G.kavya
Lavanya
K.sandhya
K.swapna
K.srivani
K.shiresha
K.archana
Rasagna
M.sushma
L.kalyani
L.hemalatha
M.komalatha
M.kalyani
M.apurva
M.vaishnavi
M.sindhu
O.narmada
P.sahithi
P.bhavya
P.sangeetha
P.akshaya
Pujitha
P.shiresha
P.lakshmi
P.anusri
P.srividhya
Rimsha afreen
Rubeena khathan
S.sowmya
S.priyanka
S.anitha
S.samath
S.rekha
Sadiya fathima
T.sharanya
Sruthi
T.alekya
Raasi
Nishitha

Dhanusha
P.akhila
V.supraja
V.meghana
Srivani
Shivani
Samatha
D.harika
K.anusha
B.harika
M.vinitha
M.tejaswvini
Nazia uzma fathima
P.divya
Swapna
R.nikhitha
Ruksar begum
A.srilekha
Nikhitha
Rachana
Akhila
Nikhila
Aishvarya
A.sruthi
Aisha siddiki
Akhila
B.rashmitha
B.srilakshmi
Srivani
Ramya
Ch.ashvitha
Pravalika
Ch.nikhila
Aneela
D.charmi
D.sabana
Pranitha
D.nikhitha
E.shireesha
Puja
D.anjali
G.manisha
G.puja
Lavanya
G.mamatha

Gouthami
Sarith
Navya
Rakshitha
Anusha
Susma
Lavanya
Kante ravali
A.mahanthi
Nuligonda anusha
B.sandhya rani
Farnaaz
P.swapna
Keerthi anusha
Rukhsar begum
R.nikhitha
M.vineetha
J.supriya
A.sravani
B.vaishnavi
M.mayuri
V.sai sharanya
Iffath unnisa sabry
Romana raheem
Subia tahreem
Madiha tul ifra
M.pratyusha
Ch.supraja
R.manasa
B.kalyani
K.rajeshwari
S.sowmya
Sumayya afreen
Syeda ayesha fatima
Zareena begum
T.pooja
S.rohini
Zuha
K.ananya
B.jyothsna
Ayesha
Nousheen fathima
Mahenoor
Lubna fiza
K.ramya

Sadiya konain
Lubna nazneen
1.ayesha athar
2.k.sushma,mbzc
3.k.kalpana
4.k.k.nikhitha
1.nisha afreen
2.d.geethanjali
3.shaziya khanam
1.sara shahewar
2.d.anusha
3.meraj firdouse
4.d.bhavani
5.b.rachana
6.k.bhavya
B.sandhya rani,mpc-iv sem
E.thriveni,mpc -iv
Farnaz zuheen-iv
1.m.sahalya, bzc
2.k.kalyani
3.gousia jaben
4.m.anjali
5.e. Shravani
1.y.shruthy
1.sd.thasneema
2. M. Meghana
3.p.sriya
4.p.anusha
5.p.saipriya
1. R.alekhya
2.a.ashwini
3.asma sulthana
4.m.shravani
5.k.nandini
1.r.deepika
2.v.poojitha
3.ruqsar begum
4.k. Ramya
1.k.samatha
2.k.sahithya
3.m.trishala
4.m.sushmitha
5.k.archana
1.p.akanksha
2.v.shivani

3.n.akhila
1.p.divya
2.b.harika
3.m.tejaswini
4.nazra uzma fathima
5.k.anusha
1.a.mahanthi
2.a. Ashwini
3.a. Anusha
4.b.sangeetha
Adeeba khanam
Asfiya begum
Ayesha anjum
Nabeela khanam
Neha jasmene
Tahezeeba
Haseena javeria
Shahnoor sultana
Asma sultana
Saba nousheen
Saba sultana
Mahek
Amtul wasi
Mahtab sultana
Habeeb unnisa
Javeriya afreen
Saniya iram
Sumayya firdous
Tahniyat khanam
Mahek anwar
G.priyanka
B.lakshmi
J.akshaya
P.supraja
A.saibhodhini
Afreen
A.anjali
Ch.gouthami
M.kalyani
R.sangeetha
G.sindhu
B.sanjana shiny
B.nikhitha
A.manasa
Aiman nishaad

Jadhav sony
J.srija
J.sweety
K.jyothi
J.mayuri
V.ravali
K.anjali kumari
K.akhila
K.abhilasha
M.nithya
K.anusha
B.harika
P.divya
Nazra uzma fathima
P.swapna
A.sruthi
A.rachana
A.akhila
Ch.nikhila
D.anjali
Ayesha
B.jyoshna
E.sathwika
M.divya
Syeda madiha tul ifrah
Khadija kousar
Javeria kousar
Athika farmeen
Shifa fathima
Ganga jala
N.sumana sri
K.Anjali prasanna
B.pravalika
M.meghana
Ch.priyanka
Pendli susmitha
Kathroji samatha
Malkam sirisha
Chirra vandana
Chelimela prabhalatha
K.rachana
N.sidhuja
P.durganjeswari
B.keerthana
E.sireesha

Ch.gngajala
B.prasanna
K.dharani
P.akanksha
A.harika
Adurugatla shivani
Afiya mahveen
Ankamalla akhila
Dandaveni pravalika
Janagam srinidhi
Saniya samreen
Siddam akshitha
Soppari priyanka
Velpula supriya
Voddirala ashwini
Adeeba
Akudari vennela
Chinthala rashmitha
Ilaveni bhavyasri
Nasa akanksha
Shanigarapu gangothri
Kota deepika
Pulipaka prathyusha
Chukka nikitha
Macha priyanka
Haseena javeria
Tahzeeba
Nishath fathima
Mahtab fathima
Shifa mahek
Dishad nazreen
Nida afreen
Rimsha nousheen
Samreen begum
Afiya begum
Amreen fatima
Asra naaz
Samreen sultana
Samreen sultana
Tayyaba
Afiya begum
Asra mirza
Fouzia mubeen
Juveriya naaz
Neha sultana

Adeeba khanum
Amreen begum
Heena
Mahek anwar
Meraj unnisa
Abeda norin
Alam nashra
Muzamil yasmeen
Nida khanum
Nishath tabassum
Neha fatime
Raheema begum
Rimsha nazreen
Saba nousheen
Sabasultana
Saba
Sadaf
Safoora yasmeen
Shifa arsheen
Uzma sultana
Simran sana
Syeda firdouse
Shireen sultana
Shafia bahreen
Sumena begum
Seeba minhaj
Shaik suhanna
Summaya firdouse
Zeba banu
Zoha sultana
A. Ramya
B. Priyadarshini
G. Sarika
J. Sultana
Laxmi bhavani
J. Akshaya
K. Sri harsha
P. Supraja
B. Laxmi bhavani
M. Usharani
K. Sriharsha
P.ashwitha
T. Kalyani
M. Harika
K.kavya

R. Abhinaya
Jasmeen sultana
K. Sri bvallika
Sufia tazeen
K. Shivani
A. Sankeerthana
A. Fathima
A. Manasa
A. Manovika
S.sultana
S,.swetha
K. Jyothi
K. Rajamani
A. Anuradha
C. Akhila
D. Rajeshwari
B. Mounika
Sumayya arsheen
Maleeha sultana
Neha fatima
Rohini
Priyanka
Keerthi priya
A. Sankeerathana
A. Manovika
B. Joshna
D. Swathi
D. Keerthi
S. Shweths
J. Sweetyu
B. Mounika
Prathyusha
Pooja
G.ramya
G.vishnavi
R.ruchitha
Chandhana
M.anjali sri
B.gethanjali
G.mounika
L.chandhana
K.nikitha
G.anusha
Syedaafsamahveen
G.akhila

P.akanksha
P.soumya
Mubeenabegum
A.abinayachandrika
D.jyotsna
B.keerthi
J.kaveri
D.jyoshna
A.madhumitha
Ch.supraja
S.priyanka
S.soujanya
A.sravani
Anjum banu
O.sravani
U.mamatha
R.shruthi
A.pooja
Amena maryam
Habeeb unnisa
Soha khanam
Afsha firdouse
Sana sultana
Ch.ankitha
Ch.shailaja
Sandhya
Asmitha
Akhila
G.anusha
K.akshaya
K.supraja
L.sowmya
P.sriya
D.swapna
K.mounika
G.manasa
D.anusha
Maneesha
A.vedika
B.ramya
P.soumya
R.anusha
G.sony
Afreen begum
Ayesha firdous

Amreen
Sanika
Ganga jala.ch
Subia tahreem
S.srivani
J.akansha
B.sonalibindra
R.manasa
Nadiya samreen
P.swapnika
R.divya
B.lavanya
N.preethi
Ch.tulasi
Ch.pravalika
D.swapna
D.akshaya
D.sandhya
K.mounika
R.krupa
P.pallavi
A.kalyani
P.geetha
M.rakshitha
Neha afreen
Sana begum
P.thriveni
S.soumya
Arshiya jabeen
D.bhargavi
G.magamala
G.pooja
D.deepika
B.kavya
B.jyothi
Ch.bavani
E.sravani
Hajramaheem
K.srinitha
B.manasa
B.ushasri
P.rajini
S.vineela
1)l.rama
2)g.kalyani

3)a.anushaa
4)e.thriveni
5)n.rama
1.d.navaneetha
2)m.nithya
3)s.kavya
4)afifakousar
5)b.jeevana
1)b.susmitha
2)e.meghana
3)k.laharika
4)k.shravani
5)k.anusha
1)p.sahithi
2)m.shravani
3)b.saiprasanna
4)e.soumya
5)e.ashwitha
1)b.sandhya rani
2)t.pooja
3)a.madhumitha
4)s.soujanya
5)k.ramya
1)s.priyanka
2)b.ramya
3)k.ravali
4)d.vennela
5)b.sandhya rani
1)b.maneesha
2)m.sandhya
3)o.akhila
4)k.bhavya
5)a.kalyani
1)s.jyothsna
2)m.sandhya rani
3)k.manisha
4)d.bhavani
5)p.susmitha
1) k bhavyasree
2) g.pujutha
3) g. Livika
4) d.pavithra
5) d. Pravalika
1) k. Sreeja
2) l swathi

3) p. Rishitha
4) a. Anusha
5) y. Anusha
1) nerella sindhuja
2) narukudu kavya
3) jadi rajamani
4) bhukya sandhya
5) chilumula supriya
1) pothuganti rani
2) potharla vasantha
3) bairi nikitha
4) bejjenki jyothsna
5) chitthari saritha
1) a. Sai bodhini
2) b. Pavanisree
3) k. Kavya
4) k. Sriharsha
5) m. Usharani
1) m.harika
2) v. Ruchitha
3) t. Kalyani
4) afreen
5) A.pavithra
1) b. Kalyani
2) b. Akshitha
3) d. Kerthipriya
4) g gangothri
5) g. Rakshitha
1) k.rajamani
2) m.bindhupriya
3) m.shyamala
4) m. Akhila
5) l.priyanka
N.gangothri
G.vasuki
S akhila
MD Athika munthas
Nousheen sulthana
B.Rajitha reddy
B.kavya
K.Sai priya
G.navya
M.hymavathi
M.likitha
B.abhigna

E.aswini
S.alekya
G.shruthi
A.sravani
A.shylaja
A.anusha,
A.vyshnavi
A.soujanya
A.akhila ,
Ayesha sultana
B.poojitha,
B Sai deepika
B.omalika
B.mounika,
B.aruna,
B.anusha,
B.keerthana
B.supriya.
D.ramya,
D.vinitha
E anvitha
E.srilekha
D.Srinitha rani,
E.manasa,
Fareesa jannath
Frdose anjum,
G.aswitha,
G.sravani.
G.promoda
G.Sai priya,
G.kavitha
G.bhavani
G.sravani
Hajra bee,
Humera saniya,
J.thirumala
K .madhavi
K.sangeetha
K.akhila
K.shirisha
K.soniya
K.shyamala
K.pallavi
K.swomya
K .meenakshi

K.rajitha
K.jayasree
K.soujanya.
K.vijayeesri
L.pallavi
N.harsha
M.pavani
M.akhila.
M.deepika,
M.shylaja
M.manasa
M.ruchitha
M.komala
M.shirisha
M.manasa
M.vandana
M.soujanya
N Jyothi laxmi.
N.deepika
N.mounika
N.janaki
N.sushmitha
Nishanth begum.
P.bhavani
P.ramani
P. Mounika
P.ramadevi
R.ruchitha
R.mounika
R.archana
S.sindhuja
S.swarna
S.kavya.
Sameena begum
S.soumya
Shaik thajun
S.mallika
S.alekhya.
Sumaya nazreen
Sumaya afreen
Supriya jadi
T.pushpalatha
A bhavani
Shaik suhana
Mahatab khanan

Raheema begum
Tahniyat khanam
Gulafshan
Nazneen sultana
Amreen fathima
Suhana khanam
Firdouse
Safoora yasmeen
Nida afreen
Saba firdous
Asra naaz
Tayyaba
Samreen begum
Adeeba khanam
Neha jasmene
Naneela khanam
Ayesha anjum
Sufiya khanam
Aara anjum
Muskan begum
Rimsha naaz
Sana begum
Neha sultana
Asma sultana
Haseena javeria
Tahzeeba
Syeda shahnoor sultana
Mahek anwar
Ameena shahnaz
Aiman jasia
Mahveen samreen
Saniya fathima
Shifa
Afshan amreen
Bushra begum
Gousiya
Sadaf
Muskan fathima
Saba
Samreen
Saniya mahveen
Tabassum
Uzma sultana
Shafia bareen
Sumeera

Saniya tabassum
Muskan begum
Nida samreen
D.rajeshwari
L.abhinaya
V.saritha
L.swathika
M.deviya
B.saijoshna
B.akshitha
B.vsrshitha
J.mayuri
M.manjula
B.Laxmi bhavani
S.archana
V.ruchitha
Jasmine sultana
R.abhinaya
K srivallika
G.shruthi
B.varshini
B.shirisha
B.pavithra
K.Laxmi prasana
N.spoorthi
M. Pavani
V.harika
O.preethi
P.sandhya rani
A manasa
B.akshitha
G.tejeswini
J.sweety
P.mounika
T.nandu
M.bindu priya
S.shwetha
G.srisha
J.mayuri
A.ramya
B.supriya
B.shirisha
G.deena
K.sirisha
J.akshya

M.durgum
B.kalyani
S.archana
B.ananya
G.shruthi
Saba sayeed begum
O preethi
P sindhu priya
V.harini
T.shireesha
M.pavani
M.kavya
B.kalyani
G shruthi
1. Subia tahareem
2. Iffath sabri
3. Romana raheem
4. Sheema afnan
5. J. Nandini
1. Joya sameem
2. Arshiya tabassum
3. Ayesha siddiqui
4. Iqranaz
5. Nigar khanam
1.jeba fathima
2. Namira nousheen
3. B. Laxmi bhavani
4. Sameena mirza
5. B. Priyadarshini
1. Zeba fathima
2. Zuha
3. Sheema afnan
4. Iffath sabri
5. Subia tahareem
1. Amrin
2. Sumera khamar
3.nigar khanam
4. Luba fiza
5. M. Jyothi
1. Zuha
2. Sumayya naz
3. A. Mounika
4. B supriya
5. Haleema sadia hameed
1. Adeeba

2. Habeeba javeria
3. Afsha mahin
4. Aqsa sameen
5. Asra
1. Sahistha tamseen
2. Jufisha yasmin
3. Zeba fathima
4. Syeda sana mahvish
5. Surayya mahvish
1. Sayyad amena fathima
2. Areeba
3. B.sharanya
4. G. Anusha
5. J amulya
1. Aiman nishad
2. Rahela
3. Saba fathima
4. Jadav sai
5. Rashmitha .J
1. Romana rahim
2. Sayyada arshi
3. Iffath masooma
4. B. Sadhvi
5. Mohammadi hazra tafheem
1. Iffath masooma
2. B. Somy
3. B. Supriya
4. Shifa mahveen
5. Sheema
1. Saba fathima
2. Asafia mahveen
3. Arshi iram
4. Aiman nishad
5. Rabia amber
1. Asma sulthana
2. MD. Sana
3. Saba fathima
4. Sara shehwar
5. Asma rahmani
1. Zoya sameem
2 sana
3. Asra
4. J. Amulya I
5. Kousar firadouse
1. Jadav sai

2. D. Manisha
3. Surayya naz
4. Bisma konain
5 d. Geethanjali
1. Iffath unnisa sabri
2. Shekh rahela
3. Nazreen begam
4. Kousar firadouse
5. A. Mounika
1. Sayyada arshi iram
2. E. Akshaya rani
3. Ayesha siddiqa
4. B. Supriya
5. Misba tabassum
1. Shifa mahvin
2. Tooba nashra
3. Areeba
4. Misba tahreen
5. Aiman nishad
1. Nisha sayyad
2. Rimsha afreen
3. Ayesha javeria
4. P. Sowmya
5. Safia kousar
A.mamatha
Ariba
A.pooja
A.ramya
Syed nisha
B.sandya
B.sravanthi
B.soumya
B.keerthi,
B.anjali
Ch.mounika
D.jayanthi
D.jyosna
E.richa
Fiza
G.niharika
G.sumitra
Hafsa shireen
K.samatha
Safiya kousar
T.rajitha

T.madavi
Umme maheen
Afsa
Firdouse
G.akhila
Tabassum
J.pravalika
J.priyanaka
K.srinitha
B.ramya
B.swetha
E.sravani
G.sony
G.geetha
Gousia jabeen
G.deepika
Lubna nazneem
Nilofia anjum
Nousheen fathima
Romana raheem
Subia tahreem
Sumayya afreen
Ayesha fathima
Zareena begum
Afreen begum
D.vennela
Maheen
Sheema afnan
Ayesha
Iffath unnisa
Zuha
V.pooja
A.sravani
J.sravya
Asma
B.kasthwii
Ch.pavani
G.sony
M,anjali
K.vennela
Misbah
Mubeena
Neha
N.harika
Nida

P.soumya
P.shyamala
Sadiya
Sana
B.nandini
Arbeya
Bisma
G.maneesha
J.nandini
Areeba
K.Vijaya laxmi
Meeraj
K.mounika
Sana
N.manasa
Nisha
P.geetha
Arishya
G.meghamala
G.pooja
G.lavanya
Habeeba
Hafsa
K.sriya
K.anvitha
M.krishnaveni
N.bhavani
,Neha
Rebbas
Tahaseen
Sara siddiqua
Sunniya jabeen
Ayyuba
Syeda ummami
Akkati kalyani
Baddam rajani
Gosukula ashwini
Kannam veekshitha
Sayyada ummay ammara
Jagelli sruthi
Kothapalli ravali
Malothu kaveri
Noursheen
Ullengala sharadha
Arelly sukanya

Cherra manasa
Gandu abhinaya
Gollapelly meghana
Sanga prathyusha
Andapelli archana
Dasari abhinaya
Jittaveni nandini
Thotla shreya
Velpula ramya
Adavena akshara
Biyyala saipranavi
Guguloth lavanya
Potharapu navaya
Thogiti sushmitha
K. Vijayasri
U. Ramya
N. Mounika
P. Akanksha
B. Ushasri
J.sruthi
M.kaveri
B.ramya
A.archana
Aruna
B.manasa
L.pallavi
Iyesha siddique
U.bhavani
U.mamatha
Ch.manasa
G.sharanya
G.anjali
Afreen
S.priya
P.sreya
M.kaveri
V.ramya
J.nandini
Gandu abhinaya
Amraju mounika
Anthagiri akhila
Anumalla harika
Arraji anusha
Asna musheer
Eruvaka harshitha

Eruvaka kavya
Falak naaz
Gade rashi
Gali meriya
Thalla anitha
Thirthala lavanya
Thota pravalika
Uppula sangeetha
Uppu mamatha
Lavudya shirisha
Maheen
Chilumula anjali
Damera rachana
Dasari vennela
Bhommena sanika
Chilukuri gangajala
Manadapelly anusha
Moluguri vennela
Munesula shyamala
Nomula mahendra keerthi
Perumandla anushka
Pilli jyothi
Odhela vaishnavi
Orsu anjali
Sagar rajeswari
Nukala anjali
Pondurthi akhila
Potla rajitha
P sindhuja
Rudravena ramya
Salkam sindhuja
Nomula manisha
Ryapani laxmi
Salma khanam
Siddam akshitha
Sandra srija
Sangepu akanksha
Sriramula bhavani
Soppari priyanka
Samiya naaz
Samudrala archana
Sanagonda saipriya
Siddenki jyothi
Sriramula gayatri
M.pavani

B.varshini
Saba sayeeda begum
Shifa shazmeen
O.preethi
M.hema sri
M.sriveni
P.akhila
K.bhavani
G.vanaja
Sameena
H.manga
Md jasmin
Afreen
Ch.sushma
Maleeha sultana
Sumayya arsheen
D.keerthipriya
N.rohini
Nazneen sakeena
G.shruthi
D.premalatha
K.preethi
M.pranusha
M.kavya
K.laxmi prasanna
B.pavithra
G.sravani
M.meghana
M.lavanya
Ch.gouthami
A.pavithra
G.rajamani
B.pallavi
V.kalpana
S.priyanka
S.divya
S.prathima
S.shwetha
M.shyamala
Amreen fathima
J.sweety
J.mayuri
Neha fathima
P.divya sri
B.shirisha

P.mallika
P.sindhupriya
B.sravani
V.samatha
Asmarahmani
A.saibodhini
B.supriya
B.shirisha
B.ravali
B.laxmibhavani
B.pavanisri
B.akhila
B.kalyani
B.priyadarshini
Zebafathima
S.archana
Syeda arshi iram
S.supradhika
Salma
Sufiatazeen
V.ruchitha
R.abhinaya
P.sowmya
P.mamatha
K.sriharsha
K.kavya
K.srivallika
M.usharani
D.manasa
J.akshaya
Jasmeen sulthana
J.sandhya
Gulafsha
G.deena
K.bhavani
K.shravika
M.hemasri
P.sravani
P.akhila
B.mounika
A.anuradha
Ch.akhila
E.gangothri
G.pooja
L.abhinaya

L.priyanka
L.meghana
L.sneha
M.pravalika
V.saritha
R.madhumitha
R.yogitha
P.mamatha
M.divya
1.amreen begum
2.farheen sultana
3. Habeeba unnisa
4.limra firdouse
5. Amatul wasi
1.haseena javeria
2.tahezeeba
3. Mahek
4.mahek anwar
5.shifa mahek
1.saniya iram
2.sumayya firdouse
3. Javeria afreen
4.saba nousheen
5tahniyath khanam
1.gul afshan
2.arshiya tarannum
3. Jasmeen sultana
4.azra fathimae
5. Salmai
1.saniya mahveen
2.saba
3.saniya fathima
4.simran sana
5. Uzma sultana
1.sumena begum
2.syeda firdouse
3.shifa arsheen
4.sumayya begum
5. Tayyaba begum
1. Afshan mirza
2.asfia fathima
3.asma nazneen
4.azra afreen
5. Farha naaz
1.shabeena sultana

2.shafiya bareen
3.shafiya
4.shaista nasri
5.shariqua
1.amreen fathima
2.ayesha begum
3.maleeha sultana
4.muskan khanam
5.nazneen sakeena
1.nazneen sultana
2.neha fathima
3.rana sultana
4.samreen sultana
5.shaista mahek
1.fouzia kouser
2.gousiya
3.gousiya begum
4.mahveen saba
5.mahveen samreen
1.shamama farhath
2.shifa khanam
3.suhana khanam
4.sumayya arsheen
5.tayyaba firdouse
1.afiya begum
2.afreen sultana
3.aliya tabassum
4.ameena khanam
5.amreen fatima
1.asra naaz
2.dilshad nazreen
3.faiza mubeen
4.fasiha iram
5.fatima siddiqua
1.saba firdose
2.sadia saba noorien
3.sadiya fathima
4.safiya yasmeen
5.saleena shagufta
1.arshia fathima
2.asma fathima
3.asna tabassum
4.asra anjum
5.asra mirza
1.syeda arfa jabeen

2.syeda ayesha fathima
3.syeda ruksar rafeek
4.tayyaba
5.uzma anjum
1.naseema saher
2.sumera yasmeen
3.tasneem fathima
4.saba al noor
5.sumayya afreen
1.salma fathima
2.samreen
3.sana sultana
4.sania tabassum
5.seema firdouse
1.nida fathima
2.nureen yasmeen
3.rabia fathima
4.raqeeba begum
5.sadiya fathima

Study on Water Quality Parameters And Benthic Fauna Diversity Of Kotthapally Cheruvu In Karimnagar, Telanagana

Student Study Project Submitted to the

Commissionerate of Collegiate Education, Hyderabad.

Under the

JIGNASA

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Study On Water Quality Parameters And Benthic Fauna Diversity Of Kotthapally Cheruvu In Karimnagar,Telanagana

Introduction:

The benthic macro fauna are those organisms that live at the bottom of a water body and are used to detect changes in the natural environment (Idowu and Ugwumba, 2005; Akaahan et al., 2015). Studies of aquatic bodies have established the existence of relationships between water quality and macro and micro-invertebrate diversity (Teferi et al., 2013). They serve as monitor for the presence of pollutants, their effects on the ecosystem and the progress of environmental clean-up process(Nkwoji et al., 2010). The assessment of the biotic condition compliments the physico-chemical parameters in aquatic environment condition determination (Madhushankha et al., 2014).Macro-invertebrate organisms form an integral part of an aquatic environment and are of ecological and economic importance as they maintain various levels of interaction between the community and the environment (Sharma et al., 2013). According to Marques et al., 2003), knowledge of the structure of the benthic macro-invertebrate community provides precise and local information on recent events, which can be seen in their structuring. The use of invertebrates and fish as bioindicators of water quality has been advocated by several researchers (Adakole and Annune, 2003).The use of macro-invertebrate diversity for bio-assessment provides a simpler approach compared to other environmental quality assessment procedures. This is because, macro-invertebrates can be sampled quantitatively and the relative sensitivity or tolerance of some of them to contamination is known (Adakole and Annune, 2003). Species vary in their degree of tolerance with the result that under polluted conditions, a reduction in species diversity is the most obvious effect (Emere, 2000; Iomekwe and Egborge, 2003; Sharma et al., 2013). Macro-benthic invertebrates are used as bio-indicators because of their extended residency period in specific habitats. Moreso, the presence or absence of particular benthic species in a particular environment act as a pointer to the water quality status. The abundance of benthic fauna mainly depends on physical and chemical properties of their habitat as they respond more quickly if any changes in water quality occur. They are most frequently used in biomonitoring for these reasons (Mohan et al., 2013). Modification to macrobenthic assemblage distribution affects important role they play such as mineralization, mixing of sediments and flux of oxygen into sediment and cycling of organic matter (George et al., 2009), which further contribute to indication of water status. The technique of using macro-benthic invertebrates as bio-indicators is a cost effective method widely used in the Northern American and European ecoregions (Amina et al., 2005) but not a popular method in the African region as river classification due to the lack of expertise and information on benthicmacro-invertebratepopulations.There have been several studies on the relation of the aquaticmacro-benthosdiversityandwatersediment with physicochemical status of the aquatic ecosystem(Jargetal.,2009;Quasimetal.,2000; Edokpayi et al., 2010 and Madhushankha et al., 2014).Inlandwaterslikefreshwaters,thebenthicinvertebrates play essential roles in key ecosystem processes,suchasfoodchainsdynamics,productivity, nutrient cycles and decomposition. The lotic,lentic,inlandwaters,swetlandsbrackish as marine waters in the tropics are habitats for a variety of macro invertebratefauna. Work on the macro-invertebrate fauna in the tropics has shown that the quantitative collection of key species from natural aquatic habitat or that modified by man can provide a means of estimating various ecological parameters, such as richness or evenness in diversity (Oke et al., 2007).Their distribution and abundance are directly related to different environmental factors such as food

availability and quantity, sediment type, substrate, and water quality (Arslan et al., 2007;andOdabasi et al., 2009). They also show considerable spatial variation with lake and acrosslakes(Baudo et al., 2001; Pamplin and Rocha, 2007; Smiljkov et al., 2008). In reservoirs, the benthic macro-invertebrate community may be particularly susceptible to water-level changes that alter sediment exposure, temperature regime, wave-induced sediment redistribution and basal productivity (McEwen and Butler, 2010).

Freshwater bodies contain diverse habitats within and around which support myriads of species of both plants and animals and are important sources of water for human activities. In some instances freshwaters have been dammed to provide potable water for urban settlements and the kottapallycheruvu is one of such freshwater bodies which are used for domestic purposes by the generalityof Karimnagar communities. Adeogun and Oyebamiji (2011) reported that most surface waters in india have been used as the most expedient way of disposing wastes especially effluents. The likely impact of human interference on freshwater bodies necessitated this present investigation to appraise the variations in the physic-chemical parameters and likely changes that may have occurred in the macro-benthic invertebrate community of Kottapally cheruvu.

The findings will provide information on the water quality of the river and the diverse species of benthos in the river. It will also provide useful information on the richness of the Kottapally cheruvu.

Objective of the study:

General objective of this study is to evaluate the water quality variables and the benthic organisms in kotthapally cheruvu. Specific objectives of this study were

i. Determine the benthic organisms diversity of Kotthapally cheruvu.
ii. Assess the water quality of Kotthapally cheruvu.
iii. Determine the relationship between water quality parameters and composition of benthic fauna in Kotthapally cheruvu.
iv. Determine the effect of season on physico-chemical parameters of the water and composition of benthic organisms.

Materials & Methods:

Study area:

The study area is kotthapally cheruvu of karimnagar district,Telangana. The selected parameters viz. air temperature, water temperature , current velocity, transparency, conductivity, ph, free CO2 , alkalinity, D.O. were studied on seasonal basis. The stretches were demarcated into five sampling sites viz. S1, S2, S3, S4 and S5. Physico-chemical parameters. Water samples were collected seasonally from March 2017 to February 2018 and certain physicochemical parameters were measured and recorded (some on the spot and some in the laboratory). At each sampling location, composite surface water was collected at the middle of river and stored in clean sampling bottles. Water temperature, ph, depth, transparency, water current, conductivity was determined and recorded in the field, because of their unstable nature. Water temperature was recorded by mercury thermometer, transparency with secchi disc, ph with pen type ph meter,dissolved oxygen

HI96107), conductivity with pen type conductivity meter (Hanna; HI96303) and water current by flow mate. The laboratory analysis of the samples was done using standard methods (APHA, 1998). Alkalinity and free CO2 was determined by titration method. Dissolved oxygen (DO) was determined by Winkler's modified method.

Macro invertebrates Assessment: Benthic macroinvertebrates were collected from each sampling sectors using drag nets and preserved on sites in 70% ethyl alcohol and identified as suggested by Pennak (1989) and Edmondson (1993). The densities of abundant species were analysed for each of the sampling stations using the formula: D = n/ A, where D= Density; n= total number of macroinvertebrates sampled; A= area of sampling unit. To evaluate the water quality and diversity in the river, biotic index i.e. FBI (Family Biotic Index) was used. FBI was calculated using the equation: FBI=$\sum$xi.ti /n, (Plafkin et al., 1989, Barbour et al., 1999) where xi= no. of individuals in the i th taxon ti= tolerance value of the ith taxon and n= total no of organisms in the sample. Tolerance which has been used in the calculation of FBI is a listing of tolerance values that range from 0 for organisms very intolerant of organic wastes to 10 for organisms very tolerant of organic wastes. These values have been taken from standard protocols provided by Hilsen hoff 1987.

Result: The geomorphological features of the surveyed stations have been given in Table 1. Seasonal variations of these factors from different sampling sites have been given in Tables: (2, 3, 4 and 5). The mean physico-chemical values for air temperature (ºC), water temperature (ºC), current velocity (m/s), transparency (cm), conductivity (µs/cm), pH, free CO2 (mg/l) , alkalinity (mg/l), D.O (mg/l) were found to be 22.8ºC, 21.4ºC, 1.34 m/s, 116.5cm, 111.14µs/cm, 7.48, 3.44mg/l, 93.56mg/l, 10.8mg/l respectively, during Mar-May (pre-monsoon). During Jun-Aug (monsoon), the mean values for the above physicochemical parameters were 31.6ºC, 29.14 ºC , 2.32m/s, 26.6cm, 176.42µs/cm, 7.54, 4.52mg/l, 60.26mg/l, 8.48mg/l respectively, during Sep-Nov (post-monsoon), the values were 26.16ºC, 23.6 ºC, 0.264m/s, 54.66cm, 181.2µs/cm, 7.72, 5.12mg/l, 79.9mg/l, 10.2mg/l respectively and during Dec-Feb (winter), 9.9ºC, 9.4 ºC, 0.575 m/s, 138.3107.8cm, 107.82µs/cm, 7.1, 2.5875mg/l, 52.7mg/l, 11.18 mg/l respectively. Macroinvertebrate species collected during the study with their densities is shown in Table - 6. A total of thirteen (13) species (Physichobdella sp. Physella sp. Soletelina sp. Gammarus sp. Ferrerorgeneus sp. Isotomus sp. Caenius sp. Gomphus sp. Lethocerus sp. Hydrophylus sp. Chaoborus sp. Chironomus sp.) of benthic invertebrates' fauna belonging three (3) phyla (Annelida, Molluscs, Arthropoda), five (5) classes (Hirudenea,Gastropoda, Bivalvia, Crustacea, Insecta.) and thirteen (13) families (Hirudinidae, Physidae, Ancylidae, Gammaridae, Parseediae, Isotomidae, Caenidae, Gomphidae, Belostomatidae, Nepidae, Hydrophilidae, Chaoboridae, Chironomidae) were found in the study. Table 6 shows the total number of families, species and percentage composition of the macro invertebrate fauna in the study area. In the table, we saw that class - Gastropoda occur predominantly (23.71%) followed by Crustacea, Bivalvia and Hirudinea. Tolerance and Family biotic index values are summarized in the Table: 6 and Table: 7 respectively. Tolerance values of macroinvertebrates were found between 4 and10. Hirudinea and Collembola showed the highest (10) , followed by Gastropoda, Bivalvia, Decapoda and Diptera (8) and Amphipoda, Odonata, Hemiptera, Coleoptera, (4 and 5 respectively) showed the lowest tolerance values. Among the taxa the highest community was contributed by

pollution tolerant taxa like Gastropods, Bivalvia, Decapoda (prawns) and Diptera (midges). Gastropods were recorded in greater number as shown in Table 6. Sensitive species were reported to be less in all the sectors. The FBI value obtained in the investigation reflects the poor water quality in all the stations of the studied stream.

Table 1: Geomorphological features of Kothapally cheruvu

	Surveyed stations				
Parameters	**Station I**	**Station II**	**Station III**	**Station IV**	**Station V**
Width(m)	12	18	20	16	15
Depth(m)	1.8	2.7	3.8	4.2	3.2
Stream reach	Alluvial	Alluvial	Alluvial	Alluvial	Alluvial
Reach type	Riffle	Riffle	Pool	Riffle	Riffle
Substrate	Sandy	Sandy	Sandy	Sandy	Sandy
Bank type	Erosion prone area. U-shaped bank; R-village area L-human habitation	Erosion prone area. U-shaped bank; R-village area L-human habitation	Erosion prone area. U-shaped bank; R-village area L-human habitation	Erosion prone area. U-shaped bank; R-village area L-human habitation	Erosion prone area. U-shaped bank; R-village area L-human habitation
Riparian vegetation	Grass, trees, plantains	Grass,shrubs, plantains	Grass,shrubs, plantains	Grass, shrubs, trees, bamboo	Bamboo, tree

Table 3: Physicochemical parameters of the Kothapally cheruvu

	Surveyed stations				
Parameters	**Station I**	**Station II**	**Station III**	**Station IV**	**Station V**
Air temperature (°C)	30	32	34	30	32
Water temperature (°C)	28	30	28	30	29.7
Current velocity (m/s)	2.2	2.2	2.3	2.5	2.4
Transparency (cm)	24.9	25.6	27.5	28.2	29.8
Conductivity (µs/cm)	150.5	180.6	186.6	180.2	184.2
pH	7.5	7.2	7.6	7.8	7.6
Free CO2 (mg/l)	5.8	3.6	3.8	4.2	5.2
Alkalinity (mg/l)	60.1	58.2	61.2	60.4	61.4
D.O. (mg/l)	8.4	8.6	8.3	8.2	8.9

Table 3: Macroinvertebrate taxa of Kothapally cheruvu with their relative densities and tolerance level

Surveyed stations									
Taxa	Class	Family	Species	Density				Tolerance level	
Annelida	Hirudinea	Hirudinidae	Rhynchobdella sp.	21	10	5	12	5	10
Mollusca	Gastropoda	Physidae	Soletelina sp	16	25	24	22	23	16
	Bivalvia	Anomidae	Soletelina sp	7	9	6	10	45	8
Arthropoda	Crustacea	Gammaridae	Gammarus sp.	1	4	0	1	0	4
	Penaediae	Fenneropenae indicus		20	9	20	22	12	8
	Insecta	Isotomidae	Isotomurus sp.	0	1	2	0	0	10
		Caenidae	Caenis sp	0	5	5	2	1	7

Discussion:

Temperature is a vital parameter for growth of organisms and physicochemical behavior of biotic components of aquatic ecosystem. The water temperature showed a declining trend from August to November in different sectors. The seasonal variation showed that the water temperature followed the seasonal pattern of ambient temperature fluctuation. Reduction in transparency in the rainy wet period is due to the addition of eroded soil of riverbank and run off from the catchment areas. The rain water brought large amounts of dissolved and suspended inorganic and organic materials that made water turbid and cause lower transparency in the rainy months (Sawant et al.,2010; Timmo and Midgley,1970). pH of a water body is very important indicator of water quality (Facayode, 2005). Assessed data on pH of the water of different sectors of the stream was found in between neutral to alkaline range throughout the study period. The pH of an aquatic ecosystem is important because it is closely linked to biological productivity. Although the tolerance of individual species varies, pH values between 6.5 and 8.5 usually indicate good water quality (Barnab and Hanwelka, 2011). At the same time, dissolved oxygen (DO) content plays a vital role in supporting aquatic life and is susceptible to slight environment changes. DO has been extensively used as a parameter of delineating water quality and to evaluate the degree of freshness of a river (Facayode, 2005). Variation in DO values (8.48 – 11.18 mg/lit) is with higher value in winter. These are unable to withstand in heavy water current during rainy wet season which synthesized and provides oxygen for the aquatic life. The value of free CO2 was found Paper to be inversely proportional to that of DO. Free CO2 value during wet period indicated reduction in photosynthesis resulting in lower oxygen concentration levels and high carbon dioxide levels. The FCO2 data represents the positive balance between producer and consumer in the river system. Alkalinity of water is a measure of weak acid present in it and of cations balanced against them (Swerdrup et al, 1942). Similarly, total alkalinity of the river ranged between 32.7 and 79.9 mg/l, minimum during dry seasons and maximum during rainy seasons. Tolerance values of macroinvertebrates obtained in the investigative reflects their

tolerance limit to their aquatic habitat and it also indicated a strong relationship between the physico-chemical parameters of water and the distribution of organisms in the kothapally cheruvu. This is an indication of the ability of the organisms to survive, adapt, migrate or die under favorable and unfavorable environmental conditions as was also reported by Tyokumbur et al., (2002). Similar trends in the correlation between the physico-chemical quality and the distribution of organisms have been reported by many scientists such as Ebele (1981), Ajao and Fagade (1990), Matagi (1996) and Ogbogu (2001). Most of the macroinvertebrates collected during the present study were found to be pollution tolerant species. Thus abundance of such species indicates the introduction of organic pollutants to the stream. Assessment of water quality by using Family biotic index of macroinvertebrate reveals the poor water quality in all the stations of the studied kothapally cheruvu.

Conclusion:

Certain anthropogenic activities, associated wastes and discharges contribute to the deterioration of water quality. The low species composition, distribution, abundance and community structure of macro-invertebrates recorded in this study could be attributed to perturbation of the water body. There were nutrient enrichment, pollution and habitat fragmentation caused by agricultural activities and other anthropogenic activities such as sand mining, logging, etc in Uta Ewa Estuary. There is need for continuous monitoring of our water bodies for the protection of the environment, sustenance of the biota and full utilisation of ecosystem services derivable from them.

Ecology Of Aquatic Insects In Manakonduru Lake Karimnagar, Telangana

Student Study Project Submitted to the

Commissionerate of Collegiate Education, Hyderabad.

Under the

JIGNASA

Submitted by

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KARIMNAGAR, TELANGANA-505001

(Re-accredited with "B" Grade by NAAC)

DECEMBER-2022

Ecology Of Aquatic Insects In Manakonduru Lake, Karimnagar, Telangana.

INTRODUCTION: Manakondur cheruvu is in Manakondur, Karimnagar, District Telangana State in India. manakondur cheruvu is geographically located at latitude 18 Â° 23â€²0" and longitude 18 Â° 23â€²0". During recent years there has been increasingly greater concern for inland fresh water resources, which are affected in different ways by all kinds of human activities. It is the manmade lakes and one such example of water resources, which form a part of a still larger system, the watersheds. Any human activity in the whole of the watershed is bound to influence the water in the manakondur cheruvu. Deforestation, grazing and otherwise removal of vegetal in the watershed generally results in accelerated silting of the manakondur cheruvu. The agricultural practices in the catchments area not only help increased silting but also responsible for addition of large quantities of nutrients, pesticides and organic matter, brought to the reservoir by the runoff through the stream. Not only the water quality in the manakondur cheruvu is affected but its impact can also be left in the change in the biota, soil properties and physico-chemical status. In India, the water resources are under great stress from a plethora of human activities. Though the need for increased agricultural production, increased resource utilization, very little is known about the quality of water resources and impact of these activities there upon. In the recent years environmental monitoring through regular assessment of water quality has become a crucial factor in the exploitation or conservation of aquatic resources. Zooplankton is abundant in the shallow areas of water body. The zooplanktons unlike phytoplankton are particularly distributed horizontally and vertically in an ecosystem. The zooplanktons forms an important group as it occupies an intermediate position in the food web, many of them feeding on algae and bacteria and in turn being eaten up on by fishes. They also indicate the tropic status of a water body, their abundance increase in eutrophic water. They are also sensitive to pollution and many species are recognized as Indicators of pollution .. due to increasing human and animal activities in it, the water is becoming polluted. Hence, the basic information and data on the aquatic ecosystem thought to be worked out in order to evolve effective and appropriate strategies for the management of the manakondur cheruvu. The study of the manakondur cheruvu in respect to insect availability is not worked out earlier. Similarly, no studies are carried out on the water quality of the lake and therefore, it was thought to study insects in different parts of the lake, so that it would help in future planning for the reclamation of such lake and its utilization for intensive fish culture. In this study, Families Hydrophilidae, Notonectidae, Corixidae And Nepidae From Hemiptera order were identified 41.9%, 26.9% , 25.0 %, 2.2% respectively, these result lead to the conclusion that the Hemiptera fauna is relatively rich in manakondur cheruvu.

MATERIAL AND METHODS:

SITE DESCRIPTION: Manakondur cheruvu is in Manakondur, Karimnagar, District Telangana State in India. manakondur cheruvu is geographically located at latitude 18 Â° 23â€²0" and longitude 18 Â° 23â€²0".

The region of aquatic insect collection from four sites of the reservoir. The period of collection of aquatic insect is the main soon and winter season i.e. July to October and winter period is November to January. In this period the aquatic insect is largely seen Collection of aquatic insect is requiring patience and determination. Some aquatic insect is very small and some are large. The small aquatic insect is very

movable and that is why they can be collect very carefully and neatly. The insect can be collect by insect net. These insect net can be moving in water for collecting the insect. these collecting insect is transfer in to the beaker or glass jar or glass bottle. We also used another method to collect aquatic insect, ie hand collection method. Those insect can move on the upper surface of water, these are easy to collect by hand collection method. then transfer it in to glass bottle fill with 70% alcohol for preservation. The equipment used for the collection of aquatic insect is simple and inexpensive .it includes insect net, aquatic net. Sweeping net etc. and for preservation purpose glass jar, transparent bottle, beaker, forceps, good quality camera and 70% alcohol. Etc. the net made up of nylon wire, which have looped about 60 cm diameters. Over the nylon net the muslin cloth bags were hanging. The loops of net were attached to the stick of one meter length. By continue netting in water, the collected insect immediately transfer in to glass bottle containing already 70% alcohol., after few hours it get die. The collected sample of aquatic insect were carried out for photography by using good quality camera. The collected specimen was identified by special identification key on Facebook insect India and other web link on the internet. While some species are identified by using photograph available on the internate and some are identified using literature.

RESULT AND DISCSSION: The present work carried out on aquatic insect and their ecological role in pus reservoir, Pusad. Maharashtra. The aquatic environments are the specific habitat for aquatic insect. The insect observed in the reservoir are presented in the form of photos. The study of Aquatic insect and their ecological role was carried out for the period of 7 months i.e. July 2021 to January 2022 (2021-22). Total seven species were found in the preliminary study which belongs to phylum Arthropoda and class insect having different order Hemiptera, Coleopteran and Odonata etc. And six families these are Dytiscidae, Aeshnidae, Notonectidae, Nepidae, Hydrophilidae and Gerridae etc. Acilius sulcatus, Anax imperator, Notonecta enithras, Nepa cinerea, Ranatra linearis, Tropisternus lateralis, Geris incurvatus. Etc. species were observed during the present study of aquatic insect. Jana et al. (2009) carried out their research on diversity and community structure of aquatic insect in which 20species of aquatic insect were recorded during the study. These belong to 3 Order Coleopteran, Odonata and Hemiptera. Order Hemiptera had 7 species; Coleopteran had 10 species and 3 species of Odonata. Aquatic insect are probably best known for their ability to indicate about water quality in particular environment studied by Hansan, Haloi, Chetri and Begum (2016).

S. No	Class	Order	Family	Genus	Species	Common Name
1	Insecta	coleoptera	Dytiscidae	Acilius	A. Sulcatus	Water beetle
2	Insecta	odonata	Aeshnidae	Anax	A. Imperator	Dragonfly
3	Insecta	Hemiptera	Notonectidae	Notonecta	N. Enithras	Black swimmer
4	Insecta	Hemiptera	Nepidae	Nepa	N. Cinerea	Water scorpion
5	Insecta	Hemiptera	Nepidae	Ranatra	R. Linearis	Ranatra
6	Insecta	coleoptera	Hydrophilidae	Tropisternus	T. Lateralis	Water beetle
7	Insecta	hemiptera	Gerridae	Gerris	G. Incurvatus	Water strider

Table : shows taxonomic classification of different aquatic insect

SUMMERY AND CONCLUSION :The present study of aquatic insect and their ecological role in Upper Pus Reservoir, Pusad, Maharashtra, the present study gives detail idea about the structure and role of aquatic insect. In this study the shape, size and their metamorphosis is different from different aquatic insect. I observed 7 types of aquatic insect which belong to 6 family, Dytiscidae, Aeshnide, Notonectidae, Neptidae,, Hydrophilidae, Gerridae and three orders which is Coleopteran, Odonta And Hemeptera. This aquatic insect which is essential for ecology that is the presence of insect in water bodies is a good indicator for health of living environment of that water bodies. They play important role in protecting and restoring the aquatic ecosystem. The aquatic insect play major role in ecosystem. The presence study of the aquatic insect concluded that the aquatic insect more important for the aquatic environment and keep the mentainance of water balance. Aquatic insect also keep the water temperature, humidity. Their role is important for some species is major role in environmental friendly bio-control device. Also other species is use for major ecological role in some way. Aquatics insect biodiversity is of considerable interest to society because these are so important in the diet of different types of fish species including species that are commonly consume by humans for food that is insects are important role in fishing.

FIG: PHOTOCOPY OF AQUATIC INSECT

RANATRA LINEARIS

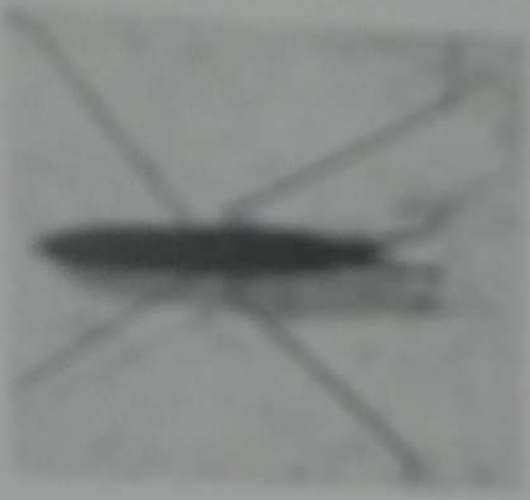
NEPA CINEREA

ACILIUS SULCATUS

NOTONECTA ENITHRAS

ANAX IMPERATOR

TROPISTERNUS LATERALIS



Project Title: Geckos

The Amazing wall climbers

Student Study Project Submitted by:

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5) Hza

Under Supervision: Dr. S. Swetha

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Geckos, the Amazing Wall Climbers

The objective : My objective was to find out how geckos are able to walk on walls and ceilings, and if there are any materials that they can't stick to.

Methods/Materials

Several different materials were prepared by securing them to rigid pieces of cardboard. A material sample was selected and placed on the bottom of a clear box.

A juvenile gecko was placed on the material. The gecko was observed on the material as the box was rotated about one edge, creating a steep incline.

If there was any sliding of gecko's feet, then the height of lifted edge of box was recorded. The angle and the coefficient

of friction were then calculated. Two geckos were observed for each material sample

Results

Four out of nine of materials tested made the geckos slip. These materials were vinyl, wax, soap and Teflon. Sliding was observed on wax and Teflon at shallowest angles.

The geckos did not slip on aluminum foil, Teflon, tape, acetate, Mylar or glass.

Conclusions / Discussion.

My conclusion is that there are materials that geckos have trouble sticking to gecko adhesion is made possible by a molecular force called the Van der Waals force.

I think that the geckos slid on the Teflon because the molecules in Teflon are firmly bonded and Therefore resistant to Van der Waals force. The geckos may have slid on the wax because the wax that the geckos attached themselves to rubbed off the main wax block.

PROJECT TITLE:- Chemical Basis for Ant Behavior

STUDENT STUDY PROJECT

SUBMITTED BY

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CHEMICAL BASIS FOR ANT BEHAVIOR

The Objective:-

1. Determine whether the chemicals that define ant nest mates can be extracted, and used to stimulate different behavior in ants from the same and foreign colonies

2. To better understand the molecular basis of the scent, modify the scent of nestmates in an attempt to make the colony attack its own extract.

Methods/Materials

Ants, from two different colonies of Linepithema humile, were collected, frozen, extracted with pentane, and evaporated onto cotton

Pieces of cotton from each of the samples were placed under from a path of L. humile between an indoor colony and a pile of sugar.

The number of ants diverted from the path and contacting

the samples of cotton in 5 minutes were counted. The chemical composition of the colony scent was modified by the addition of a mixture of alkanes

The modified scent was transferred to cotton and tested in the bioassay.

Results

The chemical scent extracted from the Woodside colony and transferred to cotton didnot stimulate the Woodside ants, but cotton treated with an extract of a foreign colony [Portola Valley] generated a robust response.

The addition of a mixture of straight chain alkanes to the pentane extract of a colony resulted in a scent that was treated as foreign, based on the aggression of the ants

The addition of the alkane mixture to the scent of a foreign colony did not have a significant effect. The ants didnot respond to the alkane mixture alone

Conclusions / Discussion

The scent of a colony can be extracted and manipulated to affect ant behavior. A colony of ants was able to distinguish its scent from the perfume of a distant colony

which stimulated aggressive behavior. The addition of a mixture of alkanes to the pentane extract of a colony resulted in a scent that was treated as foreign, based on the aggression of the ants.

The ants didnot respond to the alkane mixture alone, consistent with the chemical signal being the ratio between the alkanes and the compounds in the hydrocarbon mixture. This project was done to determine whether. The chemical scent of an ant colony can be extracted and manipulated to affect ant behavior.

Project Title :- Sugars effects on Ants

Student study project Submitted by

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:- Under Supervision :-

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The objective: This experiment test the effects of different Sugars on the energy and hyperactivity level of the pogonomyrmex californicus, or the harvester ant. The concept of a sugar high and sugar low are tested. The effects of artifical sugar are monitored as well.

Methods/Materials:

To investigate the problem, I fed the different solutions to different ants and observed their movements and speed. For each 'group' of ants, I altered the ingredients in the solution that I feed to them. The sample size in which these ants could provide is infinite.

They can move at any speed in which they can. In order to acquire the proper data I had to complete two-hundred trials meaning the testing of two-hundred ants in total.

I tested groups of ten: ten ants per group. 4 tests for each. When I measured the speeds of the ants, I wrote them down in seconds down to the millisecond, but when it was necessary, I included the minutes.

Result:

The control's standard deviation was 1054, the cane Sugar group's was 2.736906877, the equal group's was 4.241, the honey group's was 6.80, and the splenda group's was 7043

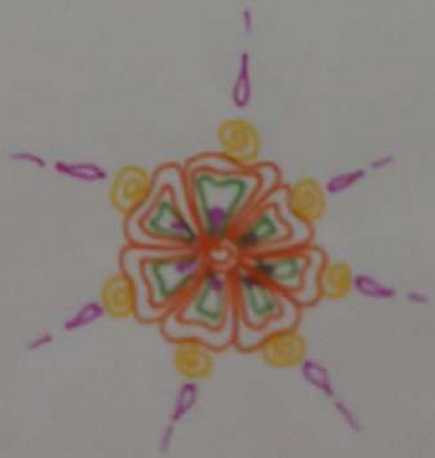
According to the data, the splenda group was most affected by the sugars, and the cane sugar group was the least affected

Conclusions / Discussion:-

The splenda group had the largest spread of data because of its mix of different sugars, such as maltodextrin and sucrose. The cane sugar group had the least spread of data because it is most pure of the sugars, it only ingredient being sucrose.

Honey was the second least affected because it mostly contained fructose and glucose. Equal was the second to most affected due to its main ingedient of aspartame which affects the brain directly as a side effect.

The project is about testing the concepts of hyperactivity linked with different sugars, artifical and natural.



PROTECT TITTLE : What's in the Gut.

STUDENT STUDY PROTECT

SUBMITTED BY

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WHAT's in the GUt

The objective:= objective of this project was to determine the best determine the solution (instead of surgery) that would decrease the size of an enterolith to the grea olith is like a kidney stone. only in a horses gut. when a horse ingests a foreign body such as a piece of plastic, it starts rolling around in the stomach and eventua -lly rolls into a ball. when leaving the colon, frequently it be comes stuck. when this occurs urgery is needed. without surgery nothing can pass through the colon and eventually the horse will die.

methods/materials

* The enterolith materials include - 1 piece of plastic 1cm/1cm, hay 1in/ in, grain 1/3 cup dirt 1/3 cup. and. water 3 Tbsp.
* other materials - gloves, 9 Tupperware bowls, vinegar, apple cider, oil of pepper, ruler hammer (crushing up grain) and measuring cups
* After making the simulated enteroliths, every 24 hours I poured 1 tablespoon of each substance into its specific enterolith. I did this for three days each week. the next trial, which was a week later, I used different enteroliths.

Results

There was no particular winner. the data had no trends. in compar- ison with the data each substance decreased the size of the enterolith.

Conclusions / Discussion

I belived that the best substance or method of decreasing the size of an enterolith was to pour one tablespoon of vinegar on it daily. I belived the vinegar was the most acidic although my data was inconsistent. for example, in trial three the first day i poured vinegar on the enterolith it decreased zero centimeters. while on the second and third day it decreased one and half centimeters each day.

my hypothesis was neither rejected nor supported. By using the same ingredients, and method, I made each enterolith fairly the same, but in the real world every enterolith is different. I believe the data results occurred as they did because of the difference of each individual enterolith.

without the ability to throw up. I didn't want to over medicate the horse. hence the threey trials. I wanted this project to be as close as possible to the real world. in this arena most people are searching for alternatives to expensive surgery. in conclusion all three solutions are equally viable alternatives to surgery.

This project is how an enterolith be decreased in size by using easily accessible solutions an an alternative to expensive surgery.

PROJECT TITTLE : Regeneration in Earthworms

STUDENT STUDY PROJECT

SUBMITTED BY

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Regeneration in Earthworms

The Objective: The objective of regeneration in earthworm is to find out whether specific severed segments will affect the different regenerative processes in either half of the worm, and halves are considered as part A (anterior end) and part B (posterior end). As well as, to consider the points where an earthworm will re-grow if severed at particular areas.

Methods / Materials

During my experiment, I tested 60 worms or specimens and with each new worm one segment was cut (ex. Specimen 1: Segment 1 was severed, Specimen 8 the eighth segment was severed etc.)

Also, materials used included European Earthworms, an exacto-knife, ignited, plastic bags, water, and bedding. Each worm was recorded by specific characteristics, and the worms would be cut at particular segments (segments 1-60).

Furthermore because both halves of the worm

would be observed for the same time period data was taken during the worm's health condition and whether any improvements improvements in regeneration would occur.

Results

Lastly, I had found that the worms the worms that were severed at the segements ranging from 40-60 survived for a significant longer period of time, whilst showing signs of the two key factors of regeneration, a blastema and segment budding.

On the other hand beginning segments such as 1-10 part A. of the worm would soon die while the remaining part B would survive.

Conclusions / Discussion

Regeneration in earthworms is a two part discernible process where the data had shown the overall part B (posterior end) would ultimately live for a longer period of time in comparison to part A (anterior ends).

Also. not only is regeneration an important cellular function of mitosis, not meiosis, earthworms are hermaphrodites and thus basic tissue cultures relate to mitosis

In addition to the data shown, my hypothesis of, # of I cut an earthworm at or above the clitelum both halves will die, was wrong in the sense that both ends would survive, but not for the allotted time frame.

The project consults whether or not earthworms will regenerate if cut at specific segments.

PROJECT TITLE: ONTOGENY of HONEY BEE ORIENTATION FIGHTS

STUDENT STUDY PROJECT

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UNDER SUPERVISOR:

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Ontogeny of Honey Bee Orientation Flights

The Objective :- The Orientation flights that honey bees undertake before foraging is crucial for navigation as the knowledge base of the flight experiences were environment is established during these flights. To examine the ontogeny of orientation flights in detail, the flight experiences were examined in correlation to the honey bees' maturity and whether the areas explored though these flights were omni-directional, regardless of the hive orientation.

Methods / Materials

The experiment was conducted in East Lansing, Michigan (42°40.7'N and 84°28.7'W) during the summer from July 10th to July 31st 2009. Located in the fields of the Bee Biology Building of Michigan State University, three beehives were set up in similar locations but oriented in different directions.

To each colony, 3000 bees were paint-marked on their thoraces and introduced. On the day of orientation tests, bees that were painted on their thoraces were recovered from each colony by an insect vacuum, cooled on ice, and marked with paint on their abdomen to distinguish among the eight location points per age groups.

For each age group in one hive, 25 bees were released from each different location points, we then observed the return rate of the honey bees an hour after the release.

Results

Examining the data presented through the return rate, the development of orientation-flight experiences in honey bee is presented clearly. The older aged bees have higher return rates than those of younger bees in the same distances, confirming the first hypothesis.

However, an interesting pattern noted is that the disparity of homing rates in orientation flight decreased as honey bees matured, suggesting that the orientation flight experiences increase predominantly when the honey bees are young.

The data regarding the orientation of the flight entrance also confirms the second hypothesis as the direction does not influence any of the areas explored by the honey bees.

Conclusions / Discussion

The study establishes two important components of orientation flights: the orientation flights are concentrated when the bees are younger and the area explored through theses flights are omnidirectional, regardless of the hive orientation. Utilizing the results, a theory was established that is believed to connect the two main causes of the colony collapse Disorder (CCD), the recent bee disappearing phenomenon. They theory will be presented in detail during the presentation.

The project investigates the development of the orientation flight experience in relevance to honey bees' maturity and reaches new results that may offer insights to the recent CCD.

PROJECT TITLE : Influence on yolk Colour and Size

STUDENT STUDY PROJECT

Submitted by :

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2. Subta Tahreem
3. Sumayya Afreen
4. Ayesha Fathima
5. Zareena Begum

UNDER SUPERVISOR :
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Influence On Yolk color and size

The objective :-

I have had chickens for two years and the eggs they lay seem to have brighter, larger yolks than commercial eggs. I wondered by this was, and this is what led me to my project. I hypothisized that the yolk color and size would be dependent upon whether the egg was organic and the chicken that laid it was free-ranged or caged. Egg colour matters because it is the result of two caroteroids called lutein and zeaxanthin and other beneficial xanthophylls. Lutein and zeaxanthin have been shown to aid in prevention of age related musular degeneration (AMD) leading cause of blindness.

Methods / Materials :-

I took a total of 162 RGB readings from 54 photographs of 27 eggs representing nine different types of eggs.

For each I recorded the weight of the egg and the yolk and took two pictures of each yolk sample and uploaded the images to my computer.

For each image, I selected three representative spots on each photograph and took the RGB reading of each one. I then averaged the data.

Results:-

The most significant result I obtained from my project was that commercial eggs tend to have larger yolk/egg ratios than organic eggs.

This may be because commercial feed may contain different dietary nutrients. The RGB color assessment showed that redder (more orange) yolks did not always correlate with free range chickens, and this may be due to dietary differences among the free-range animals.

I am continuing to experiment and looking for a pattern regarding yolk colour.

conclusions/ discussion

Factors that I thought would have a great impact on coloration and yolk/ egg propogation did not seem to have a consistent effect.

One consistent result my tests yielded was that inorganic eggs tended to have larger yolk propogation than organic eggs. I believe this may be because these eggs are laid by chickens fed a died supplemented by hormones and antibiotics.

My free range chickens did have yolks with deeper coloration than most of the other test eggs, but other free-range egg & yolks were not as deeply colored as I predicted they would be.

The diet a chicken is fed influences egg yolk colour. In other words, chickens fed diets higher in xanthophylls will lay eggs that are higher in xanthophylls, and the eggs will be more deeply pigmented. I would suggest more testing be done, comparing the diets of free-range chickens, to see if more consistent patterns emerge.

This project is about the factors that influence the color and size of the yolk of a chicken egg.

Project Title :-

How do Ants Find Their Food.

Student Study project

Submitted by

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2) Zuha
3) V. pooja
4) A. Sravani
5) Sravya

Under Super Vision :- J. Anitha

Lecturer in Zoology

Department of Zoology.

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HOW DO ANTS FIND Their Food

The Objective:- The objective of the project was to discover what senses ants use to find their food. The possibilities that were sight, smell, and taste.

Methods / Materials.

Food (honey or cocktail shrimp) was placed in a 35-mm petri dish and set by an ant trail. Once a minute for 30 minutes, the dish was photographed with a digital camera to account the number of ants. In that test, the ants could use, sight, smell, or taste to find the food.

This test was repeated after covering the petri dish with a scrap of nylon attached with a rubber band. In this case, the ants could use sight and smell only.

Finally, the test with the covered dish was reppeated in the dark by turning off the lights and covering the petri dish with a small box. In this test, the ants could only use smell to find food. As a control, tests with the covered dish was reapeated were done with empty petri dishes with or without nylon covering.

Results.-

At 30 min, the greatest number of ants (32-113) was found on the uncovered dishes, an intermediate number (6-12) was found on the nylon-covered dishes, and the least number (4) was found the nylon-covered dish in the dark. All of these numbers were greater than the number of ants on the control dishes (0-2)

Conclusions/Discussions-

It was concluded that odorous house ants could find food using multiple senses; smell, sight, and taste. When the ants could use smell and sight, they found the food only slightly better than when they could only use smell. This indicates that smell was more useful than sight.

But when they could use taste as well, many more ants discovered the food. This suggests that taste is the most important sense for finding food.

The focus of this project was to discover what sense(s) ants use to find their food.

PROJECT TITLE: HOW DOES HYDRA LITTORALIS REGENARATE

STUDENT STUDY PROJECT

Submitted By :

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2. D. Vennela
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UNDER SUPERVISOR :

J. Anitha

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FOR WOMENS

KARIMNAGAR.

HOW DOES HYDRA LITTORALIS REGENATE

The objective : The objective was to pinpoint the Gene for Hydra Regeneration By dissecting Hydra littorals in four different orientations , Then observing Regrowth . It was hypothesized that a certain part of the Hydra would show more Rapid Growth than the others , indicating that it housed this Gene. the locating of this gene Has potential for application to Human limb or organ Regeneration

METHODS /MATERIALS

Hydrae were dissected Horizontally in four different orientations , in Half, in thirds , with Base Removed ,and with Head Removed.

Trials were Repeated three times. Hydrae were kept separately in petri and fed Brine shrimp, cultivated separately. Hydrae were observed Daily under a microscope for 15 days to monitor Progress of Regeneration

RESULT :

All Hydrae were able a the end of the 15 day period the Bases taking an average of three days Longer than the Heads In the Hydrae cut into thirds, the center pieces Grew at about the same rate as the Bases

size proved to be a factor, large pieces were able to regrow more quickly. These results would indicate that the gene is spread throughout the hydra, though it is perhaps more abundant in the heads.

CONCLUSIONS / DISCUSSION

It makes sense that size should influence regrowth; the process of morphallaxis, which hydrae use, does not involve the growth of new cells. Bud instead relies on existing cells to take the place of those which were lost.

As for the specific gene which controls morphallaxis, it is likely distributed evenly throughout the hydra. The identity of this exact gene is unknown; it may be msx, or cnox-2.

If this gene is identified, it could be applied to humans and used to grow organs and cure many disease.

The project is to locate the gene for hydra regeneration in order for potential human application.

Project Title:- Are Bees most attracted to the Fragrance taste. or colour of a flower

Student study project

Submitted by

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2. Misbah
3. Mubeena
4. Neha
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Under supervisor

Dr. S. Swetha

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Are Bees Most Attracted to the Fragrance Taste or color of a flower :-

The objective :- This project was to first determine the bees' most preferred taste, color, and fragrance. Finally with these result, it will be determind whether they are most attracted to the fragrance, taste, or of a flower.

Methods / Materials

For this experiment testing was performed in a habitat that was constructed, containing twenty one bees. Eight different flowers and colors were used for testing.

next, a test will be conducted to see which of the eight fragrances attracts the greatest amount of bees, which is done by smearing the juices of each flower that has been pulverized individually onto a piece of poster board.

next, a similar test is conducted to see which of the eight tastes attracts the greatest amount of bees. which is done by smearing particles of each flower that has individually been pulverized onto a piece of poster board.

The poster board is then placed under a heat lamp for four hours. causing the fragrance to dissipate still leaving taste.

Another test is conducted to the see which of the eight colors the bees are most attracted to. this is done by putting eight different colours onto a piece of poster board.

Finally, a test is conducted using the bees most preferred teste, fragrance, and color. These results will show whether bees are most attacked to the taste, fragrance, or colour of a flower.

Results

This experiment showed that the bees were most attacked to the fragrance of Queen Annes Lace, the taste of Leptosper -um and the color Pink.

when these three most preferred characteristics were tested together the bees were most attacted to the fragrance. The second most preferred characteristic was the taste of the flower Lastly, the least amount of bees was attracted to the color of a flower

conclusions / Discussion

The greatest amount of bees were attracted to the fragrance of a flower. Therefore, one could conclude that bees are most attacked to the fragrance of a flower

The project was to determine what bees are most attacked to, whether it was the fragrance, teste, or of a flower

Project Title :- Ants as Habitat quality Indicators.

student study project

submitted

by

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Ants as Habitat quality Indicators :-

The objective : The objective was to determine whether the presence of native ants indicate a potentially healthier habitat for the endangered palos verdes blue butterfly, Glaucopsyche lygdamus palosverdesensis, than an area with mostly invasive ants.

Methods /Materials

Five preserves including the defense fuel supply Depot, chandler Three sisters, Alta vicente, George F. Preserves of the palos verdes Land conservancy were surveyed for native and invasive ants using a pooter. The ants were stored in vials of alcohol and identified using a microscope and an ant key.

Results

while is species, including one invasive exotic Linepithema humile, and five native species, pogonomyrmex californicus Messor andrei, solenopsis xyloni, prenolepis imparis and camponotus semitestaceus, were found at DFSP; only L. humile was found at chandler Three sisters, Alta vicente, and George F. preserves.

conclusions /Discussion

The fact that only the invasive exotic species of the Argentine ad were found at four of the sites indicates that thre is a lot of work to be done before they reach the level of health of the undisturbed DFSP habitat. This could involve gradual reduction of irrigation because extra water attracts the Argentine ant. lowering the chances of native ant survival (Sneling 2007)

It can be concluded that once areas of natural habitat on the peninsula are irrigated and planted over with non-native plants It is extremely difficult to bring the habitat back to its normal state. Although the native ants were not found at chandle or George F., the plantings of the butterfly host plant will continue.

whether the new habitats in areas that have been overrun by L. humile are successful for the reintroduction of the butterfly in the long run will reveal if the presence of the native ant species is required for the survival of the palos verdes Blue butterfly. Further study should be done to determine which ant species can be good partners to help the palos verdes Blue butterfly survive.

Areas of the palos verdes peninsula Land conservancy were surveyed for native and invasive ants to determine whether the areas were healthy habitats for the reintroduction and reestablishment of the endangered palos verdes blue butterfly.

Project Title :-

Effects of moisture and temperature on the movement of Snails.

Student Study project.

Submitted by

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2) P. Soumya
3) P. Shyamala
4) Sadiya
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Effects of moisture and temperature on the movement of snails

The Objective: The experiment was designed to discover whether or not moisture and temperature affect snail movement. My hypothesis was that snails would move farther on warm, damp nights because snails are cold blooded and therefore have low metabolism on cold nights, and because they use slime to lubricate the path in front of them and therefore a moist surface would lessen the amount of slime needed to move.

Methods / materials

During the day, I marked many snails (that had taken refuge in three different buckets) with different colors of paint corresponding to their specific bucket.

Three hours after sunset, I returned to the backyard with a flashlight and marked the position of the snails using color-coded popsicle sticks. I also noted the temperature and moisture conditions.

On the following day, I measured the distance the snails traversed as marked by the popsicle sticks. I remarked the snails every day, and repeated this process for 18 nights until I had data points for most temperature/moisture combinations.

Results

The results show that snails move farther on warm and damp nights. On cold nights (<5 degrees C), snails moved on average of 0.7 inches when it was dry. On medium temperature nights (5-10 degrees C), they moved an average of 7.4 inches when it was dry and 33.2 inches when it was damp or rainy

finally, on warm nights (>10 degrees c) they moved an average of 20.5 inches when it was dry and 29.5 inches when it was damp or rainy.

conclusions / Discussion

The results of this experiment support my hypothesis. The observation that snails move farther on warm nights is consistent with the fact that on cold nights they have low metabolism, and they only feed in temperatures from 5 - 25 degrees c. on damp nights snails move farther, which is likely because the moisture lessens the amount of slime they need to move forward. Generally, moisture had the greatest affect on snails when the temperature was 5 - 10 degrees c. The project examines the movement of snails under different moisture and temperature conditions.

PROJECT TITTLE :- COMPOST OR FERTILIZER

STUDENT STUDY PROJECT

SUBMITTED BY

1. B. NANDINI
2. ARBEYA
3. BISMA
4. G. MANEESHA
5. J. NANDINI

UNDER SUPERVISOR

N. SANGEETHA RANI

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DEPARTMENT OF ZOOLOGY

GOVERNMENT DEGREE COLLEGE FOR WOMEN KARIMNAGAR

Compost or Fertilizer

The objective: The objective of my project was to find out if compost or store bought fertilizer helps vegetables grow taller.

Methods/Materials

I had 12 pots and 4 different groups of 3. For 3 out of 4 I filled to the top with Black Magic Potting Soil and the last group I filled half with the soil and half with compost. In one of the groups I put 3 fertilizer stakes in each of the pots and in another group when I watered them I put 3 drops of liquid fertilizer in their water.

One group was my control with only potting soil.

All of the post had 3 beans in them. I grew my plants under a grow light, which was on for 14 hours a day.

I watered them all about every 3 days or when they were dry. I recorded all my information and every day recorded all the plants heights.

Results

The liquid fertilized plants had the tallest average growth and the compost had the lowest average growth out of the plants in my experiment.

Conclusions/Discussion

My conclusion is that the plants fed with liquid fertilized in their water will grow that tallest, but I found the compost plants had the thickest stems out of the beans in my experiment even though they were the shortest.

The project is to find if Gold fertilizer, silica fertilizer, compost, or just soil makes vegetables grow tallest.

Project Title : Mitosis in Onion Root Tip Cells

Student Study project

Submitted

by

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2) k. Vijaya Laxmi
3) Meeraj
4) k. Mounika
5) Sana

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KARIMNAGAR

Mitosis in Onion Root Tip Cells

The genetic information of plants, animals and other eukaryotic Organisms resides in Several (or many) individual DNA molecules, or chromosomes. For example, each human cell possesses 46 chromosomes, while each cell of an onion possesses 8 chromosomes. All cells must replicate their DNA when dividing. During DNA replication, the two strands of the DNA double helix Seperate, and for each Orginial strand a new complementary strand is produced, yielding two identical DNA molecules. DNA replication yielding an identical pair of DNA molecules (called sister chromatids) attached at a region called the Centromere. DNA replicated in eukaryotes is followed by the prouss called mitosis which assures that each daughter cell receives one copy of each of the replicated chromosomes. During the process of mitosis, the chromosomes pass through Several stages known as prophase, metaphase, Anaphase and telophase. The Actal division of the cytoplasm is called cytokinesis and occurs during telophase. During each of the preceding stages, particular events Occur that Contribution to the orderly distribution of the replicated chromosomes prior to cytokinesis.

The Stages of Mitosis :-

Prophase :-

During prophase, the chromosomes supercoil and the fibers of the spindle apparatus begin to form between centrosomes located at the pole of the cells. The nuclear membrane also disintegrates at this time, freeing the chromosomes into the surrounding cytoplasm.

Prometaphase :-

Driuring prometaphase, some of the Fibres attach to the centromer of each pair of sister chromatids and they begin to move toward the center of the cell.

Metaphase :-

At metaphase the chromosomes have come to rest along the center plane of the cell.

Anaphase :-

During Anaphase, the centromers split and the sister chromatids begin to migrate towards the opposite poles of the cell.

Telophase :-

During telophase the chromosomes at either end of the cell cluster begin to cluster together. which facilliates the formation of a new nuclear membrane

This also is when cytokinesis occurs, leading to other two seperate cells. One way to identify that telophase has begun is by looking for the formation of the cell plate, the new cell wall forming between the two cells.

Objectives :

- Better understand the process and stages of mitosis.
- Prepare your own specimens of onion root in which you can vivualize all of the stages of mitosis.
- Apply an analytical techniqe by which the relative length of each stage of mitosis can be estimated.

Materials :

Small fresh onion
Small jars, glasses or beakers
Oothpicks
Muriatic acid (10% HCl) found at hardware stores
Safety goggles
Latex gloves
Forceps or tweezers
Distilled water
pipette or eye dropper
paper towels
Razor blade or Scalpel
2 needles or pins
0.5% Toluidine blue available online

Microscope slides and Coverslips
Dissecting microscope or magnifying lens
Compound light microscope.

Experimental Procedure :-

Create your hypothesis as to which phase of mitosis you believe will be most prevalent in your Sample and why Base this hypothesis on which phase you believe will take the longest amount of time in the cell. Next, insert 3-4 toothpicks around the sides of the onion and place the onion root side down (stem step up) in a glass or jar of water. The bottom of the onion should be submerg-ed in the water. wait a few days for roots to grow.

Once there are long roots growing on the onion, remove the onion from the water and use the razor blade or Scalpel to slice about 5mm off the tips of the roots. place the root tips into another Small breaker or thin-walled glass jar. pour muriatic acid into the jar with the root tips. Wear hand and eye protection while working with the acid. Allow the root tips to sit in the acid for about 20 minutes.

Use forceps to remove the root tips from the acid and rinse the acid down the drain with plenty of running water. place the root tips on a microscope slide and rinse them Several

times with a pipette and distilled water. Wear hand and eye protection during these steps as well.

Carefully use the razor or scalpel to trim the root tips to 2mm long, keeping the tips. Use needles or pins to carefully slice the root tips into 2 or more length-wise sections. Doing this work with magnifying lens or under a dessecting microscope may be helpful.

Use a pipette to coat the dissected root tips in Toluidine blue. Let sit for 2 minutes. Place a coverslip on top and pipette distilled water onto the slide. Use a paper towel to soak up excess dye. Use more than one microscope slide for multiple roots, with only about 2 root tips per slide.

place the slide on the microscope. Turn the microscope on and make sure that it is placed on its lowest magnification first. Focus the image until you can clearly distinguish the tips of the root. Move up slightly from the tip and focus on the area just above root tip where the cells will be replicating. change the microscope objectives to the next highest magnification. focus on the area of cell replication. Identify the different stages of mitosis. If this is difficult at this magnification, try moving up

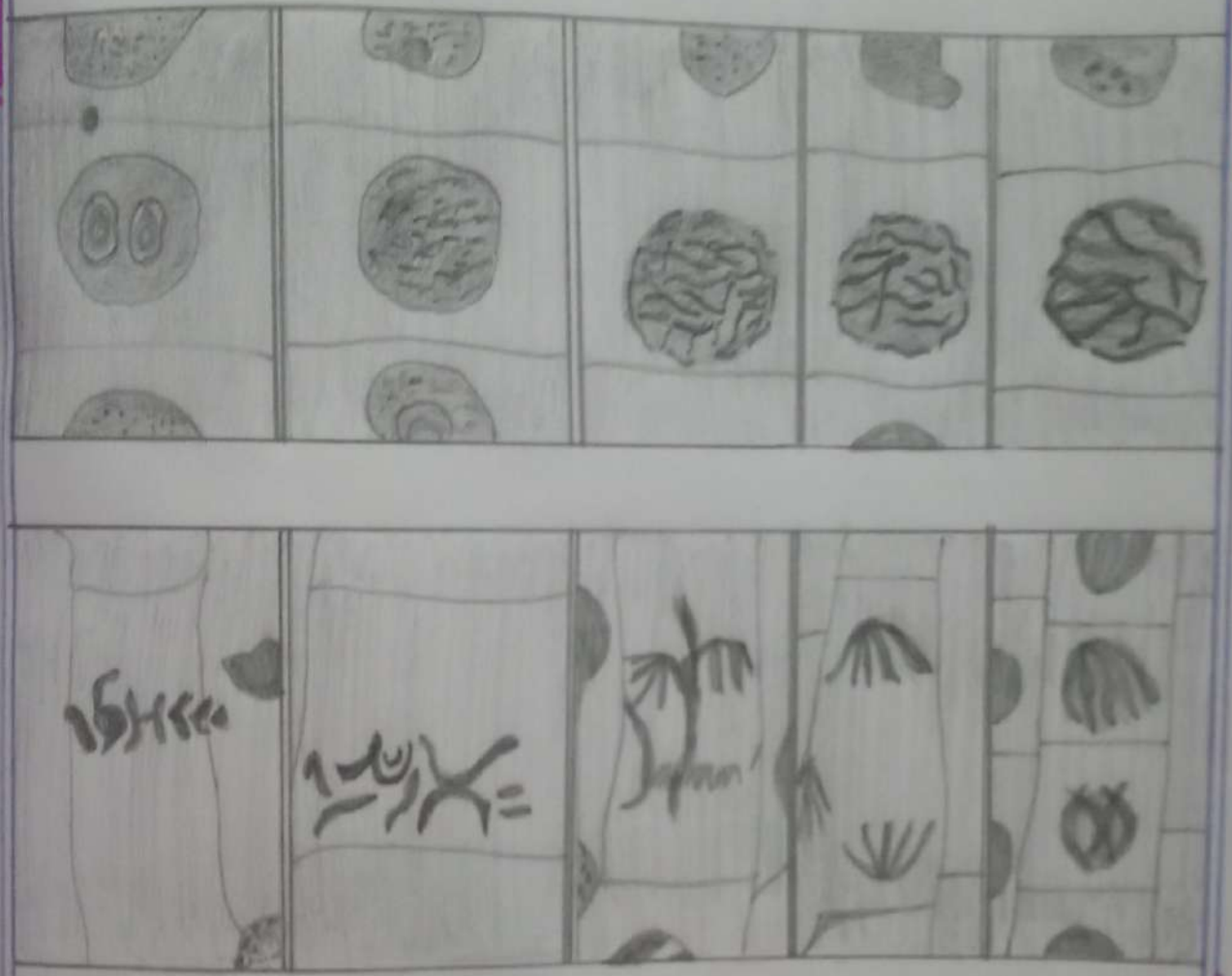
to the highest magnification. Once you are able to easily identify the stages of mitosis within the area of cell replication, draw a sketch of each stage that you view. Compare the sketches to internet or textbook images of the stages to ensure that you are correctly identifying each stage of mitosis. Now that you are able to easily and correctly identify each stage, begin Counting the cells in each stage. You must do this Carefully and Systematically to avoid Counting cells more than once. Try moving from one area of the root tip, down and over to another area Count many cells in your eyes and recheck your sketches. Record the number of cells in each stage with tick marks in a table. Having someone help you record the numbers while you count might be helpful.

Once you have counted at least 1000 cells, convert you tick marks to numbers. Graph your results with a bar graph. Compare your results to your hypothesis and draw conclusions about which stage of mitosis is most Common and takes the longest amount of time.

Observations :

Scan the microscope under the 10x objective. Look for the region that has large nuclei relative to size of the cell among these cells will be found cells displaying stages of mitosis. Example are

Shown in the figure to the right. Switch to the 40x objective to make closer observations. Since prophase and prometaphase are difficult to distinguish classify all these cells as prophase. Record your observations in the table provided.



Results :-

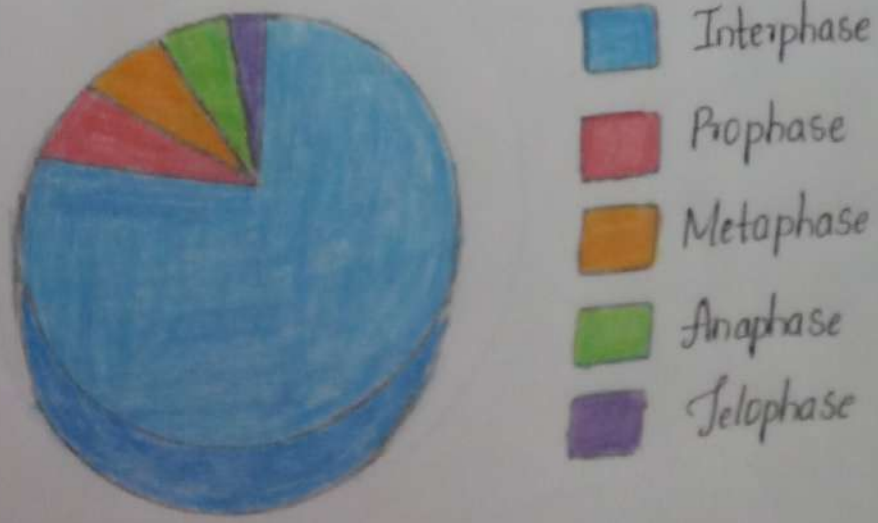
Now that we are able to identify cells in different stages of the cell cycle. now it is time to understan -d how long a cell will tend to be at each of these stages.

This is to count how many cells in your root tip specimen were "frozen in time" in different stages

of division when the slide was made

Stage of Mitosis	Number of cells			Total	Percent of cells
Interphase	42	36	47	125	61.28%
Prophase	10	13	18	41	20.10%
Metaphase	6	5	4	15	7.35%
Anaphase	2	3	2	7	3.43%
Telophase	7	5	4	16	7.84%
				Total	100%

Average percentage of the cell cycle stages in onion root tips.



Stage of Mitosis	Time Spent
Interphase	14 hours 42 minutes
prophase	4 hours 49 minutes
Metaphase	1 hour 46 minutes
Anaphase	49 minutes
Telophase	1hour 59 minutes

CONCLUSIONS :-

While making your Observations, consider the relative number of cells actually involved in mitosis. Some of these cells are still involved in the cell cycle, which encompasses all of the processes involved in cell replication. cell that are actively dividing but not yet in mitosis are said to be in interphase, during which time the DNA is copied and the cell is otherwise preparing for replication. Some root cells have ceased dividing and are only increasing in size, whereas others have reached their final, mature size and function, and are said to be in the G1O stage.

Project Title:- Eye Diseases

:~ Student Study project:~

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2. Nisha
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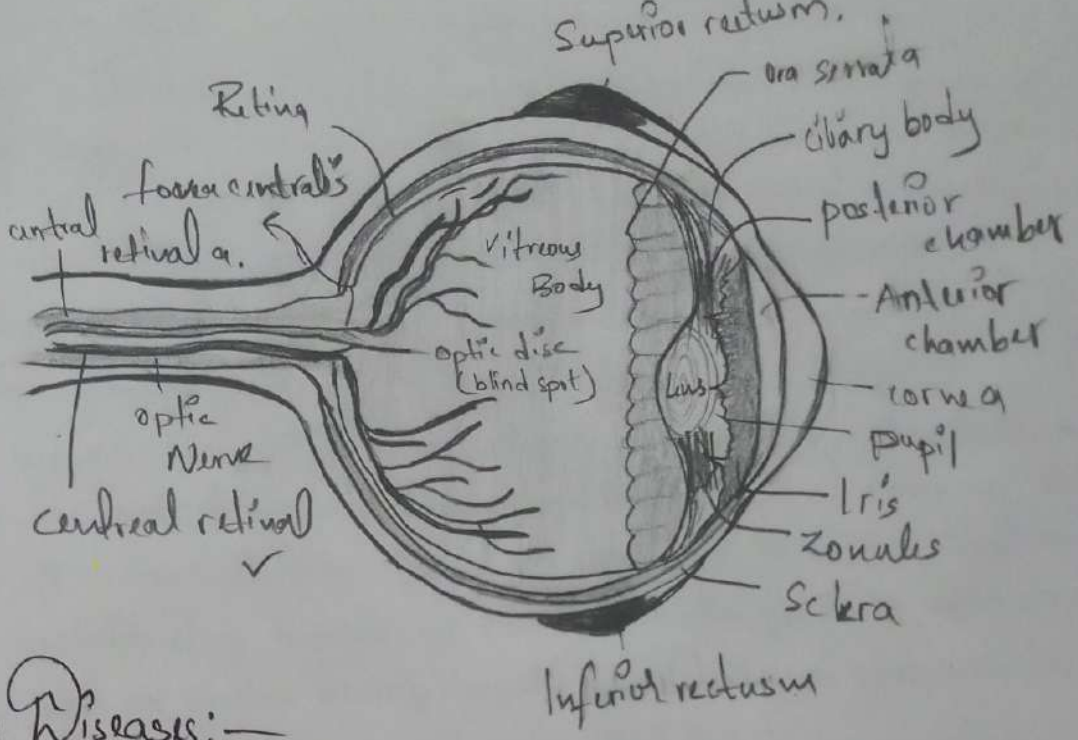
KARIMNAGAR

Eye Diseases

The human eye is an organ which reacts to light and pressure. As a sense organ, the mammalian well eye allows vision. Human eyes helps provide a three dimensional, moving image, normally colored in daylight. Rod and cone cells in the retina allows conscious light perception and vision including color differentiation and the perception of depth. The human eye can differentiate between about 10 million colors and is possibly capable of detecting a single photon. Similar to the eye of other mammals, the human eye's non-image-forming photosensitive ganglion cells in the retina receive light signals which affect adjustment of the size of the pupil, regulation and suppression of the hormone melatonin and entrainment of the body clock.

The eye is not shaped like a perfect sphere, rather it is a fused two-piece unit, composed of the anterior segment and the posterior segment. The anterior segment is made up of the cornea, iris and lens. The cornea is transparent and more curved, and it linked to the larger posterior segment composed of the vitreous, retina, choroid and the outer white shell called the sclera. The cornea is typically about 11.5 mm (0.3 in) in diameter, and 1/2 mm (0.00 in) in thickness near is center. The posterior chamber constitute the remaining five-sixths; it's diameter is typically about 24 mm. The cornea and sclera are connected by an area termed the limbus. The iris is the pigmented circular structure concentrically surrounding the center of the eye, the pupil, which appears to the black. The size of the pupil, which controls the amount of the light entering the eye, is adjusted by the iris's dilator and sphincter muscles. Light energy enters the eye through the cornea, through the pupil and then through the lens.

The lens shape is changed for near focus (accommodation) and is controlled by the ciliary muscle. photons of lights falling on the light-sensitive cells of the retina (photoreceptor cones and rods) are converted into electrical signals that are transmitted to the brain by the optic nerve and interpreted as sight and vision.



Eye Diseases:—

There are many diseases, disorders, and age-related changes that may affect the eyes and surrounding structure. As the eye ages, certain changes occurs that can be attributed solely to the aging process. Most of these anatomic and physiolgic processes follow a gradual decline. with aging, the quality of vision worsens due to reasons independent of disease of the aging eye. while there are many changes of significance in the non-diseased eye. the most functionally important changes seem to be a reduction in pupil size and the loss of accommodation or focusing capability (presbyopia)

The area of the pupil govens the amount of light that can reach the retina. The extent to which the pupil dilates decreases with age, leading to a substantial decress in light reained at the retina. In comparison to younger people, it is as though older persons are constantly wearing medium-density sunglasses. Therefore, for any detailed visually guided tasks on which performance varies with illumination. Older persons require extra

lighting. Certain ocular diseases can come from Sexually transmitted diseases such as herpes and genital warts. If contact between the eye and area of infection occurs, the STD can be transmitted to the eye.

with aging, a prominent white ring develops in the periphery of the cornea called arcus senilis. Aging causes laxity, downward shift of eyelid tissues and atrophy of the obital fat. These changes contribute to the etiology of several eyelid disorders such as ectropion, dermatochalasis, and ptosis. The vitreous gel undergoes liquefaction (posterior vitreous detachment or PVD) and its opacities - visible as floaters - gradually increase in number.

Various eye care professionals, including ophthalmologists, optometrists, and opticians, are involved in the treatment and management of ocular and vision disorders. A snellen chart is one type of eye chart used to measur visual acuity. At the conclusion of a complete eye examination, the eye doctor might provide the patient with an eyeglass prescription for corrective lenses. Some disorders of the eyes for which corrective lenses are prescribed include myopia (near-sightedness) which affects about one-third of the human population, hyperopia (far-sightedness) which affects about one quarter of the population, astigmatism, and presbyopia (the loss of focussing range during aging).

Types of Eye Disorders:-

Visual Impairment:-

Visual impairment, also know as vision impairment or vision loss, is a decreased ability to see to a degree that causes problems not fixable by usual means such as glasses or contact lenses. Visual impairment is often defined as a best corrected visual acuity of worse than either 20/40 or 20/60. The term blindness is used for complete or nealy complete vision loss. Visual impairment may cause people difficulties with normal daily activities such as driving, reading, socializing and walking.

Amblyopia

Amblyopia, also called lazy eye, is a disorder of sight due to the eye and brain not working well together. It results in decreased vision in an eye that otherwise typically appears normal. It is the most common cause of decreased vision in a single eye among children and younger adults.

The cause of amblyopia can be any condition that interferes with focusing during early childhood. This can occurs from poor alignment of the eyes being irregularly shaped such that focusing is difficult, one eye being more nearsighted or farsighted than the other, or clouding of the lens of an eye. After the underlying cause is fixed, vision is not fully restored as the mechanism also involves the brain. Amblyopia can be difficult to detect and therefore vison testing is recommended for all children around the age of four to five.

Presbyopia:-

Presbyopia is a natural occurrence where near vision becomes blurred, making it hard to focus while doing things like reading, using a mobile phone, or working on the computer. It is not a disease or illness; in fact, it is very common with age.

In young people, the eye's lens is soft and flexible, readily changing shape to see images from different distance. As you age, the crystalline lens in your eye hardens and loose elasticity. With this loss of flexibility, your eyes are less able to adjust properly to focus near objects

Symptoms of presbyopia

People commonly mistakes the symptoms of presbyopia for longsightedness. However, the two conditions have different causes: longsightedness is a result of a misshapen cornea, whereas presbyopia is due to the loss of flexibility in the lens.

The telltale symptom of presbyopia is blurred vision while reading.

Sewing, using a mobile phone, or doing anything that requires near vision.

Treatment for presbyopia:-

There are many options for people with presbyopia, including contact lenses. Recent technologies allow people who are entering into presbyopia to continue wearing contact lenses, instead of having to switch to new bifocals, or reading glasses.

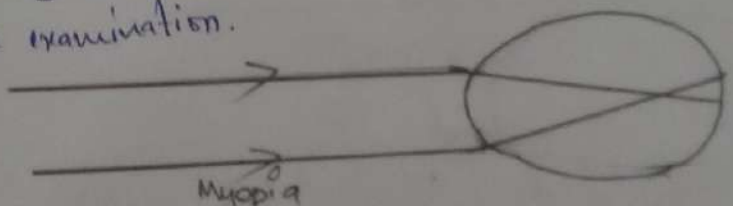
common treatment for presbyopia include.

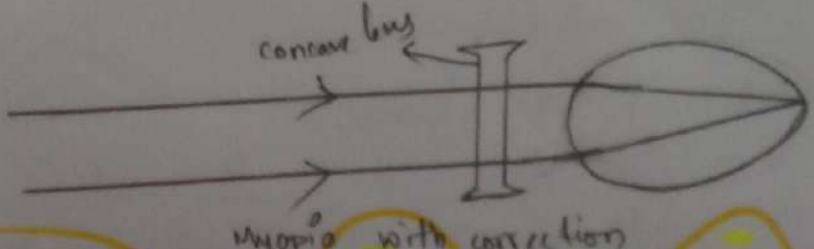
- Magnifiers
- Bifocal or varifocal spectacles
- Reading glasses.

Near-Sightedness:-

Near-sightedness, also known as short-sightedness and myopia, is a condition of the eye where light focuses in front of, instead of on, the retina. This cause distant objects to be blurry while close objects appear normal. Other Symptoms may include headaches and eye strain. Severe near-sightedness increases the risk of retinal detachment, cataracts, and glaucoma.

The underlying cause is believed to be a combination of genetic and environmental factor. Risk factors includes doing work that involves focusing on close objects, greater time spent indoors, and a family history of myopia. Diagnosis is by eye examination.



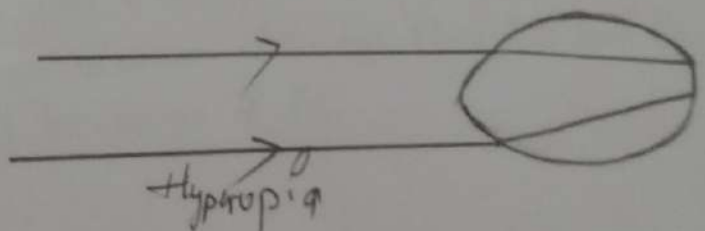


There is tentative evidence that near-sightedness can be prevented by having young children spend more time outside. This may be related to natural light exposure. Near-sightedness can be corrected with eyeglasses, contact lenses or surgery. Eyeglasses are the easiest and safest method of correction and people with myopia cannot read without their glasses prescribed for distance.

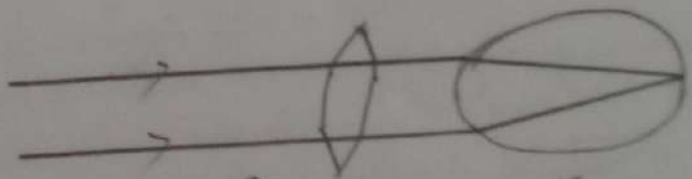
Far-sightedness:—

Far-sightedness, also known as long-sightedness and hyperopia, is a condition of the eye in which light is focused behind, instead of on, the retina. This causes close objects to be blurry, while far objects may appear normal. As the condition worsens, objects at all distance may be blurred. Other symptoms may include headaches and eye strain. people with hyperopia can also experience accommodative dysfunction, binocular dysfunction, amblyopia, and strabismus.

The cause is an imperfection in the eye often when the eyeball is too short, or the lens cannot become round enough. It is a type of refractive error correction is usually achieved by the use of convex corrective lenses. for near objective, the eye has to accommodate even more. Depending on the degree of hyper-opia & the age of the person, which directly relates to the eye's accommodative ability, the symptoms can be different.



Hyperopia



Hyperopia with correction

Far-sightedness primarily affects young children with rates of 8% at 6 years and 14% at 15 years. The signs & symptoms of far-sightedness are blurry vision

headaches, and eye strain. The common symptom is eye strain.
Low converging power of eye lens because of weak action of ciliary muscles.
Abnormal shape of the cornea.

Cataract :-

cataract is a clouding of the lens in the eye which leads to a decrease in vision. Cataract often develop slowly and can affect one or both eyes. Symptoms may include faded colors, blurry vision, halos around light, trouble with bright lights, and trouble seeing at night. This may result in trouble driving, reading, or recognizing faces. poor vision caused by.

cataracts may also result in an increased risk of faling and depression cataracts are the cause of half of blindness and 33% of visual impairment worldwide. cataracts are most commonly due to aging but may also occurs due to trauma or radiation exposure, be present from birth, or occur following eye sight for other problem. Risk factors includs diabetes, Smoking tobacco prologed exposure to sunlight, and alcohol. Either clumps of protein or yellow-brown pigment may be deposited in the lens reducing the transmission of light to the retina at the back of the eye. Diagnosis is by an eye examination.

About 20 millions people are blind due to the cataracts. It is the cause of approximately 5% in the united states and nearby 60% of blindness in parts of Africa and South America. Blindness from cataracts occurs in about 10 to 40 per 100,000 children in the developing world, and 1 to 4 per 100,000 children in the developed world. cataracts becomes more common with age. More that half the people in the united states had cataracted by the age of 80.

Glaucoma :-

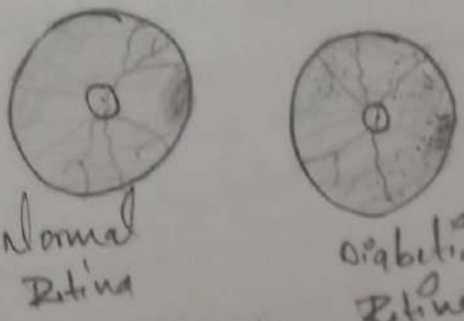
Glaucoma is a group of eye diseases which result in damage to the optic nerve and vision loss. The most common type is open-angle glaucoma with less common type including closed-angle glaucoma and normal-tension glaucoma. Open-angle glaucoma develops slowly over time and there is no pain. Side vision may begin to decrease followed by central vision resulting in blindness if not treated. Closed-angle glaucoma can present gradually or suddenly. The sudden presentation may involve severe eye pain, blurred vision, mid-dilated pupil, redness of the eye, and nausea. Vision loss from glaucoma, once it has occurred, is permanent.

about a number of different classes of glaucoma. A number of types of glaucoma surgeries may be used in people who do not respond sufficiently to other measures. Treatment of closed-angle glaucoma is a medical emergency.

About 11 to 67 million people have glaucoma globally. The disease affects about 2 millions people in the united states. It occurs more commonly among older people. Closed-angle glaucoma is more common in women. Glaucoma has been called the "silent thief of sight" because the loss of vision usually occurs slowly over a long period of time. worldwide, glaucoma is the second leading cause of blindness after cataracts. The word "glaucoma" is form ancient Greek which means blue, green or gray. In English the word was used as early as 1587 but did not become commonly used after 1850, when the developed of the ophthalmoscope allowed people to see the optic nerve damage.

Diabetic Retinopathy:-

Diabetic Retinopathy, also known as diabetic eye disease, is when damage occurs to the retina due to diabetes. It can eventually lead to blindness. It is an ocular manifestation of diabetes, a systemic disease, which affects up to 80 percent of all patients who have had diabetes for 20 years or more. Despite these intimidating statistics, research indicates that at least 90% of these new cases could be reduced if there were proper and vigilant treatment and monitoring of the eyes. The longer a person has had diabetes, the higher his or her chances of developing diabetic retinopathy.



Normal Retina

Diabetic Retina

Each year in the United states diabetic retinopathy accounts for 12% of all new cases of blindness. It is also the leading cause of blindness for people aged 20 to 64 years. Diabetic retinopathy often has no early warning signs. Even macular edema, which causes rapid vision loss, may not have any warning signs for some time in general, however a person with macular edema is likely to have blurred vision, making it hard to do thing like read or drive. In some cases

vision will get better or worse during the day.

Macular Degeneration:—

Macular Degeneration, also known as age-related macular degeneration (AMD or ARMD), is a medical condition which may results in blurred or no vision in the center of the visual field. Early on there are often no symptoms. Over time however, some people experience a gradual worsening of vision that may affect one or both eyes. While it does not result in complete blindness, loss of central vision can make it hard to recognize faces, drive, read or perform other activities of daily life. Visual hallucinations may also occurs but these do not represent a mental illness.

Macular degeneration typically occurs in older people. Genetic factors and smoking also play a role. It is due to damage to the macula of the retina. Diagnosis is by a complete eye exam. The severity is divided into early, intermediate, and late types. The late type is additionally divided into "dry" and "wet" forms with the dry form making up 90% of cases.

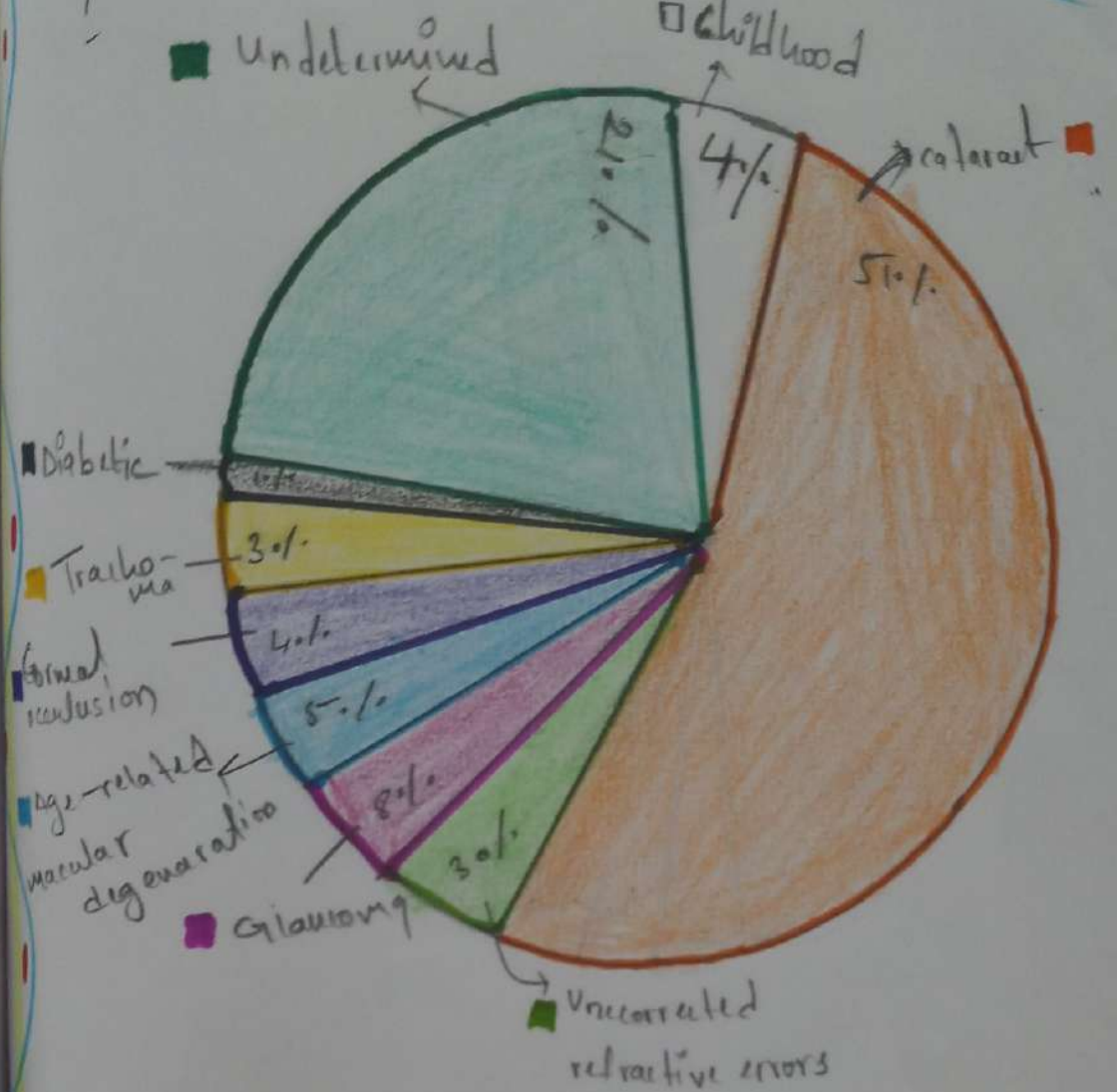
prevention includes exercising, eating well, and not smoking. Antioxidant vitamins and minerals do not appear to be useful for prevention. There is no cure or treatment that return already lost. In the wet form, anti-VEGF medication injected into the eye or less commonly laser coagulation or photodynamic therapy may slow worsening. Supplements in those who already have the disease may slow progression

In 2010 it affected 23.5 million people globally. In 2013 moderate to severe disease affected 13.4 million and it is the fourth most common cause of blindness after cataracts, preterm birth, and glaucoma. It most commonly occurs in people over the age of fifty and the united states is the most common cause of vision loss in this age group. About 0.4% of people between 50 & 60 have the disease. While it occurs in 0.7% of people 60 to 70. 23% of those 70 to 80, and nearly 2% of people over 80 years old.

CONCLUSIONS:—

Eye disorder Pie chart.

Global Eye disease



Project Title :- Recombinant DNA Technology in Todays Medicine

Student study project

Submitted by :-

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Recombinant DNA Technology in Today's Medicine

Aim :-

The goal of this experiment to study - Recombinant DNA Technology in Today's Medicine.

Genetic Engineering

Genetic Engineering plays a very important role, not only in scientific research. but also in the diagnosis and treatment of disease Recombinant DNA is a tool in understanding the structure, function, and regulation genes and their products.

→ The objectives of Recombinant DNA technology include

- → Identifying genes
- → Isolating genes
- → Modifying genes
- → Re-expressing genes in other hosts or organisms

These steps permit scientists and clinicians to :-

→ Identify new genetic and the proteins they encode

→ To correct endogenous genetic defects

→ To manufacture large quantities of specific gene products such as hormones, vaccines, and other biological agents of medical interest

Genetic engineering produces proteins that offer advantages over proteins isolated from other biological sources. These advantages include: λ

→ High purity
→ High specific activity
→ Steady supply
→ Batch-to-batch consistency

Steps in Synthesizing a Recombinant protein

Recombinant technology begins with the isolation of a gene of interest. The gene is then inserted into a vectors are bacterial and cloned. A vector is a piece of DNA that is capable of independent growth; commonly used vectors are bacterial plasmids and viral phages. The gene of interest (foreign DNA) is integrated into the plasmid or phage, and this is referred to as recombinant DNA. λ

Before introducing the vector containing the foregin DNA into host cells to express the protein, it must be cloned. cloning is necessary to produce numerous copies of the DNA since the initial supply is inadequate to insert into host cell. λ

once the vector is isolated in large quantities, it can be introduced into the desired host cells such as mammalian, yeast, or special bacterial cells. The host cells will then sythesize the foregin protein from the recombinant DNA. when the cells are grown in vast quantities, the foreign or recombinant protein can be isolated and purified in large amounts.

Recombinant DNA technology is not an important tool in scientific research, but has also resulted in enormous progress in the diagnosis and treatment of certain diseases and genetic dis-orders in many areas of medicine.

Genetic engineering has permitted

Identification of mutations:

people may be tested for the presence of mutated protein that may be involved in the progression of breast cancer, retino-blastoma, and neurofibromatosis.

Diagnosis of affected and carriers states for hereditary diseases:-

Tests exist to determine if people are carriers of the cystic fibrosis gene, the Huntington's disease gene, the Tay-sachs disease gene, or the Duchenne muscular dystrophy gene.

Mapping of human genes on chromosomes:-

scientists are able to link mutations and disease states to specific sites on chromsomes.

Transferring genes from one organism to another:-

people suffering from cystic fibrosis, rheumatoid arthritis, vascular disease, and certain cancers may now benefit from the progress made in gene therapy.

Isolation and alteration of gens :-

once gene modification becomes successful, alteration of genes to produce a more functional protein than the endogenous protein may become possible, opening up the route of gene therapy

Performing structure and function analyses on proteins :-

Researchers may now employ rational drug design to synthesize drug compounds that will be efficacious and selective in treating disease

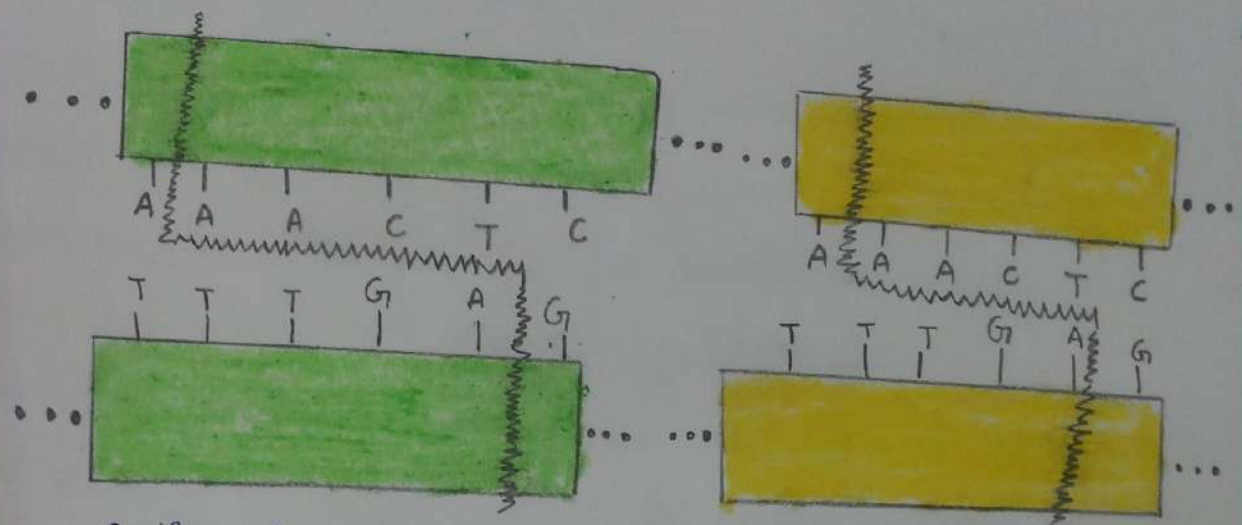
Isolation of large quantities of pure protein :

Insulin, growth hormone, follicle-stimulating hormone, as well as other proteins, are now available as recombinant products physicians will no longer have to rely on biological products of low purity and specific activity from inconsistent batch preparations to treat their patients

Recombinant DNA Technique

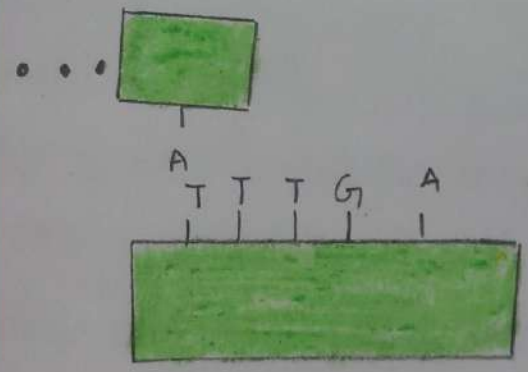
Restriction enzymes used to cut out insulin gene and to cut a bacterial (E. coli) plasmid at the same "sticky ends"

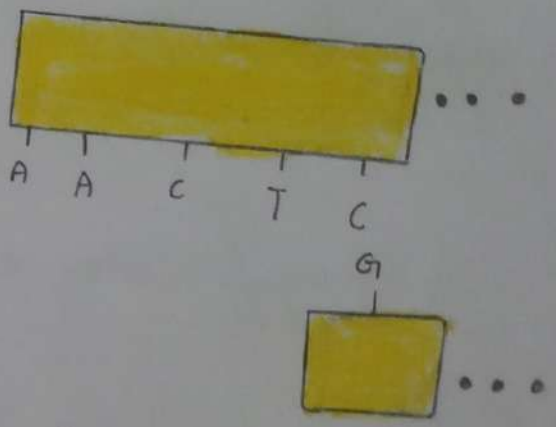
Mutant strains of E. coli used to avoid bacteria attacking "foreign" "foreign genes"



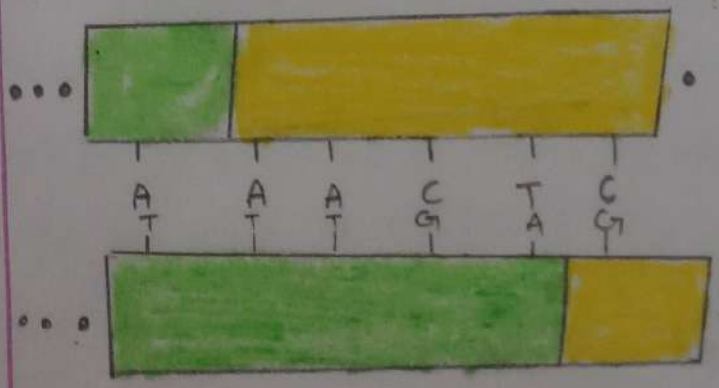
Section of synthesised β chain of insulin

Section of DNA from E. coli plasmid.





Exposed nitrogen bases.



combination of sticky ends using DNA ligase.

Insert insulin gene next of e. coli.
B-galactosidase gene which contains transcription
Bacterial cells replicate and make copies of insulin gene.
Insulin protein is purified (B-galactosides removed).
chains are mixed and disulfide growth medium.
yeast cells provide a sterile growth medium.
Final products is Humulin- chemically identical to human insulin.

plasmid polylinkeas and Masked Genes for blue-white screening

A vector usually contains a sequence (poly linkes) which can recognize several restriction enzymes so that the vector can be used for cloning a variety of DNA samples.

colonies with recombinant plasmids are white, and colonies with nonrecombinant plasmids are blue.

Example: puc 19
Resistant to ampicilin, has (ampagene).
contains portion of the lac operon which codes for beta-galactosidase.
X-gal is a substrate of beta-galactosidase and turns blue in the presence of functional beta-galactosidase is added to the medium.

Insertion of foreign DNA into the polylinker disrupts the lac operon, beta-galactosidase becomes non functional and the colonies fail to turn blue, but appear white.

Bacterial Artificial chromosomes (BACs) and yeast Artificial chromosomes (YACs)

BACs can hold up to 300 kbs.

The factor of E. coli are capable of handling large segments of DNA.

Recombinant BACs are introduced into E. coli by electroporation (a brief high-voltage current). once in the cell, the rBAC replicates like an F factor.

Example: pBAC 108L

Has a set of regulatory genes, oris, and repE which control F-factor replication, and parA and parB which limit the number of copies to one or two.

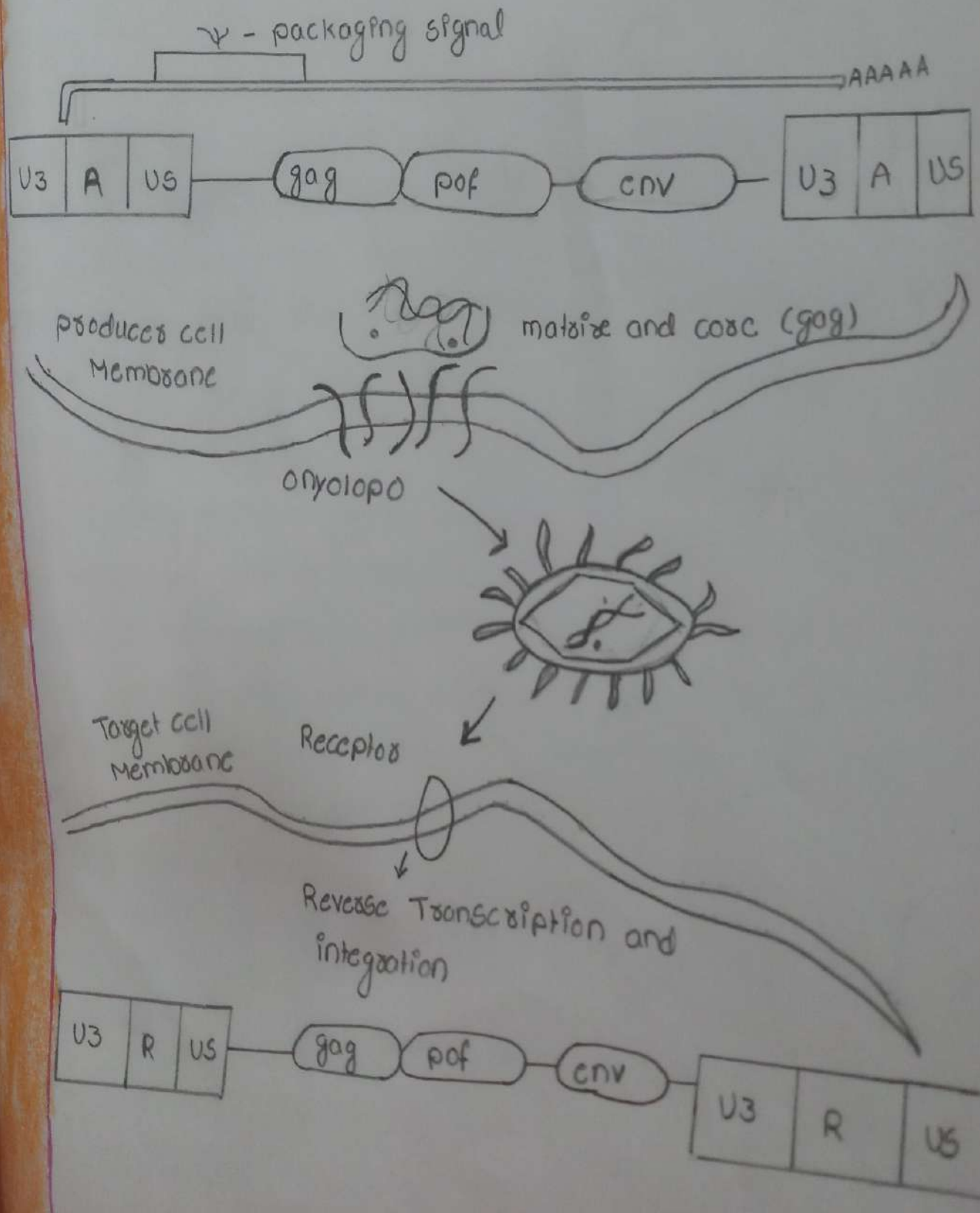
A chloramphenicol resistance gene, and a cloning segment

YACs can hold up to 500 kbs.

YACs are designed to replicate as plasmids in bacteria when no foreign DNA is present. once a fragment is inserted, YACs are transferred to cells, they then replicate as eukaryotic chromosomes.

YACs contain: a yeast centromere, two yeast telomeres, a bacter-ial origin of replication, and bacterial selectable markers.

YAC plasmid - yeast chromosome.



DNA is inserted to a unique restriction site, and cleaves the plasmi-d with another restriction endonuclease that removes a fragment of DNA and cause the YAC to become linear. once in the cell, the YAC replicates as a chromosome, also replicating the foreign DNA.

Why is a lentivirus necessary?

lentiviruses can introduce a gene of interest into cells that do not divide - simple retroviruses can not.
This ability makes them ideal for a delivery system because most of our cells, like hemopoietic stem cells, do not divide.

Why use HIV?

A genetically stripped down amalgam of HIV components can be fashioned with a molecular switch system that turns them off in respons to a common antibiotic.

This type of control allows doctors to control gene expression in people who are treated with gene therapy. If something goes wrong, the expression can be turned off.

Adenoviruses are often used as a vector in gene therapy resea-rch but they do not have capacity to integrate their geno-me into the hosts genome.

The advantage to using a retrovirus is that you don't lose the genomic sequence that is incorporated into the host DNA following cell division.

PROJECT TITLE :- Detailed study on infertility is causes and Treatment

STUDENT STUDY PROJECT

Submitted by :- 1. K. Anvitha
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3. N. Bhavani
4. Neha
5. Rebbas

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KARIMNAGAR

Detailed study on infertility its causes and treatment.

Infertility is the inability of a person, animal or plant to reproduce by natural means. It is usually not the natural state of a healthy adult organism, expect notably among certain eusocial species (mostly haplodiploid insects).

In humans, infertility may describe a woman who is unable to conceive as well as being unable to carry a pregnancy to full term. There are many biologically and other causes of infertility including some that medical intervention can treat. infertility rates have increased by 4% since the 1950s. mostly from problems with fecundity due to an increase in age. About 40% of the cases involved with infertility are due to the man, another 40% due to the woman, and 20% result from complications with both partners.

Women who are fertile experience a natural period of fertility before and during ovulation, and they are naturally infertile during the rest of the menstrual cycle. Fertile awareness methods are used to discern when these changes occur by tracking changes in cervical mucus or basal body temperature. Infertility is a disease of the reproductive system defined by the failure to achieve a clinical pregnancy after 12 months or more of regular unprotected sexual intercourse (and there is no other reason, such as breastfeeding or postpartum amenorrhea). primary infertility is infertility in a couple who have never had a child. Secondary infertility is failure to conceive following a previous pregnancy. In fertility may be caused by infection in the man or woman but often there is no

obvious underlying cause.

One definition of infertility that is frequently used in the united States by doctors who specialize in infertility, to consider a couple eligible for treatment is:

- a woman under 35 has not conceived after 12 months of contra-ceptive-free intercourse. Twelve months is the lower reference limit for time to pregnancy (TTP) by the world Health organization (2nd ed.)
- a woman over 35 has not conceived after 6 months of contracep-tive-free sexual intercourse.

Theory

Researchers commonly base demographic studies on infertility preva-lence on a five-year period. practical measurement problems however, exist for any definition, because it is difficult to measure continuous exposure to the risk of pregnancy over a period of years.

Primary vs. Secondary infertility.

primary infertility is defined as the absence of a live birth for women who desire a child and have been in a union for at least five years, during which they have not used any contraceptives the world health organization also adds that women whose pregnancy spontaneously miscarries, or whose pregnancy results which led to a live birth in a still born child, without ever having had a live birth would present with primarily infertility.

Secondary infertility is defined as the absence of a live birth for women who desire a child and have been in a union

for at least five years since their last live birth, during which they did not use any contraceptives.
Thus the distinguishing feature is whether or not the couple have ever had a pregnancy which led to a live birth.
Effects.

psychological impact

The consequences of infertility are manifold and can include societal repercussions and personal suffering. Advances in assisted reproductive technologies, such as IVF, can offer hope to many couples where treatment is available, although barriers exist in terms of medical coverage and affordability. The medicalization of infertility has unwittingly led to a disregard for the emotional responses that couples experience, which include distress, loss of control, stigmatization, and a disruption in the development trajectory of adulthood. Infertility may have profound psychological effects. Partners may become more anxious to conceive increasing sexual dysfunction. Marital discord often develops in infertile couples. especially when they are under pressure to make medical decisions, women trying to conceive often have clinical depression rates. similar to women who have heart disease or cancer. Even couples undertaking IVF face considerable stress.

The emotional losses created by infertility include the denial of motherhood as a rite of passage; the loss of one's anticipated and imagined life; feeling a loss of control over one's life; doubting one's womanhood; changed and sometimes lost friendships; and to

many, the loss of one's religious environment as a support system. Emotional stress and marital difficulties are greater in couples where the infertility lies with the man.

Social impact

In many cultures, inability to conceive bears a stigma. In closed social groups, a degree of rejection (or a sense of being rejected by the couple may cause considerable anxiety and disappointment. Some respond by actively avoiding the issue altogether, middle-class men are the most likely to respond in this way.

In an effort to end the shame and secrecy of infertility, RedBook in October 2011 launched a video campaign The Truth About Trying, to start an open conversation about infertility, which strikes one in eight women in the united states. In a survey of couples having difficulty conceiving, conducted by the pharmaceutical company Merck, 61 percent of respondents hid their infertility from family and friends. Nearly half didn't even tell their mothers. The message of those speaking out: It's not always easy to get pregnant, and there's no shame in that.

There are legal ramifications as well. Infertility has begun to gain more exposure to legal domains. An estimated 4 million workers in the U.S used the Family and Medical Leave Act (FMLA) in 2004 to care for a child, parent or spouse, or because of their own personal illness. Many treatments for infertility, including diagnostic tests, surgery and therapy for depression, can qualify one for FMLA leave. It has been suggested that infertility be classified as a form of disability.

Causes

Sexually transmitted disease.

Infections with the following sexually pathogens have a negative effect on fertility: chlamydia trachomatis, Nesseria gonorrhoeae, and syphilis. There is a consistent association of Mycoplasma genitalium infection and female reproductive tract syndromes. M. genitalium infection is associated with increased risk of infertility

Genetic

A Robertsonian translocation in either partner may cause recurrent spontaneous abortions or complete infertility.

Other causes.

Factors that can cause male as well as female infertility are:

- DNA damage.
- DNA damage reduces fertility in female oocytes, as caused by Smoking, other xenobiotic DNA damaging agents (such as radiation or chemotherapy) or accumulation of oxidative DNA damage 8-hydro-xy-deoxyguanosine.
- DNA damage reduces fertility in male Sperm, as caused by oxidative DNA damage, smoking, other xenobiotic DNA damaging agents (such as drugs or chemotherapy) or other DNA damaging agents including reactive oxygen species, fever or high testicular temperature.
- General factors.
- Diabetes mellitus, thyroid disorders, undiagnosed and untreated Coeliac disease adrenal disease
- Hypothalamic-pituitary disease.

- Hyperprolactinemia
- Hypopituitarism
- The presence of anti-thyroid antibodies is associated with an increased risk of unexplained subfertility with an odds ratio of 1.5 and 95% Confidence interval of 1.1 - 2.0
- Environmental factors.
- Toxins such as glues, volatile organic solvents or silicones, physical agents, chemical dusts, and pesticides Tobacco smokers are 60% more likely to be infertile than non-smokers.

German scientists have reported that a virus called Adeno-associated virus might have a role in male infertility, though it is otherwise not harmful. Other diseases such as chlamydia, and gonorrhea can also cause infertility due to internal scarring (fallopian tube obstruction).

Females.

The following causes of infertility may only be found in females. For a woman to conceive, certain things have to happen: intercourse must take place around the time when an egg is released from her ovary; the system that produces eggs has to be working at optimum levels and her hormones must be balanced.

For women, problems with fertilisation arise mainly from either structural problems in the Fallopian tube or ideas or problems with releasing eggs. Infertility may be caused by blockage of the Fallopian tube due to malformations, infections such as chlamydia and/or stray tissue. For example, endometriosis can

cause infertility with the growth of endometrial tissue in the Fallopian tubes and/or around the ovaries. Endometriosis is usually more common in women in their mid-twenties and older, especially when postponed childbirth has taken place.

Another major cause of infertility in women may be the inability to ovulate. Malformation of the eggs themselves may complicate conception. For example polycystic ovarian Syndrome is when the eggs only partially developed within the ovary and there is an excess of male hormones. Some women are infertile because their ovaries do not mature and release eggs. In this case Synthetic FSH by injection or clomid (clomiphene citrate) via a pill can be given to stimulate follicles to mature in the ovaries.

Sometimes it can be a combination of factors and sometimes a clear cause is never established. Common causes of infertility of females include:

- Ovulation problems (eg. polycystic ovarian Syndrome, PCOS, the leading reason why women present to fertility clinics due to anovulatory infertility.)
- tubal blockage
- Pelvic inflammatory disease caused by infections like tuberculosis
- age-related factors
- Uterine problems
- Previous tubal ligation
- Endometriosis
- advanced maternal age.

Male

The main cause of male infertility is low semen quality. In men who have the necessary reproductive organs to procreate, infertility can be caused by low sperm count due to endocrine problems, drugs, radiation or infection. There may be testicular malformations - hormones imbalance or blockage of the man's duct System. Although many of these can be treated through Surgery or hormonal Substitutions. Some may be indefinite. Infertility associated with viable, but immotile Sperm may be caused by primary ciliary dyskinesia.

Combined infertility.

In the Some cases, both the man and woman may be infertile or Sub-fertile, and the Couple's infertility arises from the Combination of these Conditions. In other cases the cause is suspected to be immunological or genetic. It may be that each partner is indepen-dently fertile but the couple cannot Conceive together without assistance.

Unexplained infertility.

In the US, up to 20% of infertile couples have unexplained infertility In these cases abnormalities are likely to be present but not detected by current methods. Possible problems could be that egg is not released at the optimum time for fertilization, which it may not enter the fallopian tube, Sperm may not be able to reach the egg, fertilization may fail to occur, transport of the zygote may be disturbed, or implantation fails. It is increasingly recognized that egg quality is of critical importance and women of advanced

maternal age have eggs of reduced capacity for normal and successful fertilization. Also polymorphisms in folate pathway genes could be one reason for fertility complications in some women with unexplained infertility.

Treatment.

Treatment depends on the cause of infertility, but may include counseling, fertility treatments, which include in vitro fertilization. According to ESHRE recommendations, couples with an estimated live birth rate of 40% or higher per year are encouraged to continue aiming for a spontaneous pregnancy. Treatment methods for infertility may be grouped as medical or complementary and alternative treatments. Some methods may be used in concert with other methods. Drugs used for both women and men include clomiphene citrate, human menopausal gonadotrophin (hMG), follicle-stimulating hormone (FSH), human chronic gonadotropin (hCG), gonadotropin-releasing hormone (GnRH) analogues, aromatase inhibitors, and metformin.

Medical treatments

Medical treatments of infertility generally involves the use of fertility medication, medical device surgery, or a combination of the following. If the sperm are of good quality and the mechanics of the woman's reproductive structures are good (patent fallopian tubes, no adhesions or scarring), a course of ovarian stimulating medication may be used. The physician or LMHNP may also suggest using a Conception Cap Cervical Cap, which

the patient uses at home by placing the sperm inside the cap and putting the conception device on the cervix or intrauterine insemination (IUI). In which the doctor or WHNP introduces sperm into the uterus during ovulation, via a catheter. In these methods fertilization occurs inside the body.

If conservative medical treatments fail to achieve a full term pregnancy, the physician or WHNP may suggest the patient undergo in vitro fertilization (IVF). IVF and related techniques (ICSI, ZIFT, and GIFT) are called assisted reproductive technology (ART) techniques.

ART techniques generally start with stimulating the ovaries to increase egg production. After stimulation, the physician surgically extracts one or more embryos. Fertilization takes place outside the body, and the fertilized egg is reinserted into the woman's reproductive tract, in a procedure called embryo transfer.

Other medical techniques are eg tuboplasty, assisted hatching and preimplantation genetic diagnosis.

Effects on the Population.

Perhaps except the for infertility in science fiction films and other fiction depicting emotional struggles of assisted reproductive technology have had an upswing first in the latter part of the 2000s decade although the techniques have been available for decades. Yet, the number of people that can relate to it by personal experience in one way or another is ever growing and the variety of trials and struggles is huge.

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Pixar's up contains a depiction of infertility in an extended life montage that lasts the first few minutes of the film.

There are several ethical issues associated with infertility and its treatment

- High-cost treatments are out of financial reach for some couples. Debate over whether health insurance companies (eg. in the US) should be required to cover infertility treatment.
- allocation of medical resources that could be used elsewhere.
- The legal status of embryos fertilized in vitro and not transfered in vivo. (See also beginning of pregnancy Controversy).
- Pro-life opposition to the destruction of embryos not transferred in vivo.
- IVF and other fertility treatments have resulted in an increase in multiple births, provoking ethical analyses because of the link between multiple pregnancies premature birth, and a host of health problems.
- Religious leaders' opinions on fertility treatments for example, the Roman catholic church views infertility as a calling to adopt or to use natural treatments (medication, surgery and/or cycle charting) and members must reject assisted reproductive technologies.
- Infertility caused by DNA defects on the Y chromosomes is passed on from father to son. If natural selection is the primary error correction mechanism that prevents random mutations on the Y chromosome, then fertility treatments for men with abnormal sperm (in particular ICSI) only defer the underlying problem to the next male generation.

Many countries have special frameworks for dealing with the ethical and social issues around fertility treatment.

- One of the best known is the HFEA - the UK's regulator for fertility treatment and embryo research. This was set up on 1 August 1991 following a detailed commission of enquiry led by Mary Warnock in the 1980s
- A similar model to the HFEA has been adopted by the rest of the countries in the European union. Each country has its own body or bodies responsible for the inspection and licencing of fertility treatment under the EU tissues & cells directive.
- Regulatory bodies are also found in Canada and in the state of Victoria in Australia.

Conclusions.

Infertility often not seen (by the west) as being an issue out-side industrialized countries. This is because of assumptions about overpopulation problems and problems and hyper fertility in developing countries, and a perceived need for them to decrease their populations and birthrates. The lack of health care and and high rates of life-threatening illness (such as HIV/AIDS) in developing countries, such as those in Africa, are supporting reasons for the inadequate supply of fertility treatment options. Fertility treatments, even simple ones such as treatment for STIs that cause infertility, are therefore not usually made available to individuals in these countries.

Despite this infertility has profound effects on individuals in

developing countries as the production of children is often highly socially valued and is vital for social security and health networks as well as for family income generation. Infertility in these societies often leads to social security and health networks as social stigmatization and abondonment by spouses. Infertility is in fact, common in sub-saharan Africa. Unlike in the west. Secondary infertility is more common than primary infertility, being most often result of untreated STIs or complications from pregnancy birth.

Due to the assumptions surrounding issues of hyper-fertility in developing countries, ethical controversy surrounds the idea of whether or not access to assisted reproductive technologies should comprise a critical aspect of reproductive health or at least whether or not the distribution and access of such technologies should be subject to greater equity.

Reproduction is a large aspect of life for many of life for many cultures within developing nations and infertility can lead to social and familial problems such as rejection or abondonment as well as personal psychological issues. Currently fertility treatment options and programs are only available through private health sectors in developing nations and little to-no treatment is available through public health sectors. The fertility treatment options offered through the private sectors are often costly or not easily accessible. Additionally, counseling is considered an essential aspect of fertility treatment and due to lack of education and resources such forms

PROJECT TITLE : Possible effects of Maternal Behaviour on Foetal Development

STUDENT STUDY PROJECT

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Possible Effects of Maternal Behaviour on Foetal Development.

Nutrition is the major intrauterine Environmental factor that ters Expression of fetal genome and may have lifelong nsequences. Namely, alterations in fetal nutrition and Endocrine tatus may result in developmental adaptations that Permanently ange the structure, Physiology, and metabolism of the offspring, ereby. Predisposing individuals to metabolic, Endocrine, and rdiovascular diseases in adult life. Animal studies show that th maternal under nutrition and over nutrition reduce placental tal blood flows and stunt fetal-growth. impaired Placental ntheses of nitric oxide and polyamines may provide a fied Explanation for intrauterine growth retardation in sponse to the 2 Extremes of nutritional Problems with the me pregnancy Outcome. There is growing Evidence that aternal nutritional Status can alter the Epigenetic State the fetal genome. Promoting Optimal nutrition will not only nsure optimal fetal development, but will also reduce the k of chronic diseases in adults.

Maternal nutrition plays a critical role in fetal growth and evelopment. Although considerable effort has been directed wards defining nutrient requirements of animals over the ast 30 years, suboptimal nutrition during gestation emains a significant Problem for many animal Species. laternal under nutrition during gestation reduces placental nd fetal growth of both domestic animals and humans. vailable Evidence Suggests that fetal growth is most ulnerable to maternal dietary deficiencies of nutrients uring the Peri-implantation Period and the period of apid Placental developmental. under nutrition is Pregnant omen may result from low intake of dietary nutrients wing to either a limited Supply of food or severe ausea and vomiting known as hyperemesis gravidarum.

your baby's development. That's why alcohol is much more harmful to your baby than to you during pregnancy.

Alcohol can lead your baby to have serious health conditions called fetal alcohol Spectrum disorders (FASD). The most serious of these is fetal alcohol Syndrome (FAS). Fetal alcohol Syndrome can seriously harm your alcohol can cause your baby to:

Have birth defects (heart, brain and other organs)
Vision or hearing problems
Be born too soon (preterm)
Be born at low birth weight
Have intellectual disabilities
Have learning and behaviour problems.
Have sleeping and sucking problems
Have Speech and language delays.
Have behavioral problems.

SE OF Illegal and Illicit Drugs:

- is possible that you may not having a serious or ng-lasting problems after using drugs. But the same not always true for a fetus. Drug-using mothers often ive birth to "drug babies". "These children have a host of evelopmental problems.

Studies Show that using drugs - legal or illegal - during regnancy has a direct impact on the fetus. if you Smoke, ink alcohol, or ingest Caffeine, so does the fetus. if you e marijuana or Crystal meth, your fetus also feels the npact of these dangerous drugs. and if you are addicted cocaine - also called coke, snow or blow feels the npact - you're not only putting your own life on the line, ut you are risking the health of your unborn baby. The onsequences of using cocaine include heart attacks, espiratory failure, strokes, and seizures. And these fe threatening health problems can also be passed to an unborn baby. Taking drugs during pregnancy also ncrease the chance of birth defects, premature babies, underweight babies, and still born babies / births.

regnant women may also be at increased risk of under utrition because of early or closely-spaced pregnancies. ince Pregnant teenage mothers are themselves growing, ey compete with their own fetuses for nutrients, whereas ort interpregnancy intervals result in maternal nutritional epletion at the outset of Pregnancy. Low birth weights nd Preterm deliveries in adolescent Pregnancies is almost ree times higher than for adult pregnancies. Further, lacental insufficiency results in reduced transfer of nutrients om mother to fetus, thereby leading to fetal under itrition and IUGR. Finally, due to competition for utrients. Multiple fetuses resulting from assisted reproductive chnologies are often at risk of under nutrition and erefore fetal growth restriction. Thus, various nutritional nd Pathological conditions can result in IUGR.

Pregnant women are usually recommended to avoid soft eeses, smoked fish, precooked meats and foods made th unpasteurized milk These foods may contain a bacterium lled Listeria. This bacteria does not usually cause ople much harm, but Even a mild infection in a pregnant man may cause miscarriage.

Alcohol Abuse :

rinking alcohol when you are Pregnant can be very harmful your baby. It can cause your baby to have a range of long health conditions. Drinking alcohol during pregnancy n cause miscarriage, preterm birth and still birth.

when you drink alcohol during pregnancy, so does your aby. The same amount of alcohol that is in your blood also in your baby's blood. The alcohol in your blood uickly passes through the placenta and to your baby rough the umbilical cord.

Although your body is able to manage alcohol in your lood. your baby's little body isn't. Your liver works hard to reakdown the alcohol in your blood. But your baby's ver is too small to do the same and alcohol can hurt

anja, dope or pot — and alcohol birth has been proven to use behaviour problems in early childhood. These drugs n also affect the child's memory and attentiveness.

addition, some findings show that babies born to men who use cocaine, alcohol, or tobacco when they are regnant may have brain structure changes that persist o early adolescence.

while cocaine's effects are usually immediate, the fect it can have on a fetus may last a lifetime. Babies rn to mothers who smoke crack cocaine during pregnancy — called "crack babies" — usually have their own set physical and mental problems. According to the National titute on Drug Abuse, Exposure to cocaine in the womb lead subtle, yet significant, deficits later in children.

Cigarette Smoking

noking during pregnancy affects you and your baby's before, ing, and after your baby is born. The nicotine (the addictive bstances in cigarettes), carbon monoxide, and numerous other sons you inhale from a cigarette are carried through your od stream and go directly to your baby. Smoking while gnant will:

Lower the amount of oxygen available to you and your rowing baby.

Increase your baby's heart rate.

Increase the chances of miscarriage and stillbirth.

Increase the risk that your baby is born prematurely and/or rn with low birth weight.

Increase your baby's risk of developing respiratory (lung) roblems.

Increases risks of birth defects

Increases risk of Sudden Infant Death syndrome.

he more cigarettes you smoke per day, the greater your aby's chances of developing these and other health problems. There is no 'safe' level of smoking while pregnant.

Nicotine reduces the diameter of the foetus' blood vessels. This reduces the volume of blood that can flow through them. This, too, reduces the amount of oxygen reaching the foetus' developing tissues. Nicotine also appears to affect the development of the nervous system.

Birth Control :

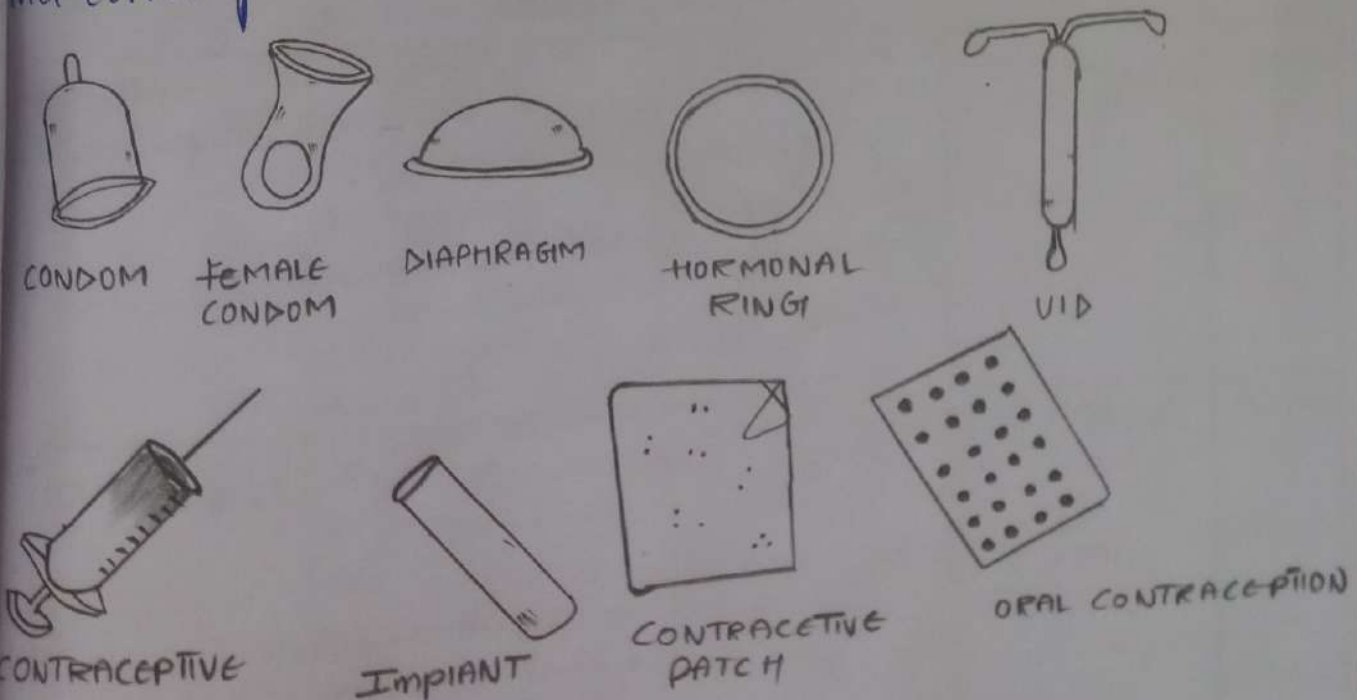
Birth control methods include hormonal contraceptives, such as pills, shots and patches. Each method and brand has a unique mixture of estrogen and progestin and delivery molecules that can potentially affected a fetus. In most cases, taking birth control during the first four to eight weeks of a pregnancy will have no ill side-effects on a fetus. Regardless of any potential risk factors or lack thereof, stop taking birth control and consult a physician if pregnancy is likely. The possibility of birth defects concerns many women who become pregnant while taking birth control pills. However, there is no scientific evidence that taking birth control pills during early pregnancy affects the rate of birth defects. This risk of miscarriage due to birth control is possible; however, no statistical data in human beings has been compiled. Birth control affects the amount of estrogen and progestin in the body in order to regulate the menstrual cycle .... for instance, drugs can reports that Yamin has been placed in the category x due to the fact that animal studies that some of the chemicals in Yasmin have produced miscarriages. None of the statistics have been verified in humans.

Human Reproductive Anatomy and physiology — Contraceptives.

Effective public health programs, research, and policy relating to human sexuality, pregnancy, contraception, and the transmission of sexually transmitted infections (including HIV) depends on knowledge of the structure (anatomy) and function (physiology) of the male and female reproductive systems. Human beings are sexually. Encompasses more than sexual behaviour. It is not

nly the physical, but the mental and Spritual as well. Sexuality is a ore component of Personality and a fundamental part of human e. while the problems usually associated with Sexual behaviour are al and need to be addressed, human Sexuality also have ignificant meaning and value in Each individual's life.

Sixty-one Percent of all women worldwide who are within he reproductive age (15-44 years old), are using methods of ontraception (methods used to deliberately prevent pregnancy). vo methods of contraception is 100% effective other than mplete abstinence from sexual intercourse. However, many ethods exist that are close to 100% effective if used nsistenly and correctly. People frequently fail to use their ethod Every time or to use it perfectly. Thus, even people sing a method may face an unintended pregnancy. actors contributing to unintended pregnancy are complex, and ay involve the interplay of Emotional, physiological, political eligious, cultural and Economic forces. contraceptive effectiveness tes are Estimates of the probability that a pregnancy will cur during the first year of method use. perfect use refers the effectiveness of a method when it is used Consistently nd correctly.



DIFFERENT TYPES OF CONTRACEPTIVE METHODS

Typical use refers to the effectiveness of a method for the average person who does not always use the method correctly and consistently. Birth control is a regimen of one or more actions, devices, or medications followed in order to deliberately prevent or reduce the likelihood of a woman becoming pregnant. Methods and intentions typically termed birth control may be considered a pivotal ingredient to family planning. Mechanisms which are intended to reduce the likelihood of the fertilization of an ovum by a sperm may more specifically be referred to as contraception. Contraception differs from abortion in that the former prevents fertilization, while the latter terminates an already established pregnancy. Methods of birth control (e.g: the pill, IUD's, implants, patches, injections, vaginal ring and some others) which may prevent the implantation of an embryo if fertilization occurs are medically considered to be contraception.

Type	Procedure	Method	Effectiveness	Risks
Abstinence	Refrain from sexual intercourse	No Sperm in vagina	100 %	None
Rhythm Method	Intercourse is avoided for about an 8-day span every month middle of her cycle. 5 days Before, and 3 days after Ovulation	Fertilization is only possible during 8-day span in middle day of menstrual cycle	70-80 %.	None
Withdrawal	The man withdraws his penis from the vagina at just the right moment before ejaculation.	Sperm are unable to enter vaginal if male penis is removed at the right time	70-80 %.	None

Type	Procedure	Method	effectiveness	Risks
levice	inserted by Physician	In most cases, stops egg from developing and being released, but can be prevented by implantation by killing fertilized egg.		uterine perforation
ral ontraceptive	Hormone medication taken daily	Stops release of FSH and LH, but can also operate by killing a fertilized egg. by preventing its implantation.	more than 90%	Blood clots, especially in Smokers
ontraceptive nplants	Tubes of Progesterone implanted under the skin	Stops release of FSH and LH, but can also operating by killing a fertilized egg by preventing its implantation	more than 90%	None known.
ontraceptive njections	injections of Harmones	stops release of FSH and LH, Operate by killing a fertilized egg by preventing its implantation	about 99%	possible Osteoporosis