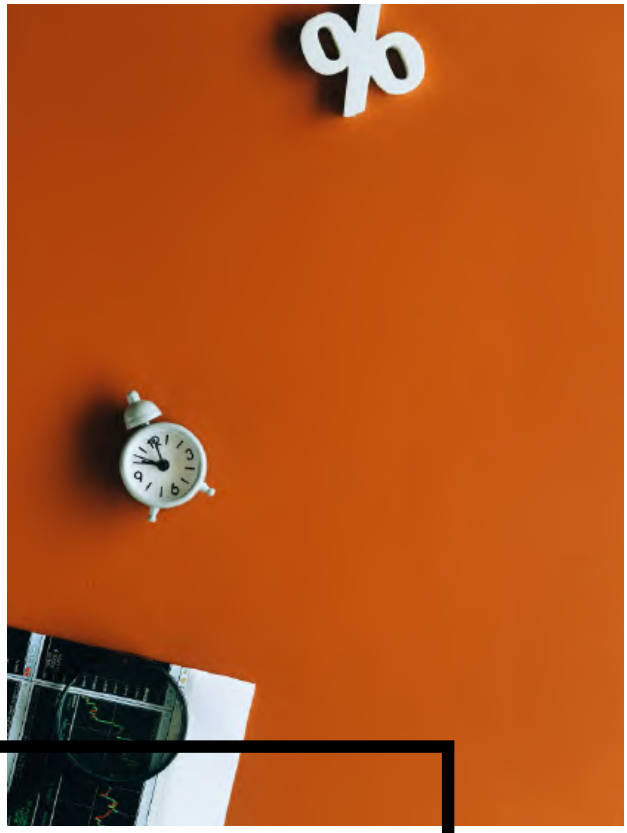
Rajiv Gandhi Institute
of IT and Biotechnology (Pune)

Academic (Magazine) Committee

Presents

BIOVERSE - 2022



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ABOUT US

Rajiv Gandhi Institute of IT and Biotechnology is a constituent unit of Bharati Vidyapeeth (Deemed to be University), Pune. It was established in May 2003 to contribute in promising and emerging areas of biological sciences. Institute is unique in Maharashtra, imparting quality education and providing an excellent research environment through its ongoing program. It imparts training for students to make them competent and motivated graduates. The institute has an impressive infrastructure with state-of-the-art laboratories, classrooms and qualified faculty from diverse streams and specializations. The Institute has developed a research facility and infrastructure to support the ongoing teaching and research initiatives.

The Institute's activities focus on imparting education, training, and research in the emerging important areas of biotechnology. A three-year graduate course (B.Sc.) in Biotechnology was introduced in 2003 and a post-graduate course (M.Sc. in Biotechnology) in 2005. The academic program is aimed at generating a competent work force for the growing life sciences industry. Advanced Diploma in Bioinformatics (ADB) was started in the academic year 2008. In 2010, a postgraduate course in Bioinformatics (M.Sc. Bioinformatics) course introduced in the institute & M.Sc. Medical Biotechnology has been launched since 2012 with an aim to generate skilled man power for inter disciplinary subject. The major thrust of the Institute includes biochemical sciences, microbial biotechnology, plant biotechnology, animal cell culture, medical biotechnology and computational biology. The institute has initiated efforts to establish research laboratories in all the thrust areas.

Principal's message

Dr. Shamim A. Shaikh

A warm and hearty welcome to you to Rajiv Gandhi Institute of Information Technology and Biotechnology (RGIT-BT), an excellent center for biotechnology education. The institute has the distinction of being ranked among the top 50 colleges by NIRF in 2017 & 2019. Biotechnology is an interdisciplinary field that applies the principles of biology and engineering for the development of biotechnological processes that have improved the quality of people's lives. Significant advances in medicine, agriculture, synthesis of drugs, hormones, and drug delivery mechanisms are directly attributable to biotechnology. The impact of biotechnology on human life and the economic progress of various nations worldwide has given a major impetus to accelerate research & development for application in relevant socio-economic sectors. Along with biotechnology, bioinformatics, a subject that builds a strong foundation in biotechnology, computational mathematics, computer programming, database management, and statistics, prepares the students for productive careers in the fields of biotechnology, pharmaceutical, bioinformatics, and vaccine industries. Bioinformatics is playing a pivotal role in reducing the cost of R&D in areas of vaccine development.

Vice Principal's Message

Dr. E.A Singh

I am glad to know that the students of our college are bringing out college magazine for the year 2021-22.
The college magazine serves many useful purposes; it brings out the creative talent of the students and thus helps them to form the habit of reading and writing.

It also records the achievements and various activities of the institution

The publication of a college magazine is not an easy task, but it is a combined effort of students and teachers.
I hope that this publication would be successful in achieving these objectives
With best wishes

Message from Academic committee coordinator

Dr. Alpana Moghe

As quoted by the brilliant scientist Rosalind Franklin, 'Science and everyday life cannot and should not be separated'. Influencing most of the aspects of everyday life, science provides perpetual impetus for the improvement of society at various levels. Biotechnology has received importance in the last few decades due to its unprecedented potential to serve the humankind and environment. Through its impact on the society, Biotechnology is paving the way towards a better life.

With this inspiration, we are delighted to present *Bioverse 2022*. This annual publication is a result of contemplating and compiling the thoughts and creativity of the team and the authors. The magazine throws light on the topics which are varied yet greatly influence the community. It reflects and exemplifies the role of Biotechnology which has integrated into the humankind eventually. The advances and popular narratives of Biotechnology along with the allied fields have been put forth in this endeavour.

Adding further to this, the inspiring journey of our alumni is an appreciable source of motivation to the readers. We owe our heartfelt gratitude to the Academic Committee Coordinator Dr. *Alphana Moghe*, the faculty and non-teaching staff of the RGITBT who have always been a source of constant and unflinching support. We thank all those who have been a source of direct and indirect inspiration and help to us.

EDITOR'S NOTE

Welcome! We hope you are safe, sound, and hearty, and so are the ones you hold dear.

With 2021 now past us, the world has seen two years of a pandemic. In the wreak havoc of calamity, we've loved, we've lost, and we've yearned for solace wherever we could find it.

For many of us, and certainly, for the editorial tribe, art came to the rescue, whether it was consuming or creating, appreciating the color palette of the sky, or looking more intently at nature, in words or photographs, we've searched for pieces of ourselves in the universe.

And so we present, Bioverse, a magazine by the editorial team of the biotechnology department. In the magazine, we've given you little pieces of ourselves through our recommendations, stories, and aspirations.

We are utterly grateful to our ed. ,tribe for contributing to the magazine in all their capacities; this wouldn't have been possible without their relentless efforts. And to you, the reader, We hope you have fun making your way through this puzzle pieced together with all the warmth we could muster.

Happy reading !

Warmly,

Editors Team

MEET THE TEAM

SAKSHI KULKARNI
LEAD EDITOR

ATHARVA KARKARE
EDITOR

PRERNA VERMA
CO-ORDINATOR

MAYURESH BARHATE
LAYOUT DESIGNING

ADITYA SHRIVASTAV
DESIGNING & EDITING

Departments of our college

Our Faculty

Dr. Shamim A Shaikh
Principal

Dr. E.A Singh
Vice -Principal

Our Faculty

Teaching Staff

Our Faculty

Assisting Staff

RESEARCH

New discoveries and research of 2022

TIPS FOR INCREASING TRANSFECTION EFFICIENCY

Chemical transfection, which relies on the formation of a condensed complex of positively charged liposomal or non-liposomal reagents and negatively charged nucleic acids, is the most common method for delivering foreign genetic material into cultured cells. Complexes are attracted to the negatively charged cell membrane and potentially pass through it via mechanisms involving endocytosis and phagocytosis.

“The negative to positive ratio impacts the complex size and the overall positive charge. The best ratio is cell type dependent,” says Sandy Tseng, Ph.D., technical support scientist, Mirus Bio.

Chemical methods offer a slew of advantages: relatively low cytotoxicity, ease of use, cost-effectiveness, the low likelihood for unintended mutagenesis, no viral vector involvement, no discrimination of type of nucleic acid, and researcher safety. But the correct protocol needs to be identified and optimized to maximize transfection efficiency and product yield for the cell type and molecule.

“Sometimes, reagents may not work very well, especially for primary cells that do not divide as rapidly as immortalized cell lines. This may be because most of the uptake of transfection complexes happens during cell division when the nuclear membrane breaks down naturally,” says Tseng.

Measuring Transfection efficiency -

Transfection efficiency equates to the percentage of cells transfected in the sample.

“Typically, the downstream functional effect is measured,” says Tseng.

Frequently employed, easily trackable fluorescent-based reporter assays include green fluorescent protein (GFP), luciferase, β-galactosidase (β-gal), and secreted embryonic alkaline phosphatase (SEAP). In other cases, Western blots or immunostaining can quantify protein expression and quantitative PCRs can be used to track transfected nucleic acid levels.

An overlooked method to calculate transfection efficiency is the use of fluorescently-labeled nucleic acids, which enables tracking of intracellular delivery.2 “You need uptake before function,” adds Tseng.

Achieving optimal and consistent transfection efficiency -

Transfection efficiency depends on several factors.

“For most adherent cells it is standard to split them the day prior so they will be ~ 80% confluent at the time of transfection. Different cells might double differently or behave differently at this confluency. For transfection complexes, various reagents, and nucleic acid

c ratios should be tested," says Tseng. "Plus some reagents work better with larger nucleic acids than smaller ones, such as siRNA." Trivial protocol points can have a major impact. Be as consistent as possible. You want the cells to be a similar passage number, and the media, growth container, FBS batch, and the complex conditions should also be the same between replicate transfection experiments," says Tseng.

"Manufacturers provide assistance and literature searches using 'your cell type of interest' and 'transfection' as keywords will often yield helpful protocol pointers for your cell type of interest."

A recent study evaluated mixing with a pipette versus a dropwise addition in the preparation of polyethyleneimine (PEI) and plasmid DNA polyplexes. These subtle changes markedly influenced the physicochemical properties of the transfection complex and its resulting performance.

Optimizing protocols -

An operational flow termed "Design of Transfections" (DoT) based on Design of Experiment (DoE) methods, was used for specific transfection modeling and identification of optimal conditions. The workflow was applied to optimize a PEI protocol for extremely difficult-to-transfect neural progenitors. Key influencing factors, including concentration and type of PEI, DNA concentration, and cell density, were simultaneously varied and a simple, efficient, and economical protocol was established.

In a biomanufacturing study, a stirred bioreactor method was studied to grow cell therapy products. Non-liposomal cationic and cationic lipid reagents were evaluated along with rate-limiting culture factors. The efficiency achieved with non-liposomal cationic reagents was comparable to previous reports of viral transduction of T cells in culture suspension and more than ten times higher than liposomal reagent-mediated transfections reported elsewhere.

Alternatives to chemical transfection -

"Know when to give up with chemical reagents, especially with difficult-to-transfect cells. There are different biological or physical methods that you can use," advises Tseng.

Biological methods are mediated by viruses, virus-like particles, or extracellular vesicles. Virus-mediated transfection (transduction) is highly effective and easy to use although immunogenicity, cytotoxicity, safety considerations, and limited space for foreign nucleic acids pose drawbacks.

Physical methods can require expensive instruments, and specialized expertise, or cause physical cellular damage. However, some methods are quick-and-easy and can transfect many cells in a short time, once optimum conditions are determined.5,6

When choosing among the methods available, practical factors and the overall goal of the application should be considered. Speed and reproducibility may factor in the decision to assess or try a new protocol, and access to various technologies may be limited or not within budget. Some applications may seek to achieve the highest transfection efficiency despite cell health, while others may want to preserve cell health to maintain a physiologically relevant environment.

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Research Articles

3D Bioprinting : Future medicine

Bioprinting is the actual printing process, where the bio-ink is placed in a printer cartridge and deposition takes place based on the digital method. Different technology is created using biotechnology. One of the method or technique is 3D bioprinting .3D bioprinting is an additive process where biomaterials such as growth factors, and cells are used to create tissue-like structures that imitate natural tissues. The technology used in 3D bioprinting is called bioink to create these structures in a layer-by-layer manner .3D bioprinting is widely applicable to the field of medicine and engineering .3D bioprintwork is a similar way to conventional 3D printing.

How does bioprinting work?

Several methods exist, based on inkjet, laser, and extrusion technologies. But there are several series of steps are as follows :

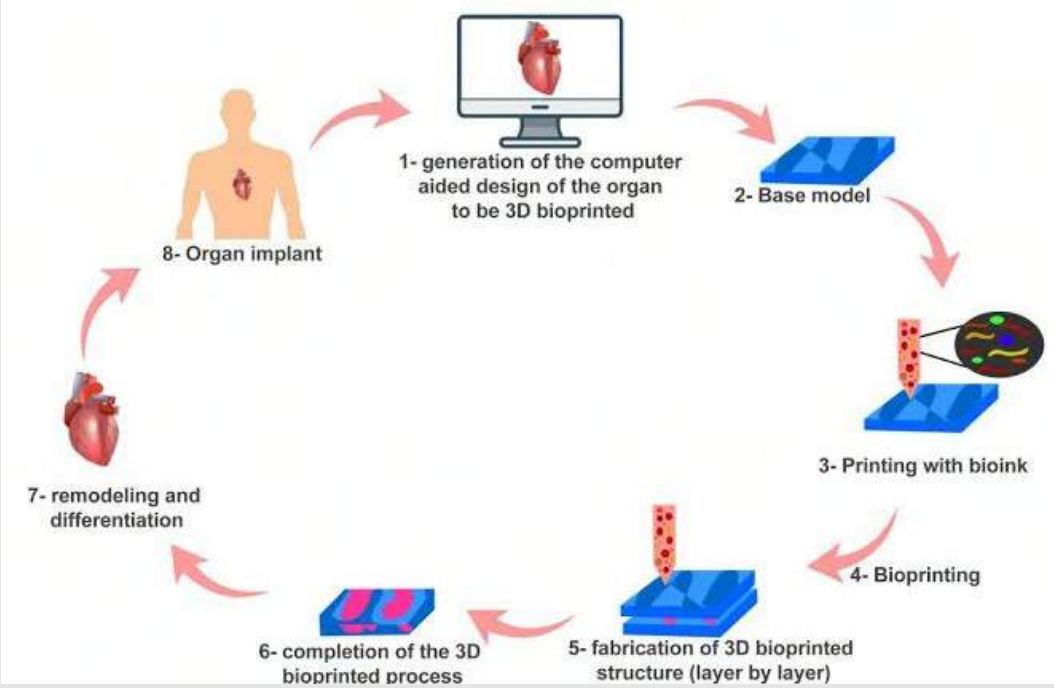
3D imaging: To get the exact dimension of the tissue, a standard CT or MRI scan is used .3D bioprinting should provide a perfect fit of the tissue with little or no adjustment required on the part of the surgeon

3D Modeling: A blueprint is generated using AutoCAD software. The blueprint also includes layer-by-layer instruction in high detail. Fine adjustments may be made.

Bio ink Preparation: Bioink is used to create the structures in a layer-by-layer manner. It is the combination of living cells and a compatible base, like gelatin, collagen, alginate, silk, and nanocellulose. The latter provides cells with scaffolding to grow on and nutriment to survive on.

Printing: The 3Dprinting process involves depositing the bioink layer by layer, where each layer has a thickness of 0.5mm or less. The delivery of smaller or large deposits highly depends on the number of nozzles and the kind of tissue being printed. The mixture comes out of the nozzle as a highly viscous fluid.

Solidification: As deposition takes place the layer starts as a viscous liquid and solidifaction to hold its shape. The process of blending and solidification is known as cross-linking and may be aided by UV light, specific chemicals or heat .



2022

Why bioprinting is important :

- 3D bioprinting made advancements in the production of cartilage tissue for use in reconstruction and regeneration. The greatest importance of bioprinting lies in the resulting tissue-like structure that mimics the actual micro and macro environment of human tissue and organs. This is critical in drug testing and clinical trials with the potential.
- When living tissues and organs need not come from humans, this budding technology offers other massive opportunities. One example is testing treatment for diseases using artificially affected tissues.
- Organ replacement is the main objective, but tissue repair is also possible in the meantime

Applications :

Here are a few of the main application areas of bioprinting:

Artificial organs: These are one of the greatest drivers of technology due to the high rise of vital organ failure. The availability of 3D printed organs helps to solve organ-related issues faster and quicker, which is important to patients, their families, and healthcare systems.

Pharmaceutical testing: The development of tissue for pharmaceuticals when 3D, printed, is a more cost-effective and ethical option. It also helps in identifying the side effects of drugs and allows recommended drugs to be administered to humans with validated safe dosages.

Cosmetic surgery: In particularly plastic surgery and skin grafting, also benefits from the technology. In this particular application, bioprinted skin tissue could be commercialized. Some 3d printed tissue is already being bioprinted for research on therapeutic purposes.

Bone tissue regeneration: 3D Bioprinting is used in tissue regeneration as well as prosthetics and dental application

Conclusion :

The list of applications clear that bioprinting will only continue to develop. Let's see where technology is in a few more years !!

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By avanti karande

Msc medical biotechnology second year

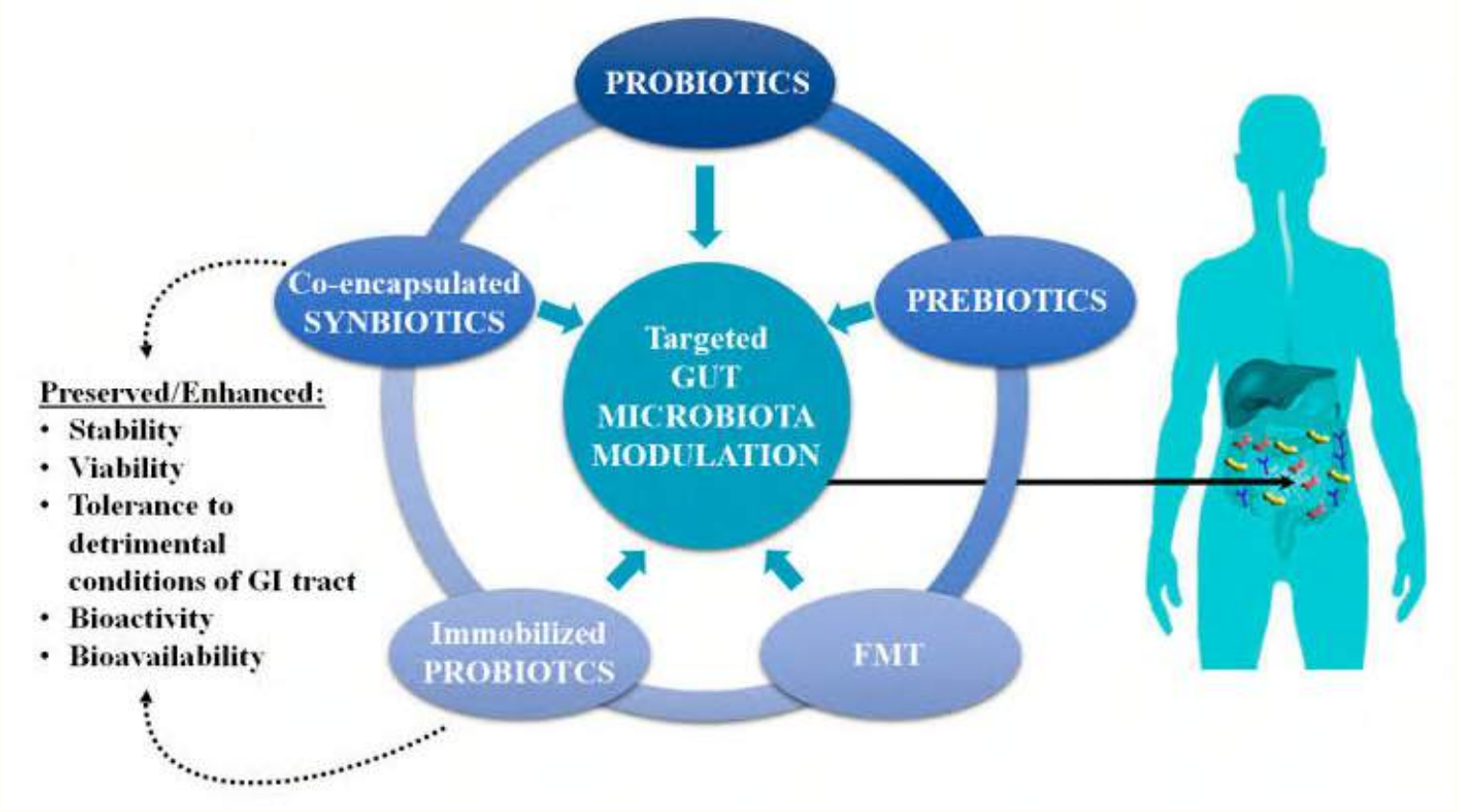
PROBIOTICS, PREBIOTICS .....SYNBIOTICS

By Dr.Bipinraj N K & Mayur Aswani

The human gastrointestinal tract harbours trillions of microbial cells collectively known as the gut microbiome that plays a vital role in maintaining homeostasis and immunostasis of host. It is utmost important to maintain the structure and functionality of complex microbial communities. However, several factors are known to hinder gut microbiome such as diet, lifestyle, heavy intake of antibiotics etc., resulting in pathogen abundance condition known as dysbiosis ultimately leading for onset of several metabolic and chronic inflammatory diseases. In this context, synbiotics are capable to revert back the dysbiotic microbiome towards healthier profile and also, prevent dysbiosis condition.

Synbiotics are referred to as a specific mixture of probiotics and prebiotics that ultimately benefit health of host through synergism. The microbial part, probiotics as stated by FAO/WHO in 2002 are live microorganisms when administered in adequate amounts confer health benefits to host. While, prebiotics as defined by Gibson and Roberfroid in 1995 are a non-digestible dietary element that benefits the host by selectively boosting the development and/or activity of one or more microorganisms, hence improving host health. Mechanism of Action of Synbiotics:

Considering the fact that a probiotic is essentially active in the small and large intestine, and the effect of a prebiotic is observed mainly in the large intestine, the combination of the two may have a synergistic effect. Prebiotics are used mostly as a selective medium for the growth of a probiotic strain, fermentation, and intestinal passage.



There are indications in the literature that, due to the use of prebiotics, probiotic microorganisms acquire higher tolerance to environmental conditions, including: oxygenation, pH, and temperature in the intestine of a particular organism. However, the mechanism of action of an extra energy source that provides higher tolerance to these factors is not sufficiently explained. That combination of components leads to the creation of viable microbiological dietary supplements, and ensuring an appropriate environment allows a positive impact on the host's health.

Two modes of synbiotic action are known:

(1) Action through the improved viability of probiotic microorganisms;

(2) Action through the provision of specific health effects

The stimulation of probiotics with prebiotics results in the modulation of the metabolic activity in the intestine with the maintenance of the intestinal biostructure, development of beneficial microbiota, and inhibition of potential pathogens present in the gastrointestinal tract. Synbiotics result in reduced concentrations of undesirable metabolites, as well as the inactivation of nitrosamines and carcinogenic substances.

Their use leads to a significant increase of levels of short-chain fatty acids, ketones, carbon disulphides, and methyl acetates, which potentially results in a positive effect on the host's health. As for their therapeutic efficacy, the desirable properties of synbiotics include antibacterial, anti-carcinogenic, and anti-allergic effects. They also counteract decay processes in the intestine and prevent constipation and diarrhoea. It turns out that synbiotics may be highly efficient in the prevention of osteoporosis, reduction of blood fat and sugar levels, regulation of the immunological system, and treatment of brain disorders associated with abnormal hepatic function.

Synbiotics as Medical Agents: The reported literature on synbiotics includes a limited range of studies with varying subject groups. Research subjects have included humans of all ages as well as companion animals and food production animals such as chickens, cows, pigs, cattle, rabbits, and fish. Although synbiotics appear to be promising for the modulation of the gut microbiota composition, the effects remain to be verified by human trials. Most studies considered documented improvements in at least one inflammatory marker after the

consumption of synbiotics. When Bifidobacterium longum along with inulin was administered in elder persons, authors observed improvement in metabolic activities and immune system in colon. While, Taghizadeh and Asemi in 2014 studied a synbiotic blend of Lactobacillus sporogenes with inulin on pregnant women and reported a beneficial effect on insulin. Synbiotics are also reported to enhance immune function, and decrease incidence of gastrointestinal tract borne infections in critically ill patients who had undergone surgery when studied on Lactobacillus casei, Bifidobacterium breve along with GOS. Despite the fact that the understanding of the effects of synbiotics has increased, important information relating to their impact on the host is so far incomplete. Potential combinations of most appropriate probiotics and prebiotics may reduce the risk associated with intestinal diseases and eliminate specific microbial disorders.

ACHIEVEMENTS CORNER

Congratulations to Ms.Astha Parikh for winning "Best Poster Award" in "20th National Level Microcanvas"Organized by Department Of Microbiology,Government Institute Of Science, Aurangbad in collaboration with Department of Microbiology, R.C.Patel Arts, Commerce and Science College, Shirpur on March 5th,2021

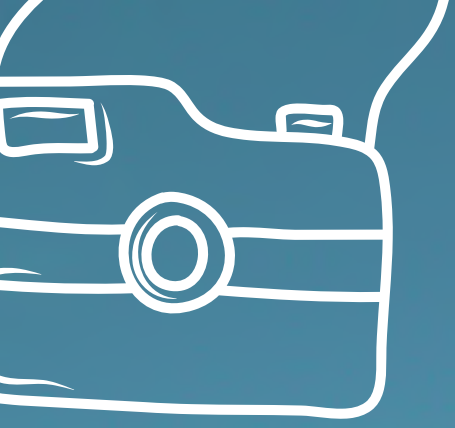


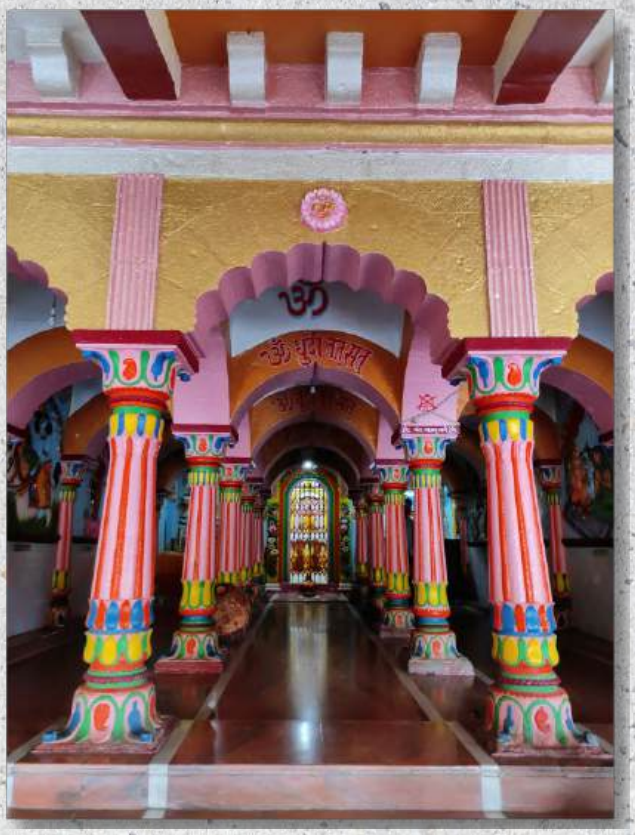
PHOTO GRAPH

ANOTHER POINT OF VIEW FROM THE CAMERA

PHOTOGRAPHS
CLICKED BY OUR
COLLEGE STUDENTS.

Architecture

Sakshi Kulkarni TY



Atharva Karkare TY

Atharva Karkare TY

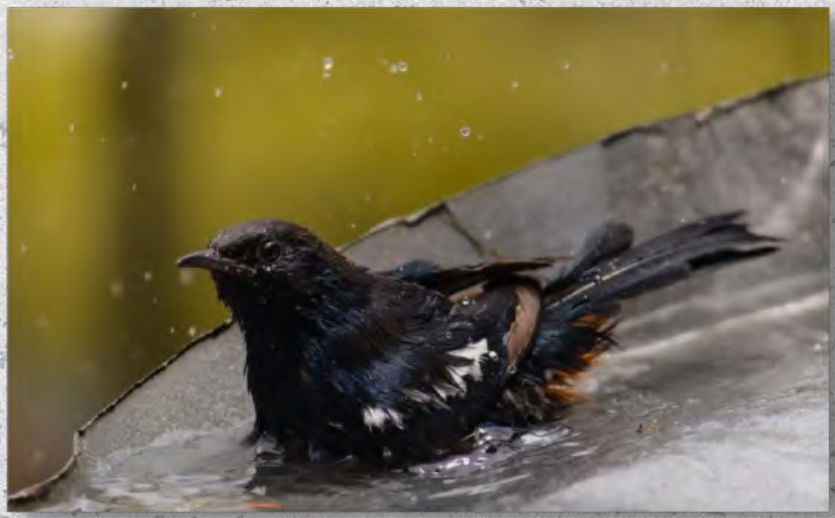
Sakshi Kulkarni TY

**"You don't take photgraph,
you make it."**

-Ansel Adams

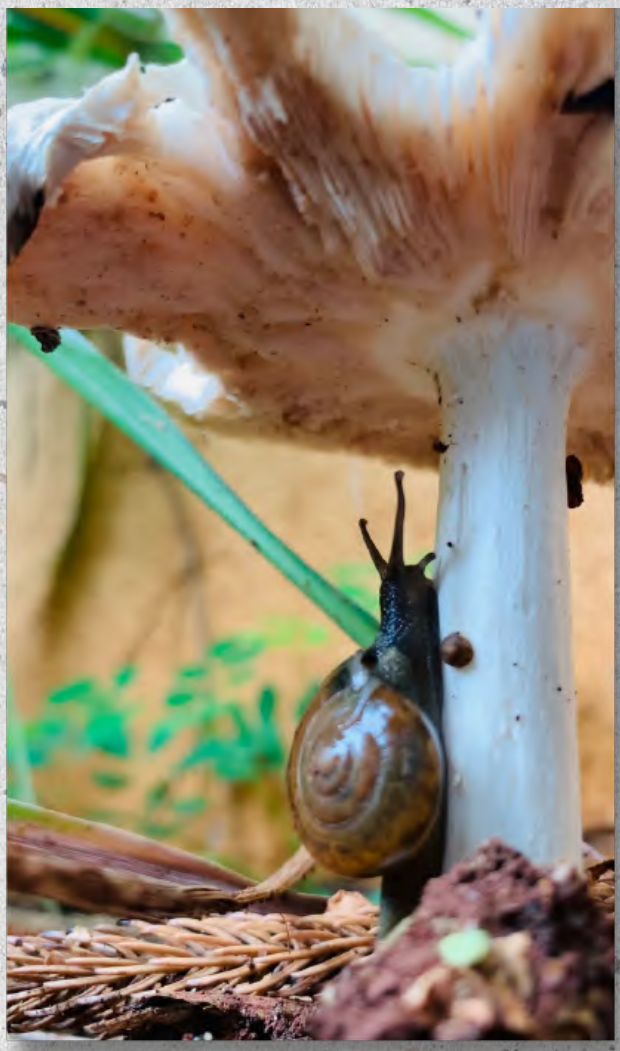
Bird Photography

- Komal Gosavi SY



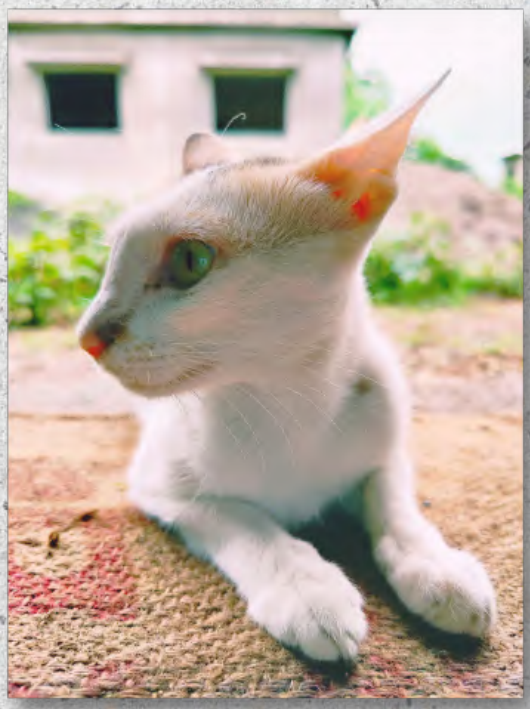
Animal photography

Pratham SY



Mayuresh Barhate TY

Pratham SY



Pratham SY

FOOD PHOTOGRAPHY

Shikha Pandey TY

Sakshi Kulkarni TY

Shikha Pandey TY

Abhay Thopate TY

Atharva Karkare TY

ONE MUST LIVE TO EAT

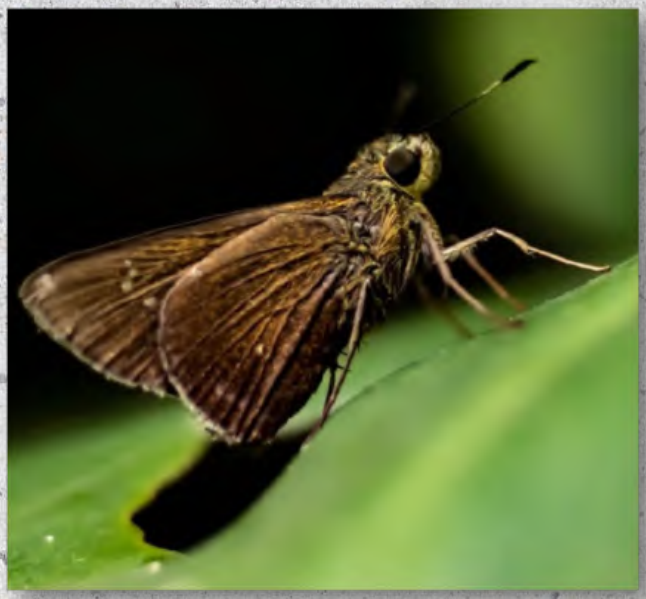
AND NOT EAT TO LIVE...

Macro photography

- Atharva Karkare TY

PHOTOGRAPHY BY FACULTY

BY : DR.BIPINRAJ N KUNCHIRAMAN



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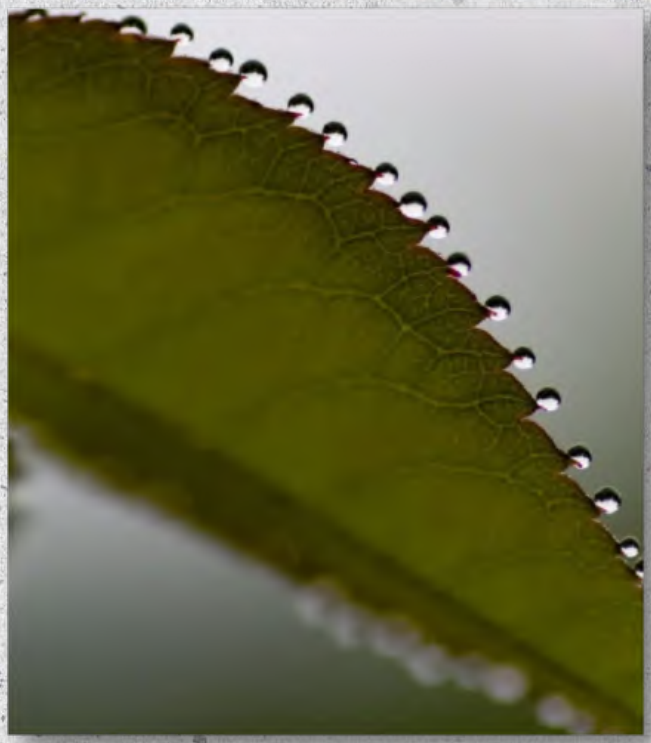
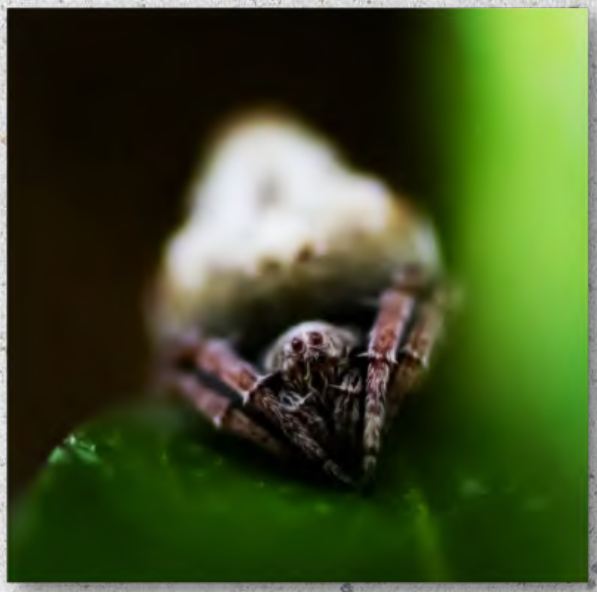
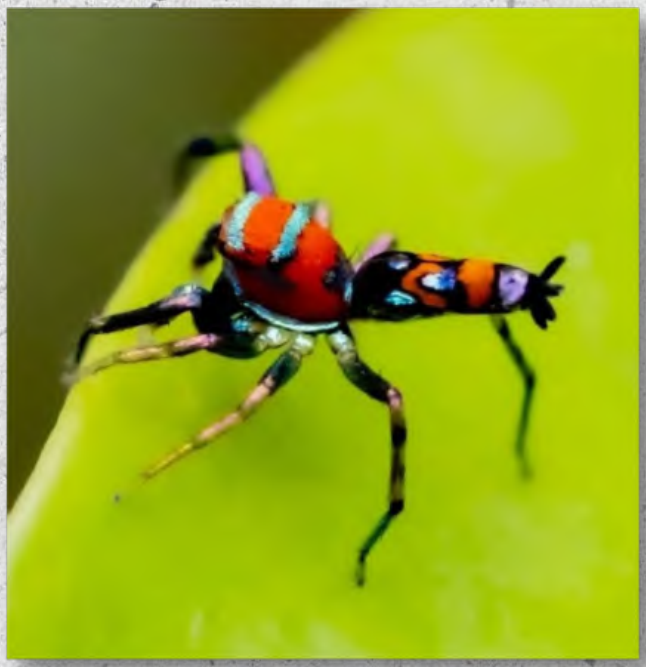






ARTICLES

PSYCHOLOGICAL GENRE

In each of us there is another whom we do not know.
--Carl Jung

Its a my daily ritual to say goodbye to Bill, a parrot caged in our balcony. Sometimes with my sheer intuition I can sense that, Bill too wants to come with me (or at least out of cage).But I simply cant do anything about it, as of now, I myself living on penny spared by my parents. " you are waste, disdainful girl " they always considers. So it is just goodbye.

It was Monday today and bus to my university was crowded with college students, office workers and other corporate perfumed bodies (and I know for sure, by evening these perfumes would transformed into sweaty smell of capitalism). I barely found a place to stand in bus. After a couple of minutes conductor came to me and asked for ticket. I said "university", without looking at him. It was 25 RS journey and I handed him 3 notes of RS 10.

"No change? Ah!"

I shrugged "NO".

"I will return you , when I will have change. You must keep change with you".

At the university stop bus stopped with a jerk, pushing all the perfumed bodies forward. I stepped down the bus , could not gather courage to ask for my change. And my journey from bus stop to college campus began.

Actually it was my follow-up day to my psychiatrist, but night before I got a call from his assistant informing me " Dr. Wadia will be out of station for four days , so we have rescheduled your visit on Saturday".

Last time I went to clinic with Vaibhav. After analyzing all my data, remarks on my behavior and aptitude paper (to check my thought pattern), Dr. Wadia concluded with a sigh " It's a SAD- Social Anxiety Disorder".

Neither me nor Vaibhav made any efforts to ask for , what it is , that SAD. After few moments of silence Doctor stated, " We need to start CBT- Cognitive Behavioral Therapy. Hopefully it will work." Today was date to start that CBT thing. And with those thoughts, I enter the college campus.

I could see the shoals of boys, girls, boys and girls – cheering up, cracking up jokes on each other and squinting at their dates furtively . It was all happening in morning's fresh air, and all these guys seemed like colourful butterflies . And I was there , arrested at a crucial stage of metamorphosis.

I lower my head and made my way upstairs to the classroom.

As I enter the classroom and head-off to the bench I daily sits (a corner-one) I felt strange sense of being watched upon like every eye present in the class following me, my walk. I felt disdainful, I sat down with these thoughts in my mind. That's how my world is , resides totally inside my mind , wrapped up intricately with the threads of thoughts- of everything around me-of peoples, of things, of places- making me difficult to find myself into it.

I attend lecture, ceaselessly staring at the board, without getting anything Professor was teaching. Physically I was there but mentally I got shrunk inside my cranium. We live for bare seconds and most of the time we only pretend.

After done with three lectures I went to Vaibhav's place,
at the backside of my college campus. He is living with his mother. His mother works in some insurance office and he is working in IT. Currently WORK-FROM-HOME.

When I heard or thinks the word social connections his image appears in front of my eyes. Probably he is the only human being ,I am connected to. It does not implies that we are connected soul to soul the way people describes in extravagant poetry lines. But he is someone, who know me well and accepts me the way I am . Along with my illness. He is kind of respite from my monstrous mind. An escape from the chase of thoughts. After all, social connections are intangible lines drawn by our mind, for some, these lines tie people together, and for others these lines simply melt away in the air.

I sat down and had a cup of coffee with him. " So, any progress?" He asked. In return , I gave him a look of not getting anything he said. He asked again the same thing , and there I was , just sitting like a statue, expressionless figure. We deliberately maintain a grave silence for around three minutes.It was started getting cloudy outside.

" You know, everytime I felt like people around me staring at me. I feels like an object of hate. I am a misfit, I cant be part of them. Like my life is at somewhere far away". I uttered, looking down , particularly at nowhere.

" Peoples have other interesting things to do than looking at you and making fun of you". He said to soothe me.

It was a warm afternoon and moment after moment sun was lurking behind the clouds. That cloudy weather was filled with blissful silence at the same time it was all felt like dry and bleak.

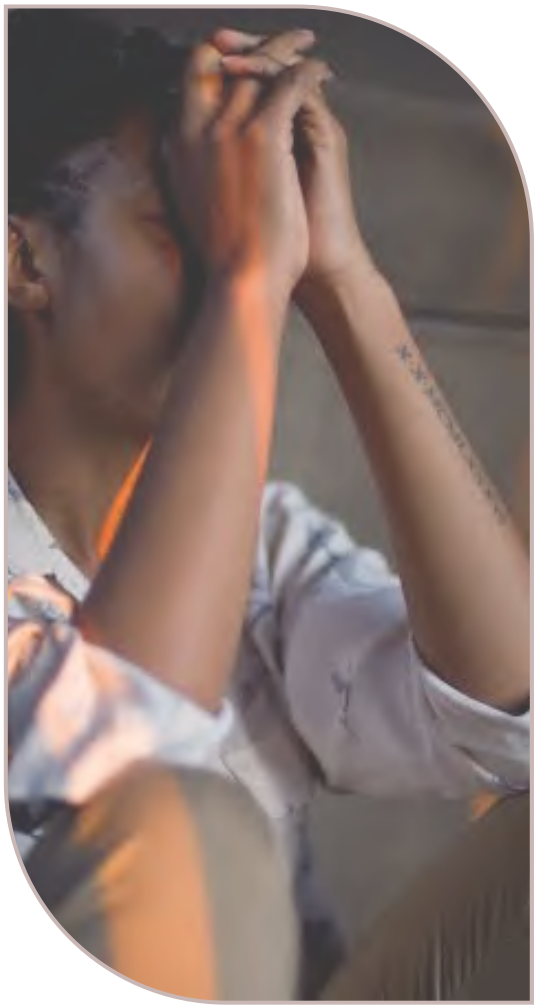
He came close to me and held my hand. We both looked at each other lowering barriers of air between us. We came so closer that, we could feel moistness of our breath.

The moment he pulled me at him , I felt shattered, broke once again. Solace of being with someone wiped out. And then the same fear started hovering around my mind. My body started shivering and I drew back from him. I gather my stuff- the scarf, phone, bag – and rush out of the house. I got into auto cab and went straight to home.

At night after having dinner, I went to balcony to the Bill .He was squinting out of the cage. Silent . Though he do not have any defined language, I could listen to murmur of his heart. It was saying " The sky, the sky, the sky". Like his life is happening somewhere at the heights. Far above than this cage.

Samriddhi sharma FY bsc

procrastination



How insignificant is Procrastination!

The evolution of mankind has given world many leaders. These leaders in return have taught us importance of being focused towards our goals. The accomplishment of our goals is impossible with the attitude "I'll do it tomorrow!". This is an attitude of a procrastinator. Procrastination, certainly is an act of delaying important works until the last moment intentionally or habitually. A person who waits for the right time, is the one who will wait forever. Therefore, people have to understand the difference between failing and giving up. Failures give us different methods to succeed but procrastination is ultimately giving up. Being scared by challenges leads us to put things off for tomorrow. In another word, "It's the job that never started takes longest to finish.".

Procrastination is the pothole in the in the road of full filled life. Success is not an overnight achievement. It takes dedication focus every day to reach there. Time and tide wait for no one. Perhaps it's our responsibility to work hard every day without leaving it on tomorrow. Recent studies show that people regret more things they haven't done than things they haven't done than things they have done. In addition, regret and guilty are the feeling which lasts with a person for a long time. When we procrastinate, we waste time we could invest in something useful.

Causes of Procrastination.

• Our thinking of living in Comfort zone.

• A man is a product of his thoughts. It is a common tendency for a person to surrender in front of their comfort zones. Nobody willingly wants to live the challenge consequently, this leads to a brain full of thoughts promoting delay. When we think that we have plentily of time to do something and keep it postponing, we are invited troubles for ourselves. Our assumptions that completing a task wouldn't take so long, gives us a false sense of security.

• Incapacity of Decision making.

We live in progressive society therefore everyday there is something new to explore. Meanwhile, with lots of options comes lots of doubts. Even though we have many options, yet we are less happy than people in our past. The reason is confusion which leads to decision making incapacity when aren't sure about what we want, we keep on delaying every possible thing. Consequently, we become a procrastinator.

•• Ignoring the value of time management.

Yesterday is gone and tomorrow is not certain. Thus, all we have is Today. Our life span is both finite and limited. However, the impact we leave behind is infinite and forever. If we want it to be a good one, we have to invest our time in good habits. For instance, time management is a good investment. Once we learn this, we will enjoy its profits for sure. Every second we waste and delay work indicates that we definitely are going to miss greater opportunities later.

Depression

One of the major reasons e procrastinate is Depression. When a person starts feeling hopeless and helpless it forces him/her to delay every important work. It is caused when someone is insecure about their abilities. This results in easily putting off the task and doing something else.

More Reasons why one Procrastinates

There is a long list of reasons for procrastination. In addition to the reasons people come up with excuses to justify their behavior. Other reasons for procrastination are: -

• Inability to decide what is more important.
• Lacking sense of self-motivation.
• Being in the habit of doing things until last minute.
• Lacking ignition to start a task.
• Waiting for the last minute.
• Being inconsiderate about something.
• Believing that one works better under pressure.
• Delaying one thing to start doing something other.
• Believing that there is a lot of time to complete certain thing.
• Lack of self-discipline.

Misconception about procrastination!

• Laziness is Procrastination!

People often mistake laziness for procrastination. A procrastinator puts off their work until last minute. A lazy person never thinks of doing it anyway. In addition to this, a procrastinator has this false sense of "I have enough time". They would waste their time even if it moves staring at the wall. However, we have to be careful that lazy is not the synonym for procrastination.

A lazy person is fine with not doing anything and wasting their time. Procrastination on the other hand, have desire to do it but cannot find ignition to start.

• Relaxation is Procrastination!

Often, people confuse procrastination as relaxation. Relaxation recharges a person with energy and helps one to have a stable mind. However, procrastination makes one's mind unsteady and drains out energy. The less energy we have, the chances of becoming stressed and depressed is even more. With this reduced amount of energy, the will to do something also decrease. Thus, resulting in putting off the responsibilities.

We work better under Pressure!

As it is said, "He who awaits much can expect little."

n one off the surveys, it was found that almost 94% of adults find procrastination to have negative effect on their wellbeing. Subsequently, 18% thought it as extremely negative.

Most people justify, their delay by the excuse that pressure increases their productivity. However, scientific researches show the results to be absolutely opposite. Putting things off until the very last moment creates fertile ground for stress, guilt and ineffectiveness.

Overcoming the habit of Delaying and Procrastination.

It's Friday afternoon and the clock is ticking. You're working furiously to complete a task before the five o'clock deadline, while silently cursing yourself for not starting it sooner. There were hours that you spent on other tasks that you could have safely left for next week. Procrastination is the trap that many of us fall into. The ways to stop or overcome procrastination: -

• Do the hard and important tasks first.
The harder the tasks are, the more energy and concentration is needed in order to complete it when we do other things first, we definitely get tired and thus it's difficult to make one's mind up to start the difficult task. As a result, it is easier to put things off on another day.
• Improve self-regulation and beliefs.
Self-regulation is the ability to plan stuffs strategically and follow appropriate methods. One should know the priorities of tasks assigned to them. It's not enough to only know about it one should have confidence.
Management of our surrounding:
If one needs to perform something productive, they have to keep their environment productive. When doing an important task, one should keep all the distractions away. A study shows that, even keeping your mobile phones in sight though not using it, you can perform 20% worse than if you had put your phone away. Consequently, resulting in procrastination.
Set yourself a short deadline:
It is important to set a specific date for when you want your goals accomplished. 'Someday' and 'eventually' are never going to come. Thus, it is important to be aware about the completion beforehand.
Set simple achievable goals:
In order to stop procrastinating because of too much work one should divide the tasks in simpler parts. Additionally, work on each part timely and work on them accordingly. This would keep the motivation alive.

<u>Conclusion:</u>

Benjamin Franklin said "You may delay, but time will not."
It is not like procrastination is an illness which needs treatment. It is just a state of mind, which gives more importance to our fears than our courage. In order to not feel bad after failing, we skip doing it. Similarly, we have created this false mindset by our own. The only person who can overcome this is by 'US' only. Once we start looking on the brighter sides, we would get up from bed everyday motivated to work. Time waits for no one. Once gone, forever gone. Perhaps, it is important for us to pay attention to our routines. Development of positivity would be an enemy to procrastination. If one has long term motivation, nothing is impossible. In conclusion, overcoming procrastination is a journey from "WHY TODAY?" to "WHY NOT TODAY!". A little change in attitude is a big change in life.

Artopia

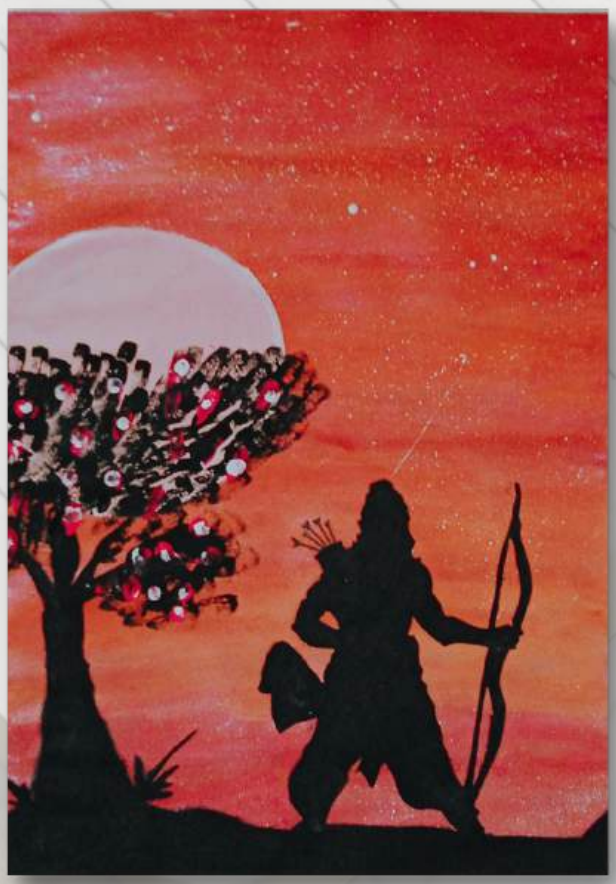
"ART
IS SOMETHING
THAT MAKES YOU BREATH
WITH A DIFFERENT KIND OF
HAPPINESS"

Anushka Edake SY

Manasi kale FY

Anushka Edake SY

Anushka Edake SY



Aditya Shrivastav SY

Urvashi Gajera MSc 2

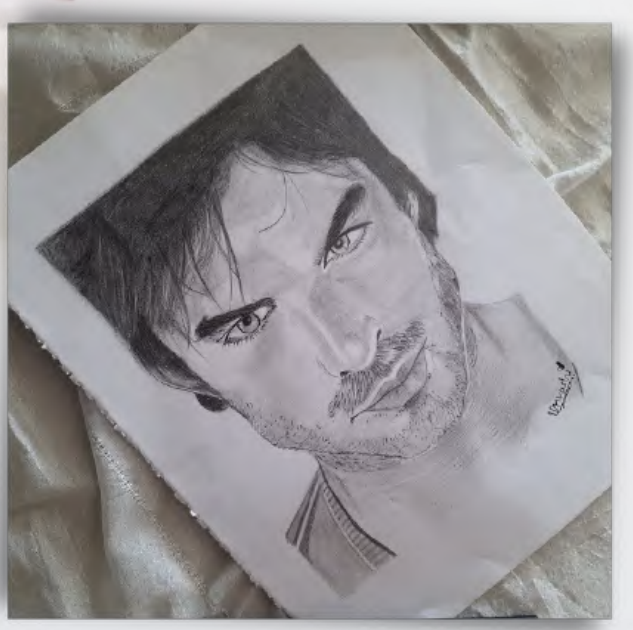
Sakshi Kulkarni TY

Urvashi Gajera MSc 2

Urvashi Gajera MSc 2

Manasi kale FY

Dhani Ahluwalia SY

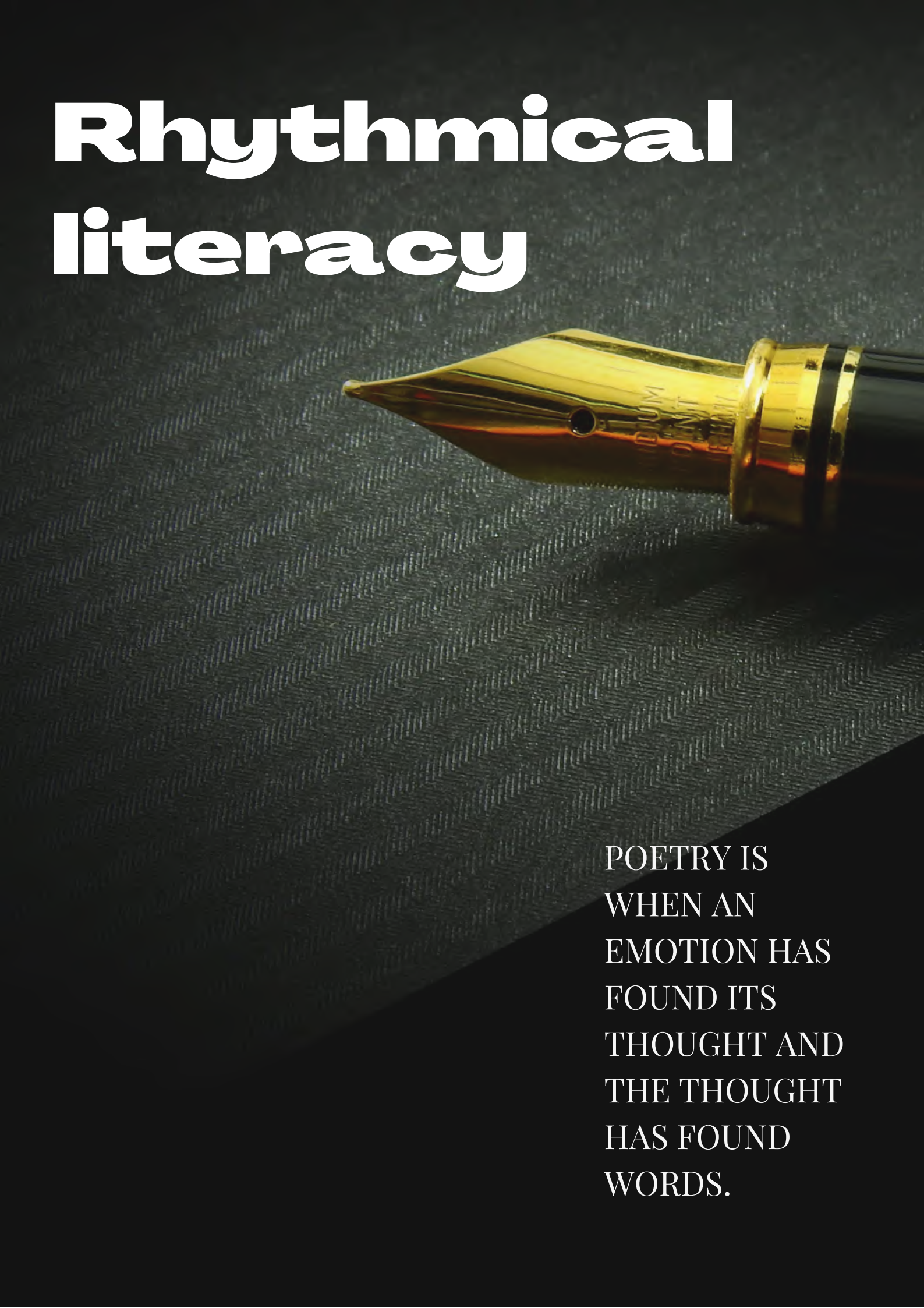


Urvashi Gajera MSc 2

"The art is not what you see,
but what you make others see."

-*Edgar Degas*

Rhythmical literacy



POETRY IS WHEN AN EMOTION HAS FOUND ITS THOUGHT AND THE THOUGHT HAS FOUND WORDS.

The Immortal Love

Ya, sometime she scolds,
No grip but still holds;
When you were a little soul,
She was blanket to your cold.

Ya, now you learned to set a goal,
That doesn't mean she is old;
She was never a temporary role,
That you'll dump her in a nursing hole.

Ya, memories she habitually stores,
As precious as diamonds and golds;
May be her memories you sold,
But her love will always be supreme as bold.

Ya, the strongest and only pillar she stands,
The best advisor and healer you have in hand;
The loving ingredients she's composed of,
But still some teens didn't understands.....

~Zeeshan Tayyabi Msc Second year

Felt warmth, of something strange yet so familiar,
Of a Sturdy body like that of a Kingdoms Hier.
Opening my eyes in embrace of a charming face,
I saw a pair of stealth brown eyes, reading a book, with utter grace.
Dark silky hair waved along the slightest breeze,
Tip of his lips curved in an impressive smile with magnificent ease.
Straight nose was followed by strong elegant jaws and a pointed chin,
His smooth dermis of handsome red sunburns tracing my skin.
I leaned in and went on to feel his face,
My heart beating so fast as if it were in some kinda race.
As I knealt forward, bluring my eyes came a bright light beam ,
I woke up to my senses only to find that it was just another dream.

-Fatima attar TY

SHORT ANECDOTE

For months I'd pretend to be happy, but deep down I felt bad 'cause moving on is not an easy thing to do. Staring outside the window looking at the rustling leaves and the lone bird on the tree I connected with it, feeling desolate, down, and simply lonely. But not once did I count the tree and its hundreds of leaves.

There are times when we go through a situation which leaves us feeling overwhelmed and anxious but the night doesn't last forever, the twilight begins slowly bringing in a new dawn and once the dawn has cracked open there is no one who can stop morning from emerging.

And my morning it emerged too, while seeing the rain water pitter pattering on my window sill I saw that lone bird again underneath the leaves which helped it from getting wet, and that's when I realised that there are people, people whom we don't give as much credit but they are there and always will be there, you might not even realise but there is always someone for you. The bird too had the leaves and the tree. The bird didn't mind being alone because it knew that it had someone behind it who would let it fly to great heights and when it had achieved its success the tree would provide it with shelter, protection and food.

Positivity doesn't come; rather you have to bring it in you, culture it inside you and once you are successful in your feat then even if you are alone you'll feel like you are standing with an army.

The desolation doesn't bother me anyway because I myself am more than enough for me and like the leaves and tree I have my family and friends rooting for me and if things go wrong they'll be there 'cause I'll always count on them.

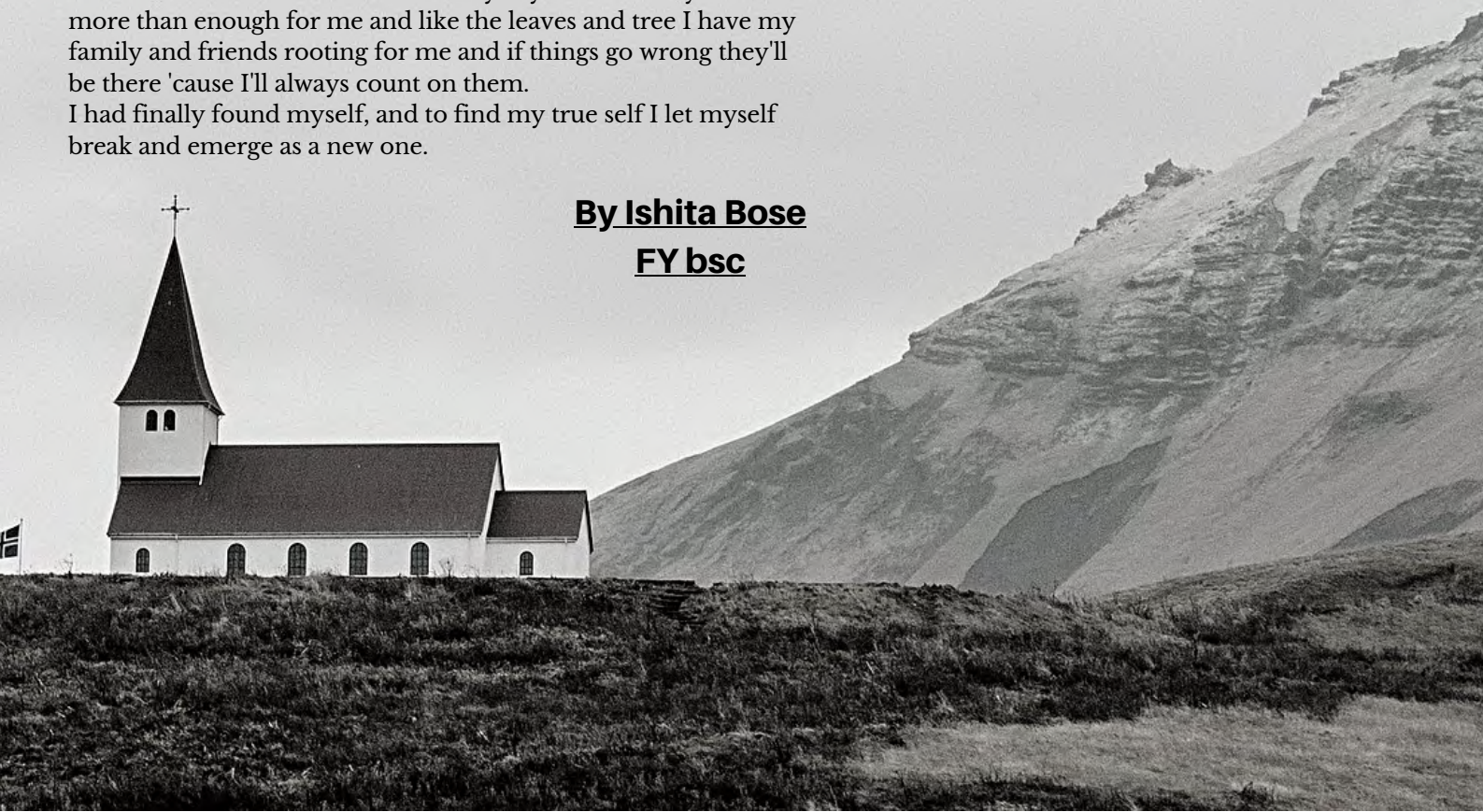
I had finally found myself, and to find my true self I let myself break and emerge as a new one.

By Ishita Bose
FY bsc

-वक्त-

इंसान परेशान बोला वक्त नहीं पास में,
न समझे यह वक्त न किसी का मोहताज है।
आज है विरुद्ध भले कल था वह साथ में,
अब वक्त ही नहीं बोला काफ़ी कामकाज है।
यह २४ घंटो का खाता सबके हाथ में,
सबको समान बाटा गया हर हालात में।
इंसान ही चयन करे कब किसके पास में,
बाटें अपना वक्त, बोले जो है जज़्बात में।
आज अंजान हूं मैं कल था खास जो,
टूटा अंदर से हुआ एहसास जो।
एह वक्त से बड़ा कोई शिक्षक नहीं,
शुक्रिया अदा करु मुझ पर करे अहसान जो।

By Sourav Swain
SY bsc



आखिर कमाया ही क्या है मैने?

हर रोज़ सुबह अलार्म के साथ उठना और एक धुंधली खिड़की से बाहर सूरज को देख, रोज़ एक ही सवाल करना खुद से की, आखिर कमाया ही क्या है मैने?

बातों का झरना लिए हुए लोगो से मिलना, उनके साथ बैठना, उन्हें सुनना और आखिर में मुस्कराते हुए उनकी हां में हां मिलाना और सोचना की, भईया भी तो यही करते हैं।

दोपहर की धूप से बचने के लिए छाओं में रुक जाना और एक पुराने दोस्त जिससे अब बात नहीं होती, उसके घर जाने वाली सड़क को देख उससे मुंह फेर लेना और चिढ़ कर नज़रअंदाज़ करना।

शाम में अंतर्मन के सवालों से भागने के लिए लोगों की भीड़ में पहुंच जाना और लोगों के शोर और चकाचौंध में खुद को खोने की कोशिश करना।

और, रात में सारी नाकाम कोशिशों के बाद घर लौट आना। "आज तो कसम से थक गया हूं, सीधे सो जाऊंगा।" कह कर बिस्तर पर जाना ।

अपने बगल में पड़ी खाली बोटल को देख उसकी
अपनी ज़िंदगी से तुलना करना। अपने आप पर एक निराशा की हंसी के साथ एक
करवट बदलते हुए फिर उसी सवाल में खो जाना।

की आखिर, सिरहाने लगी मुड़ी हुई एक तकिया, धुंधली खिड़की से बाहर आसमान में एक चांद,
और उन्हीं चार दीवारों से टकराती हुई मेरे खालीपन के

छत की दीवार पर वही चार लकीरें, खुद के कमरों के नाम पर अपनों के बीच चार दीवारें,

सन्नाटों के अलावा, आखिर कमाया ही क्या है मैने?

- अंकित द्विवेदी
(SY bsc)

You cant stop being happy today,
With the fear of being sad tomorrow,,
You cant stop loving now,
With the fear of getting betrayed later,,
You cant stop remembering people at this moment,
With the fear of missing them at every moment,,
You cant stop laughing in present,
With the fear of crying in future,,
You cant stop enjoying everything,
With the fear of losing something,,
You cant stop living everyday,
With the fear of dying someday,,

-Bushra Parkar TY


SPORTS


STUDENT
COUNCILS...

ACADEMIC COMMITTEE

Teacher Co-ordinator
Dr.Alpana Moghe

Head
Prerna Verma

Events organised by Academic committee in 2022

Resume/Cv & LOR~SOP Seminar

Academic Sub-Committees

Sakshi Kulkarni
College Magazine Head

Praneet Prabhanjan B
Bio Businesses & Innovation Head

Akanksha Yadav
Curricular Activities and Faculty Co-ordinators Head

Nandni Jha
Entrances and Internships/ Workshops subcommittee Head

CULTURAL COMMITTEE

Teacher Co-ordinator
Dr.Vidya Tale

Head
Suhana Aanjna

Co-Head
Zoya Sayed

Events organised by cultural committee in 2022

Traditional/Character Day

Dancing competition

Flash mob

Pen fest

Farewell

SOCIAL OUTREACH COMMITTEE

Teacher in charge-
Dr.Bipinraj Kunchiraman

Founder & Head-
Sarthak Gandhi

Co-head-
Surbhi Pawar

Events organised by Social outreach committee in 2022

Visit to Janseva orphanage

Plogging campaign

Visit to "Savali"

Oldage home visit

Visit to "Savali"

Pot donation drive

SOCIAL OUTREACH

For The People, By The People

An NGO founded for and by the people, Social Outreach works to support social concerns and assist those in need. Since the poor people were the ones most adversely effected by the lockdown, there was a huge loss of livelihood, economic standing, and wellbeing. Our founder, Mr. Sarthak Gandhi, decided to form this committee/NGO in response to the suffering of a populace in order to assist everyone in need.

As we had no outside assistance, we collaborated with the Push, Ruhuraj Mitra Mandal, to carry out our first operation, a food drive. We distributed 800 food packets over the course of 7 days through this food drive. After seeing those smiles there was a tinch of satisfaction in our hearts and that was the moment which encouraged all of us for next activity.

With the same enthusiasm we went for our next activity that was held on Tadiwala Road(people below poverty line), where we did the packaging and distribution of 500 ration kits for 3 days.

**Our biggest event was held in the village of Jor which is close to Wai on 15th August.
(This village was basically affected with landslides and heavy rainfalls and there was a urgent need of outside assistance. So here we collaborated with a society and provided them with 150 ration kits, blankets, and stationary kits which were distributed in hand to hand of each family.**

**During this, Social Outreach
volunteers received the "Covid Warriors" Award and our ceremony was covered by the media. Here, Sakal Newspaper congratulated us for our work during the pandemic.
This boosted our confidence and doubled our energy and with the same, we went for our next events.**

Our next event was conducted for the Underprivileged People on the occasion of Diwali in collaboration with "Pune Social". We hosted enjoyable events like Diya Painting and distributed books.

Aftee that we went to the Savali Foundation, a place that provides care and a home for challenged individuals. We conducted fun loving activities such as hand painting, pass the ball, took hindu prarthanas, performed a wonderful skit and ended up with dancing.

Next event was distribution of water pots for thirsty birds and dogs in hot summer. We provided water pots to people randomly and also placed them in the Bharati Vidyapeeth College's back gate for the birds during this hot season.

We also worked with the Pune Ploggers to dispose of the plastic debris as part of our small effort to help the environment become cleaner in response to the rising pollution.

**Next we went to Janaseva Foundation Orphanage in Katraj, where we entertained the children with a skit and a game of pictionary while also offering them with some snacks.
With an overflowing heart, we celebrated our committee's first anniversary as we wrapped up the day with the kids.**

Last but not least, our most recent activity took place at Jeevanyatri Old Age Home. We started with a powerpack comedy skit and took activities such as antaksharir following with some random fun conversations. It was a great experience spending time with them.

**A good rapo is been build up between our committee members and now our family is growing day by day by number and by experience too, from a group of 5 to a group of 50.
We are looking forward to continue to work with the same enthusiasm in the upcoming future year's.**

Love in times of crisis

Co-curricular committee

Teacher Co-ordinator
Dr.Rama Bhadekar

Head
Shikha Pandey

Co-Head
Sahiba Khan

Events organised by Co-curricular committee in 2022

Quiz competition

Discipline committee

Teacher Co-ordinator
Dr.Shamim Shaikh

Head
Harshida More

The heart of our college

Bachelors of Biotechnology

Batch 2019-22

Batch 2020-23

Batch 2021-24

The heart of our college

Masters of Biotechnology_

Batch 2020-22

Batch 2021-23

Diploma in bioinformatics'22

NSS CAMP

HARPER RUSSO

ALONE WE CAN DO SO LITTLE; TOGETHER WE CAN DO SO MUCH.
-HELEN KELLER

Not Me But You

The Motto of NSS "Not Me But You", reflects the essence of democratic living and upholds the need for self-less service.

With mesmerizing journey of NSS unit, this year also volunteers continued the same spirit with more emphasis on current social issues & focussing the need of society which lefts the memorable stamps in the history.

With great innovative ideas & successful activities the unit was again strengthened by more 40 making total of 90 volunteers. Now the NSS unit has strength of 90 volunteers from 2021-22.

Prof E.A Singh is the programme officers of the NSS unit. In this program the NSS Volunteers, under the guidance of the Principal & NSS Program Officer, carry out different activities like tree plantation,blood donation camp, various competitions, lectures & seminars for students.The NSS volunteers also organize different events and celebrate days such as Shivjayanti,yoga day etc.

Our college NSS unit with strength of 40 volunteers conducted many activities during the whole academic year.

The first activity was celebration of National Youth day and The birth anniversary of Swami Vivekanand.

The second activity was celebration of National Girl Child day on 24th of january . On this day a rally was held to spread awareness to empower the girl child & a speech was given by surbhi pawar one of our volunteers on topic of saving girl child .

The third activity of year 2022 by NSS volunteers was held on 19th Feb 2022 which is celebration of Shivjayanti. We felicitated the statue of Chhatrapati Shivaji Maharaj with all the voluteers.

On 6th of march NSS winter camp was organized at shindewadi village. The felicitation of camp was done by The sarpanch of village and principal Dr. Samim Shaikh , Former principal Dr. Sharma sir & NSS head of RGITBT Dr. E.A.Singh.Various innovative activities like tree plantation,Nala bunding,trench formation,Village survey of local crops were done on 6th and 7th march.

Cleanliness drive was carried in the village by the volunteers.

Guest lectures were held by the NSS volunteers of RGITBT in the Mahatma Jyotiba Phule School.

Rishikesh Palve,one of the volunteer of NSS had a special lecture on Awareness on periods for girls in the same school.

Then Dr.Jaywant Pawar sir had a lecture on intellectual development of students.

Dr. Patil sir professor of yoga had a yoga session for the volunteers .

On 12th of march the camp was done and the volunteers cleaned the environment and left the village.

Another remarkable year added as the quality & quantity of activities was enhanced.

Events organised by NSS in 2022

Tree plantation

International youth day

Winter camp

National Girl child day

Chhatrapati Shivaji Maharaj Jayanti

International Yoga Day

ONE DAY DIY TERRARIUM - MAKING WORKSHOP

One Day DIY Terrarium - making workshop was successfully organised at Rajiv Gandhi Institute of IT & Biotechnology on 26th March 2022. Total 25participants of ages 12 years to 60 years were present in the workshop. The workshop was held with a purpose to teach state-of-art terrarium making, promote utilization of useful indoor plants and motivate people to stay close to nature. The workshop began with a short introductory presentation explaining the basics like types of terrarium, materials used and tips for its maintenance followed by 2 hour practical session. Participants were given high tea and felicitated with certificate of participation. Dipesh Chikane(Ph.D), MeghnaVarshney(M.Sc.), Akriti Jaiswal (M.Sc.), KrutikaSutar (M.Sc.) and Sonali Joshi (B.Sc.) were the resource persons who were responsible for successful completion of the event under the guidance of Dr. Neelambika Meti (Co-ordinator, PTC& extension activity, RGITBT). Department of Plant Biotechnology is thankful to Dr. Shamim Shaikh, principal and Dr. E.A. Singh, Vice principal for their support and encouragement. The institute further looks forward to organise such workshops timely.

SUMMER CAMP GREEN ACTIVITIES BY HEXABIOME

Summer Camp Green activities organized by Hexabiome a student enterprise of RGITBT was successfully organised and executed a 10 Days Hands on training programme in collaboration with Bharati vidyapeeth English medium senior secondary school from 18th April – 27th April 2022. Around 20 students have enrolled from 11th class of senior secondary school. The summer camp was specially design for students who had train in the following subject areas such as microgreens plantation & hydroponic cultivation of greens, herbarium & seed ball making, Re – growth of kitchen raw veg waste, ex-vitro terrarium making, lab visit for introducing to numerous plants, Lecture on science behind micro propagation, in vitro terrarium making, hardening and herbal kit making. The summer camp was successfully accomplished under the guidance of Dr. Neelambika Meti (Co-ordinator, PTC& extension activity, RGITBT) Dept. of Plant Biotechnology and with the support and encouragement of Dr. ShamimShaikh, principal & Dr. E.A. Singh, Vice principalalong with Dr. Maya Gupta, principal Bharatividyapeeth English medium senior secondary school.Dipesh Chikane (Ph.D), Meghna Varshney(M.Sc.), Akriti Jaiswal (M.Sc.), Krutika Sutar (M.Sc.) and Sonali Joshi (B.Sc.) were the resource persons for this camp.The institute further looking forward tocollaborate with different schools and institutes for organizing such programmes.

BRAIN TWISTERS

CEREBRO SWITCH

ACE YOUR BIOCATALYST

DNA WORD SCRAMBLE

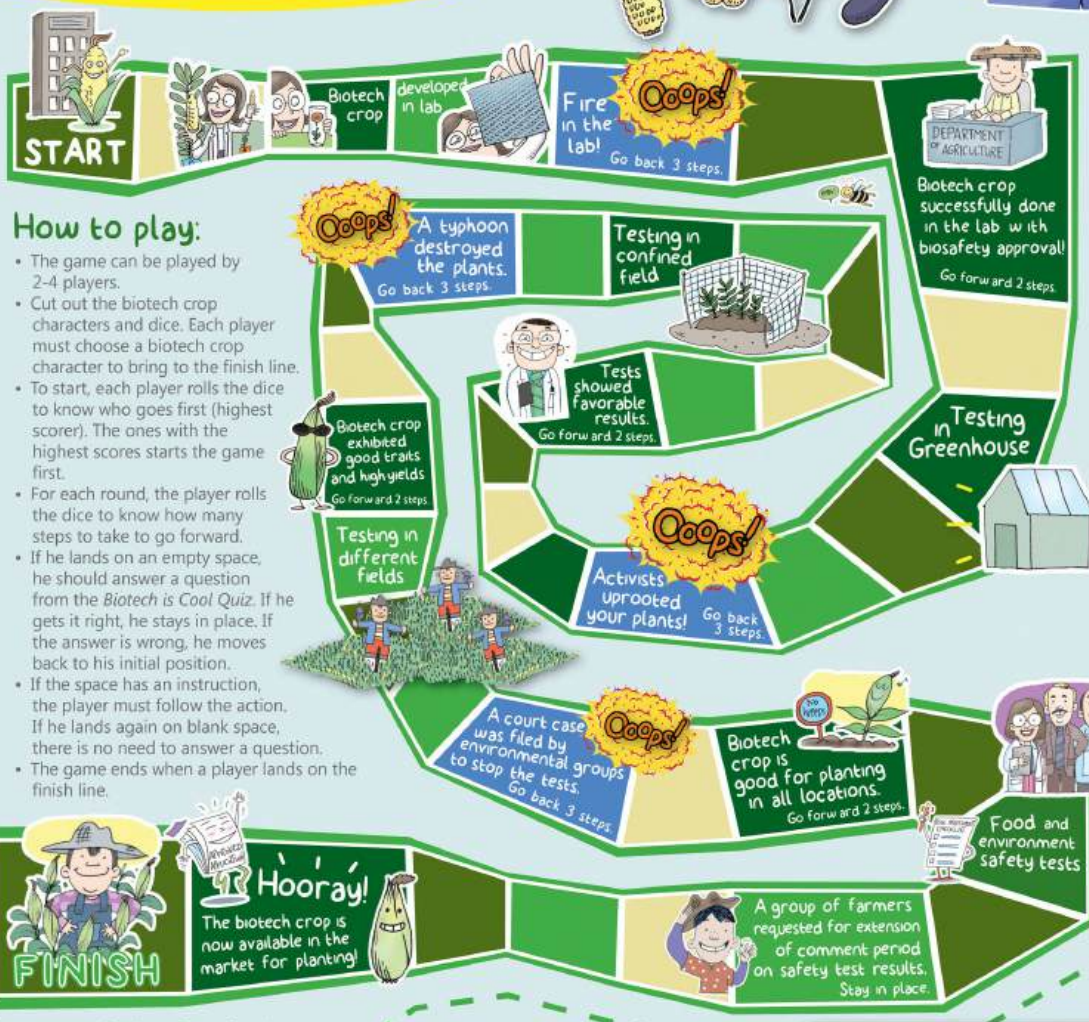
C N I P M E E D I T O E L C U N V D I G X T R N
Y G U S K W N I T A M O R H C Q S E N U C A W I
D Q C U M I C I W A H Z K A W T D O L A Y Q S T
K H Y D R O G E N B O N D U H Z I X Q N A U P R
G R O Q Y B N D J Q Y E W D X D T Y S I Q H Q O
Z P W Q H N A A F K U Q Z N T D A R X N E Q M G
O P R W C Y G P S J C F O T R F M I C E I D A E
P A B V P O J U O S O Q L X C V O B H I S I W N
H N V J H Y E U R Y E G Z W K L R O R Y C C Q O
O H L O M L D P J E T P Z Y L B H S O Q O A V U
S G H O C I W C X Y P Y O I P E C E M V X C X S
P T H U B H K A V K T Q G I J V R S O S Q I X B
H H N Y M E R E M O R T N E C H E U S B E E E A
A Y T V C R T K Z Z W T Q B J U T G O D L L O S
T M H P P J T U O W R M C O L R S A M O U C G E
E I T S O E M R N M C E T W J R I R E U R U G Y
G N H I J L Z E F O Y Y D A O N S A S B R N N Z
R E P O C D M O N T Q L A X L Y X U A L I F A T
O J B W W Y W N Z I K F Z A E Y L L O E A M D X
U D L G S F Y T P X S B E S Y S D Q I H P G E Y
P L N F B V Z Y F P Z O S S M Y E F D E E J N A
R K G E J B O Q Q X J R T X I K D W U L S I I W
Z H U M M N F M I N F A L Y B C Q Y L I A F N O
T Q E H S H R I M S Y U Q M C V V E I X B V E S

ADENINE
BASEPAIRRULE
CENTROMERE
CHROMATIN
CHROMOSOMES
CYTOSINE
DEOXYRIBOSE SUGAR
DNA
DOUBLE HELIX
GUANINE
HYDROGEN BOND
NITROGENOUSBASE
NUCLEIC ACID
NUCLEOTIDE
NUCLEUS
PHOSPHATE GROUP
SISTER CHROMATIDS
THYMINE

BIOTECH QUIZ

#BIOTECHisCOOL

Let's play!



How to play:

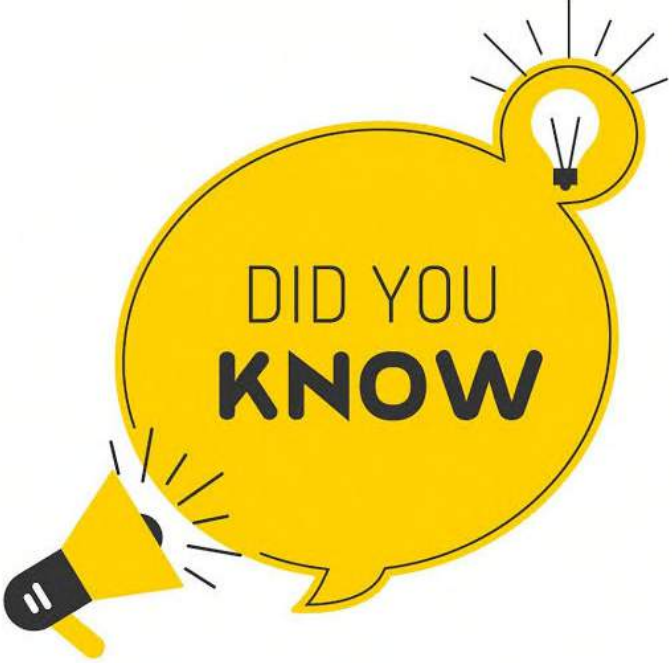
- The game can be played by 2-4 players.
- Cut out the biotech crop characters and dice. Each player must choose a biotech crop character to bring to the finish line.
- To start, each player rolls the dice to know who goes first (highest scorer). The ones with the highest scores starts the game first.
- For each round, the player rolls the dice to know how many steps to take to go forward.
- If he lands on an empty space, he should answer a question from the *Biotech is Cool Quiz*. If he gets it right, he stays in place. If the answer is wrong, he moves back to his initial position.
- If the space has an instruction, the player must follow the action. If he lands again on blank space, there is no need to answer a question.
- The game ends when a player lands on the finish line.

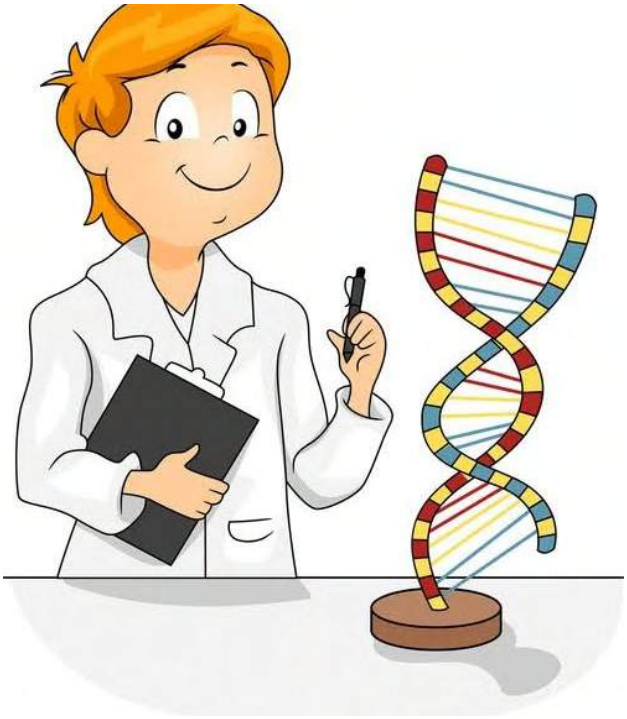
Illustrations by Stephanie Bravo-Semilla

1. What is a biotech crop?
   a. a crop that has been improved through biotechnology with the use of another living organism
   b. a crop made of yeast
   c. a crop from the wild
2. What is the soil bacterium that has been used as insecticide for crop pests?
   a. *Lactobacillus shirota*
   b. *Bacillus thuringiensis*
   c. *Agrobacterium tumefaciens*
3. What is transferred to crops to give them built-in protection against harmful insects?
   a. yeast b. soil c. Bt gene
4. Products of modern biotechnology are called _____.
   a. GMOS b. transgenics
   c. all of the above
5. What does GMO stand for?
   a. genetically modified order
   b. genetically modified organism
   c. gametically modified organism
6. Who improves crops by cross breeding?
   a. plant breeders b. plants
   c. pollinators
7. What type of gun is used to modify organisms?
   a. inject gun b. gene gun
   c. heat gun
8. What is the "wonder bacterium" used to transfer genetic material from one plant to another?
   a. *Lactobacillus shirota*
   b. *Bacillus thuringiensis*
   c. *Agrobacterium tumefaciens*
9. What does the "wonder bacterium" form as proof of transformation?
   a. tumors b. cell wall
   c. bridge
10. Plant scientists have developed biotech crops that can withstand intense heat from the sun.
    a. True b. False
    c. Neither true nor false
11. Plants can be modified to fight certain diseases.
    a. True b. False
    c. Neither true nor false
12. How many farmers planted biotech crops in 2015?
    a. 8 million b. 18 million
    c. 81 million
13. How many countries planted biotech crops in 2015?
    a. 38 countries b. 48 countries
    c. 28 countries
14. According to a farmer in China, Bt cotton is productive, profitable, and saves labor and _____.
    a. pesticide b. seeds c. money
15. Planting biotech crops helped farmers gain more profit and send their kids to school.
    a. True b. False
    c. Neither true nor false
16. Farmer Vijay's income was tripled after 10 years of planting _____ in India.
    a. Bt corn b. Bt cotton
    c. Bt eggplant
17. According to Rosalie, a farmer from the Philippines, Bt corn helped her _____.
    a. get more pests
    b. have peace of mind
    c. spray more insecticides
18. What enabled the use of conservation tillage in the U.S.?
    a. advancements b. insecticides
    c. biotechnology
19. Biotechnology helps lower prices of food.
    a. True b. False
    c. Neither true nor false
20. According to a farmer from Sudan, what is the biggest achievement in using biotech crops in their country?
    a. Not having to spray insecticide several times
    b. Not having to pull out weeds
    c. None of the above
21. Who invented the first gene gun?
    a. UPLB scientists
    b. Albert Einstein
    c. Cornell University scientists
22. Scientists have developed a crop that delays ripening.
    a. True b. False
    c. Neither true nor false
23. Where was Bacillus thuringiensis discovered in 1911?
    a. Italy b. Germany c. Japan
24. Which of the following products is not made using yeast?
    a. soda b. bread c. beer
25. Rosalie plants biotech ____ in the Philippines.
    a. cotton b. corn c. soybean

#BIOTECHisCOOL QUIZ

Humans are born without bacteria, and they first acquire them while moving through the birth canal. Babies born through a C-section have a different microbiota from those born through vaginal birth. Such babies are at high risk of conditions such as obesity and allergies.

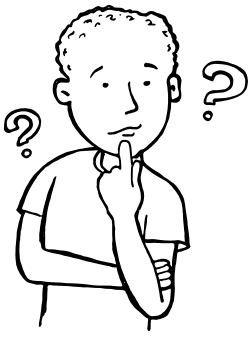


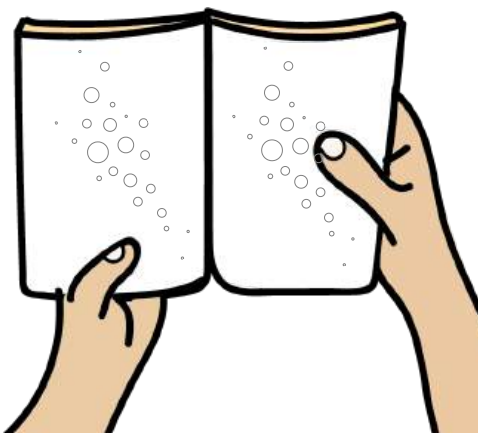


Each cell in your body contains about 2 meters of DNA. If the whole DNA in one person was laid end to end in a straight line, it would measure up to 200 billion kilometres that is more than a thousand times the distance from the earth to the sun.

Viruses are not alive; they are inanimate complicated organic matter. They lack any form of energy, carbon metabolism and cannot replicate or evolve unless they are in a living cell.

You aren't that special. About 99.9% of your DNA is exactly the same as everyone else's. The other 0.1% codes for all of the differences that make us unique.





PUBLISHED BY:
Bharati Vidyapeeth University's Rajiv Gandhi Institute Of IT and Biotechnology,Pune Maharashtra-411043