



DEPARTMENT
OF
MICROBIOLOGY
JAI HIND COLLEGE

MICRO BULLETIN

HAPPINESS and BACTERIA
have one thing in common; they
MULTIPLY by DIVIDING

Rutvik Oza



VOLUME 1
2019-2020 ISSUE

MICRO BULLETIN

Microbiology Department, Jai Hind College

2019- 2020

Vol. 1



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AN INTERVIEW WITH THE PRINCIPAL



BY: AISHWARYA PATEL & UDESHNA CHAKRAVARTY

Dr. Ashok Wadia is the principal of Jai Hind College since last 8 years and one of the senior teachers of the microbiology department. Apart from the huge task of handling the administrative work, sir also takes out time to teach the third year students. Despite his busy schedule, he enthusiastically interacted with us for this one to one conversation.



Where do you see the field of Microbiology in the future years?

Sir: The field of microbiology will always be there. It was there from the very beginning. The microorganisms are our ancestors, the world started from them. The field of microbiology is basically the very core of the subjects which have branched out from the subject of biology. One cannot go about attaining higher education and not learn the basics of the subject. The field is the basic foundation and so far we have not even touched the tip of the iceberg. There are still a lot of things to be discovered by mankind.

Why do you think that the subject and the field of microbiology lacks the awareness compared to other subjects?

Sir: Microbiology like other biological subjects are basically the offshoots of Biological Sciences. Microbiologists, themselves do not try to hype or put the subject as if it is different from other Biological Sciences. The field of Microbiology is like an ocean, and we have not even understood a lot of the things. We are not anywhere close to solving the problems which are there. There are some subjects which are getting hyped without the basic knowledge of the core subject. If there is no foundation, there cannot be any development in the students. Microbiology is a very demanding subject and the teachers are very ambitious that they want their students to know the subject conceptually and they do not dilute the subject. Science has no boundaries!

Why do you think that doctors always lead the research projects in the field of Medical Microbiology and not the specialized medical microbiologists?

Sir: See doctors just have basic Microbiology and a medical microbiology specialists will definitely have more knowledge. The doctors have more knowledge about the human systems. Research component where the doctors are concerned is not so much. In India, research component involving doctors is not as widely explored as it is abroad. It depends on the interest too. One of my students, who went abroad, had the opportunity to be a doctor or a scientist. And now she is a scientist at Johns Hopkins Institute.

What are the different fields of microbiology which have great scope in near future?

Sir: It depends on the interest. One must never ignore any opportunity and wait for a better one. As soon as you get an opportunity grab them. After the graduation, some people will be in fields where they would not even touch microbes, but the basics are very important. The application of all that you have studied so far is important, no matter which field you chose later.

What were the struggles and hardships that you had to go through when you graduated?

Sir: I don't see it as struggles. I have always been blessed in many ways. I grabbed all opportunities which came through. I did not even know that I was going to land up in the teaching profession. I believe I am still learning from my students. The intriguing questions asked by my students always stimulate my brain to think more and more.

We thank Dr. Wadia for sharing his thoughts with us!



FROM THE HOD'S DESK



BY: Ms. Petra Sequeira

It gives me immense pleasure to put before you the inaugural issue of the Newsletter from the Department of Microbiology. It is because of the enthusiastic efforts of the students and teachers especially Ms Roopal Kataria that this Newsletter actually saw the light of day.

The purpose of a degree in Microbiology is to come out with the latest theoretical knowledge and have good Practical skills besides other skills. Since Jai Hind College became an autonomous college the emphasis was to promote quality learning and creativity among students. Jai Hind College made a conscious effort to include research into its teaching practices.

This Newsletter is a reflection of all the activities of the department during the academic year. It includes a short write up of the research projects undertaken by the Second and Third year students as a part of their curriculum. To enhance teaching and learning several workshops and guest lectures were held. A highlight of the department's activity is the 'Outreach Programme' which is undertaken by the Second year students of which a brief account has been included. On a lighter note there are Crossword and riddles put together by students.

I congratulate the Newsletter Editorial team for their hard work and dedication in coming up with this First Issue of the Newsletter from our department. I'm sure this will be the forerunner of many more issues in the future.





FIELD VISITS



A VISIT TO INSTITUTE OF CHEMICAL TECHNOLOGY , MUMBAI.

AISHWARYA PATEL

13th August, Mumbai

The TY Microbiology students along with SY Biotechnology students of Jai Hind College visited the Institute of Chemical Technology (ICT) at Matunga, Mumbai. The students were welcomed to the institute by Prof. Padma Devrajan, the coordinator of TEQIP (Technical Education Quality Improvement Programme) of Government of India and Dr. Annamma Odaneth, the coordinator for DBT-ICT CEB and the Activity coordinator. A set of lectures was planned for the students throughout the day along with the laboratory visits. The lecturers were as follows- Prof. C.R.K. Reddy, Dr. Hitesh Pawar, Dr. Vandana Patravale and Dr. Caroline Mathen.

The students had the opportunity to visit various departmental laboratories of ICT such as DBT-ICT Centre for Energy Biosciences, Dept. of Oils, oleochemicals & surfactants, Dept. of Chemical Engineering and Dept. of Pharmaceutical sciences & technology. They had the privilege to observe various high-tech instruments which they had only read about in the books. The visit helped a lot in bridging the gap between bookish knowledge and real-life experience



TY Students at ICT

SY STUDENTS VISIT THE BMC WATER TREATMENT PLANT AT BHANDUP.

MUGDHA VENGURLEKAR

14th August, Mumbai

Second year students of the Microbiology department visited the Municipal corporation of Greater Mumbai Water Treatment Plant at Bhandup. The water plant receives water from various lakes such as Tansa, Lower Vaitarna , Upper Vaitarna, Middle Vaitarna, Powai lake, Tulsi lake, etc.

The person in charge, Mr. Vinod Ghude, explained the various parts of the plant. The visit helped us to understand how our drinking water is treated and supplied to such a huge city and it cleared a lot of doubts which were in our minds about water which is a part and parcel of our lives.



SY Students at Water Treatment Plant

TY MICROBIOLOGY STUDENTS VISIT BHABHA ATOMIC RESEARCH CENTRE, TROMBAY.

AISHWARYA PATEL

27th July, Mumbai

The Third Year students of Microbiology department visited the Bhabha Atomic Research Centre (BARC) in Trombay. The students first visited the Dhruva Reactor plant which is a vertical nuclear reactor. A brief introduction to all the mechanics, working and shut-down safety systems was provided to the students. The students then visited the Food and Agricultural Radiation Processing department, where they learnt on how the radiation technology is used for sterilization of certain food commodities and creating improved desirable crop variety. The students also learnt briefly about a patented variety of biodegradable plastic and edible vaccine. Radiation technology is also used at BARC to extend the shelf-life of Ready to Cook (RTC) foods, vegetables, meat, legumes, etc. The students visited the Robotics department, where they learnt about the development and working of various robotic instrumentations. The last visit was made to the Electronics department where they saw the Parallel Processing Supercomputer ANUPAM-AGGRA. The visit helped the students to see and experience a lot of interesting things which they had seen only in books and vaguely read about. The visit ended and the students left the place with their mind full of knowledge and memories

TY MICROBIOLOGY STUDENTS VISIT ACTREC, KHARGHAR.

AISHWARYA PATEL

28th November, Mumbai:

The TY students visited the Tata Memorial's Advanced Centre for Treatment, Research and Education in Cancer (ACTREC), located in Kharghar. The visit was held on the open day of the research institution.

The students visited several departments and labs situated in the premises such as the radiology department, HPLC Proteomics department, Nano-drop spectrophotometer instrumentations, Protein diagnostics using advanced PAGE techniques.

It was a great experience for the students and it was extremely inspiring and motivating the students to pursue research.



TY Students at ACTREC

AN INDUSTRIAL VISIT TO WINE INFORMATION CENTRE, NASHIK.

NIDHI KRIPALANI

Wine making is an important part of the TY syllabus. However, to teach the students this process beyond the text and classrooms, TY and SY students had a two day trip to the WIC (Wine Information Centre) in Nashik. Students visited Sahyadri Farms and Vinsura Winery. They learnt about the winery as well as about the cultivation of grapes. The undergraduates got a live view of the fermentors and the wine making procedures. They also got the opportunity to practice grape stomping. Students were explained the benefits of wine and the correct way of wine tasting. The experience that they got was extremely knowledgeable as well as a fun-filled one!



SY and TY Students at WIC

TY MICROBIOLOGY STUDENTS VISIT NMIMS, VILLE PARLE.

UDESHNA CHAKRAVARTY

2nd December, Mumbai:

A field trip was organized by the Department of Microbiology of Jai Hind College to Sri. C. B. Patel Research Centre of NMIMS, Ville Parle, Mumbai. The demonstration of different biological tools were done by the PG and PHD students of the institution after an introduction session. Some of the important methods like Western blotting, RT-PCR and tissue culture were described in detail. The field trip exposed the students with future career prospects and a clearer picture of the courses available in the post graduate level.

The program was crisp, to the point and was a great learning experience for the UG students.



WORKSHOPS



STUDENTS GET EFFICIENT IN CHROMATOGRAPHIC TECHNIQUES.

AISHWARYA PATEL

24th July, Mumbai

The Microbiology Department of Jai Hind College under the aegis of STAR-DBT had organized a one day workshop on Chromatographic techniques on 24th July for the Second Year and Third year students of Microbiology. The workshop was conducted by professionals from HiMedia Laboratories. Various chromatographic techniques such as Ion Exchange Chromatography, Affinity Chromatography and Gel Filtrations Chromatography were demonstrated to the students. Lysozyme from chicken egg-white was purified using Ion Exchange Chromatography and its enzymatic activity and protein concentration was estimated. The technique of protein purification of Horse Radish Peroxide (HRP) by Affinity Chromatography using Concanavalin Agarose was demonstrated and the enzymatic activity and protein concentration was estimated. Students gained hands-on experience in separating a mixture of dextran, vitamin B12 and p-nitrophenol by Gel Chromatography using Sephadex G-25 column. All the estimations were finally done under UV-VIS Spectrophotometer.

The students gained a lot of experience and the live workshop helped them in understanding the concepts better than the previously learnt bookish knowledge. The workshop was a huge success and all the students benefitted out of the opportunity provided.



Chromatography Workshop

A WORKSHOP ON MICROSOFT TOOLS FOR THE NON-TEACHING FACULTY.

UDESHNA CHAKRAVARTY

With the advancing in technology day by day, we do not want our most essential non-teaching staff to lag behind in any form. This is why, a workshop on basic training in in MS Excel and MS Word was organized for the non-teaching staff at Jai Hind College by the Microbiology department. It was a two-day workshop held in the college's IT Laboratory Center.

All the non-teaching staff members found it extremely beneficial and knowledgeable experience.



MS Tools Workshop

A WORKSHOP ON METAGENOMICS FOR THE PROFESSORS.

AISHWARYA PATEL

18th January, Mumbai

A workshop on 'Exploring Microbial Diversity using Metagenomics: An Introductory Workshop' was organized by the Department of Microbiology, Jai Hind College and sponsored by Lady Tata Memorial Trust and RUSA. It was a three-day hands-on workshop consisting of several lectures by renowned scientists like Dr. Nerges Mistry, Dr. Vainav Patel, Dr. Clara Aranha and Ms. Kalyani Karandikar. The workshop covered several Next Generation Sequencing, Applications of Portable sequencer, nanopore sequencer, microbiome characterization and so on.

The workshop had many participants as professors of several esteemed colleges across Mumbai. The workshop was a huge success and an added knowledge for several participant professors.



Metagenomics Workshop



STAR ACTIVITIES



STAR EXPERIMENTS OF STAR COLLEGE.

AISHWARYA PATEL

The Microbiology Department at Jai Hind College has been conducting several out of the syllabus experiments to benefit the students. Along with several beneficial workshops, the students got the chance to perform several experiments in their daily practical work. These experiments are well-devised by our highly experienced teachers. The students are highly enthused about all these experiments studying several phenomena which they have only read about in theory.

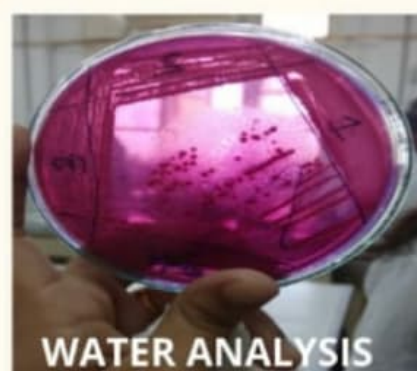
The FY Students had performed two STAR experiments i.e. Spirochetes Staining using Fontana's Method and Minimal Growth Requirements of various bacterial species. The Spirochete bacteria were stained using Fontana's Method and observed under oil emersion lens. Minimal Growth Requirements of bacteria like *Eschericia coli*, *Staphylococcus aureus*, *Pseudomonas aeruginosa* and *Streptococcus pyogenes* were studied on several media prepared. The media prepared were water agar, water agar with salts, water agar with salts and glucose and water agar with salts, glucose and peptones. Several results were observed depending on the bacterial species.

The TY students have performed several such interesting experiments such as studying Quality Assurance of Media and Biochemical Test Reagents, Conjugation, Transformation and Pure Culture study of *Vibrio cholerae*.

The quality assurance of media and reagents was tested using ATCC standard cultures. The conjugation phenomenon was studied in *E.coli*. The Tetracycline resistant *E. coli* cells were used as donor and Streptomycin resistant *E.coli* cells were used as recipient. The conjugated cells showed both Streptomycin and Tetracycline resistance on culturing in Luria-Bertani Broth with the antibiotics.

The transformation phenomenon was studied by making the *E.coli* cells artificially competent using Calcium Chloride treatment, cold shock and heat shock. The donor DNA was Ampicillin resistance plasmid. HiMedia officials assisted the students in this experiment. The pure culture studies of *V. cholerae* was also carried out. Its cultural and morphological characteristics were studied on MacConkey's Agar, XLD Agar and Thiosulphate Citrate Bile salts Sucrose Agar (TCBS) along with its Gram Staining and checking for its Motility using hanging drop method. Several biochemical tests including the String Test, Cholera Red Reaction and Nitrate test were also performed on the isolated *V.cholerae*.

The students responded to these experiments with positive feedback and it was definitely a great experience for them.



TY Students in Microbiology Lab

THE OUTREACH PROGRAMME UNDERTAKEN BY SY STUDENTS.

Jai Hind College has always out stretched its hands for the welfare of the Society and to imbibe the same feeling in our students, the department has taken up two activities under the STAR DBT Scheme namely; 'The Science Awareness Programme' (for school children) and 'The Outreach Programme' (Microbial Analysis of Drinking water). Both these activities are carried out by the S.Y.BSc students every year. In the Outreach Programme, routine analysis of drinking water is carried out by SYBSc students for societies around the college and the reports are provided on a half yearly basis. All these activities have strengthen the Department's mission, has greatly helped our students. It has inculcated a scientific temperament in them, developed their personalities and also helped them become good citizens.

MEET OUR BUDDING TEACHERS AND MENTORS.

RIYA SHRIVASTAV

26th August, Mumbai:

As a part of 'The Science Awareness Programme' (for school children) the SY students of Microbiology department of Jai Hind College, Churchgate visited Abhinav Vidyamandir School, Borivali (east) and Diamond Jubilee Girls High School for promoting the science field particularly microbiology.

To begin with, the students were shown the presentation and all the aspects of microbiology was explained to them. They were made aware about the field of microbiology and various organisms associated with our day to day lifestyle along with the pathogenic organisms and were taught about various processes related to microbiology.

In the school's laboratory, they were shown monochrome stained slides of yeast cells and Agar art plates using pigments producing organisms. They were explained about the nutrients required for the growth of microbes as well as the appearance of their colonies on different media. Different types of fungal cultures of *Aspergillus*, *Rhizopus*, *Penicillium* and *Mucor* growing on Sabouraud's agar were shown to them. At the end, a quiz was conducted and all the students eagerly participated in it.

As a follow up the school students visit the Microbiology Lab to perform basic hands on experiments in Microbiology. The students were demonstrated various basic microbiological techniques like- Gram staining, LPCB (Lactophenol Cotton Blue) staining for fungi, Anti Microbial activity by Paper Disc Diffusion method, Anti microbial action of UV, DNA extraction and Hay infusion wet mount.

The students were very attentive and keen. The session was very interactive, informative and fun. The experience was new and enjoyable for us. It will surely help us in our future endeavors.



The Science Awareness Programme



LECTURE BY DR. SHARMA



LECTURE BY DR. YARDI

GUEST LECTURES FROM ESTEEMED FACULTIES.

UDESINA CHAKRAVARTY

Everything cannot be taught but has to be experienced through the talks of the Experts. Knowing this our department has always arranged for guest lectures every year, this year too was no exception. The first lecture of the year was - 'Preparation of Diet Chart' by Dr Veena Yardi of Nirmala Niketan College of Home Science. The lecture was to help students build their own diet charts keeping in mind all the necessities of a balanced diet.

The department had organized a talk on 'Man, Mosquito, Malarial Parasite: Who is next?' Which was conducted by Dr. Shobhona Sharma formerly with the department of Biological Science, Tata Institute of Fundamental Research, Mumbai and currently working with ICT, Mumbai. A lot of question regarding the vaccination of such a widespread disease was asked. Videos of the malarial parasite inserting the blood stream and hepatocytes were shown, given the very different kind of entry inside the cell and crossing the natural barriers. The last question asked by the speaker was "Who is ahead, man, mosquito or parasite?" In her personal opinion, at present mosquitoes are ahead as the use pesticides are difficult (DDT was banned) and also mosquitoes have become pesticide resistant.

The third lecture organized was on 'How to write a Research paper' by Dr. Shruti Samant of Bhavan's College. This lecture helped the students to write their own research papers on the research projects conducted by them. All the lectures encouraged students to push themselves higher and think beyond the textbooks.



RESEARCH

THIRD YEAR



1. Prevalence of Gram - positive organisms in Dairy Products and study of their antibiogram.

Members: Anoushka Agarkhed, Anamika Chain, Bijurica Biswas, Maaeda Ansari

Supervisor: Dr. Shuchita Deepak

Report: In this study, the presence of Gram-positive bacteria was investigated in 10 dairy products. Samples were collected from various stores and local vendors of South Mumbai and were analyzed as milk and its products are a major food commodity consumed daily by many globally and is also considered as one of the primary cause of food-associated illnesses. From four dairy products, five isolates of *Staphylococcus* spp. were identified and all of them showed resistance to β -lactam antibiotics. The findings of this study suggested that *Listeria* infections were not a potential threat in South Mumbai but *Staphylococcus* species are not only a potential threat for foodborne infections but may also be responsible for spreading drug resistance through the food chain.

2. Presence of Staphylococci on raw vegetables and its biofilm forming potential.

Members: Himani Jain, Mahesheed Zariwala, Udeshna Chakravarty

Supervisor: Ms. Candida Silveira

Report: It was observed that the organisms residing on the surface of the fruits and vegetables have the potency to form a biofilm layer, which can be detrimental to the shelf life of the food product. The fruit and vegetables stored for months are exposed to a variety of temperature, humidity, pressure, etc. It was seen that these organisms were present on the superficial layer of the fruit and vegetables. These antibiotic-resistant strains were observed on the surface of the vegetables and were also seen forming a biofilm layer in the tube assay. The control of these organisms should be of utmost importance and biological solutions need to come up to cope with the aggravated danger of the presence of antibiotic-resistant organisms in our daily food intake.

3. Study of Antimicrobial Activity of *Trachyspermum ammi* and *Foeniculum vulgare* on Gut Pathogens.

Members: Aishwarya Patel, Hritika Merchant, Nidhi Kripalani, Samrin Khatri

Supervisor: Mrs. Roopal Pritam Kataria

Report: A lot of household remedies are used to treat stomach disorders using carom seeds and fennel seeds. In this project, the ethanol extract of Carom and Fennel seeds were prepared to find out the antimicrobial properties. The extract was tested on different gastrointestinal pathogens like *E.coli*, *Salmonella* spp., *V.cholerae*, and *Shigella* spp. Herbal tablets of these extracts were prepared and their antimicrobial activity was studied on the test organisms. Both the extract and the tablets had shown resistance on the test organism, thus shedding light on alternative modes of therapy. The extracts and tablets can serve as a herbal treatment for gut diseases caused by the mentioned bacterial pathogens.

4. Formulating a natural face pack consisting of papaya, orange peel powder, multani mitti and rose powder.

Members: Aamena Qureshi, Disha Patel, Harshita Sethi

Supervisor: Ms. petra Sequeira

Report: The face pack was formulated using natural ingredients such as papaya, orange peel powder, rose powder, and multani mitti. Various tests such as the organoleptic test, total ash value test, and antibiotic property of the compound test were performed. The face pack was found to be effective and can be considered better for the skin compared to the market-based face packs that contain chemicals.

5. Innovation and Production of a Natural Growth Enhancing Powder.

Members: Zainab Shahiwala, Aakansha Yadav, Mansi Shah, Somya Sethi

Supervisor: Mrs. Roopal Pritam Kataria

Report: The goal of developing such a dietary supplement was mainly targeted to combat the nutritional deficiencies suffered by today's youth which stems from an unhealthy or nutrient deficit diet. We, therefore, innovated and estimated the nutrient contents of our supplement which can be made using "at home, in the kitchen" ingredients and also provides for a good source of Calcium Protein and Iron.

6. Estimation of common milk adulterants.

Members: Sachin More, Sidharth Iyer

Supervisor: Dr. Shuchita Deepak

Report: This research project serves to identify and estimate commonly used chemical adulterants in commercially and locally available milk and their impact on human health.



SECOND YEAR



1. To dye clothes by pigments extracted from UV resistant microbes.

Members: Pankti Dhumal, Stutee Karulkar, Nishat Sulaimani, Anshika Jain

Supervisor: Dr. Shuchita Deepak

Report: Exposure to ultraviolet radiation occurs from both natural and artificial sources and these rays can cause skin cells to age and thus cause indirect damage to cells' DNA. In microorganisms, pigment formation is associated with morphological characteristics, cellular activities, pathogenesis, UV protection, and survival. Such pigment-producing organisms were cultured and isolated from a variety of sources exposed to sunlight and their pigments were extracted using acetone as a solvent system. Further, clothes were dyed using the extracted pigments.

2. The antimicrobial properties of papaya leaves and seeds extract.

Members: Rhitam Biswas, Dishant Doshi, Sanskar Sawant, Gaurav Gawde, Anmol Yadav

Supervisor: Ms. Petra Sequeira

Report: Our project deals with the antimicrobial properties of papaya leaves and seeds extract. It helps us to analyse and study various antimicrobial aspects and its application which could be obtained from Papaya leaves and seeds. The extract could be used in various applications like making creams for topical application and for medical purposes. The future aspects of this project still need to be studied thoroughly.

3. Optimization of growth parameters for microalgae.

Members: Namra Rajkotiya, Tanvi Nirgude, Anita Yadav, Riya Rawal, Harshita Rajawat

Supervisor: Mrs. Roopal Pritam Kataria

Report: The research aimed to optimize the cultivation condition for microalgae to increase their biomass production. Microalgae are a rich source of growth factors and bioactive compounds which have applications in various field. The development of improved parameters for microalgae cultivation is an important aspect. The significance of the optimization of microalgae is highlighted by the fact that microalgae have adapted to a diverse range of environments and are likely to have different growth requirements.

4. Checking and comparing antimicrobial properties and to perform phytochemical test of leaves and petals.

Members: Aditi Oza, Shalini Mishra, Zainab Potrick, Arfa Muckba, Vidhi Garg

Supervisor: Ms. Candida Silveira

Report: We aimed to use some natural products which is easily available and check its antimicrobial properties so that they can be further used in some medicines. Using the extract of leaves and petals of Parijata, we performed a diffusion method and checked its antimicrobial properties. We found that the petals showed a good amount of antimicrobial properties. We also compared the properties of the leaves and petals using different kind of solvents like the DMSO, ethanol, and saline. We observed good results from the plant-based extractions that were made. E.coli and S.aureus were used on nutrient agar plates and zones of inhibition were checked. Both components of the plant in different solvents were seen to be inhibiting them and on comparison, we deduced that petals give better results than leaves. The phytochemical tests revealed certain important bioactive components of the plant-like terpenoids, flavonoids, saponins, etc. Results from this research can be further studied to expand its practical usage into the field of medicine.

5. Antimicrobial activity of ethanolic extract from *Cuminum cyminum*, *Nigella sativa* and *Anethum graveolens* against a broad spectrum of bacterial species like *Escherichia coli*, *Staphylococcus aureus* and *Salmonella typhi*.

Members: Riya Shrivastav, Tehreem Shamsi, Avani Saxena, Sushmita Gawade, Mugdha Vengurlekar

Supervisor: Ms. Candida Silveira

Report: The main objective of our research project was to examine the antimicrobial properties of the spices which are easily available in our routine life. Also, the extracts of the spices were obtained using soxhlet apparatus and phytochemical tests were done to know the bioactive compounds present in the spices and their contribution to the antimicrobial activity. The application of this research could be useful in food and cosmetic related research study.



ACHIEVEMENTS



2018-2019

- **Mandar Vengurlekar** (T.Y.B.Sc.) - Felicitated on Achievers' Nite (Meritorious performance: Academics)
- **Rahul Gupta** (T.Y.B.Sc.) - Felicitated on Achievers' Nite (100% Attendance)
- **Prajakta** (T.Y.B.Sc.) - 1st Prize for Quiz Competition at S.I.E.S College
- **Aishwarya, Disha and Mansi** (S.Y.B.Sc.) - 1st Prize for X'plore, Jai Hind College
- **Aishwarya Patel** (S.Y.B.Sc.) - Honourable Sumitomo Scholarship
- **Pankti, Rhitam and Tehreem** (F.Y. B.Sc.) - 1st Prize for the 18th State Level Microbiolympiad, Shirpur

2019-2020

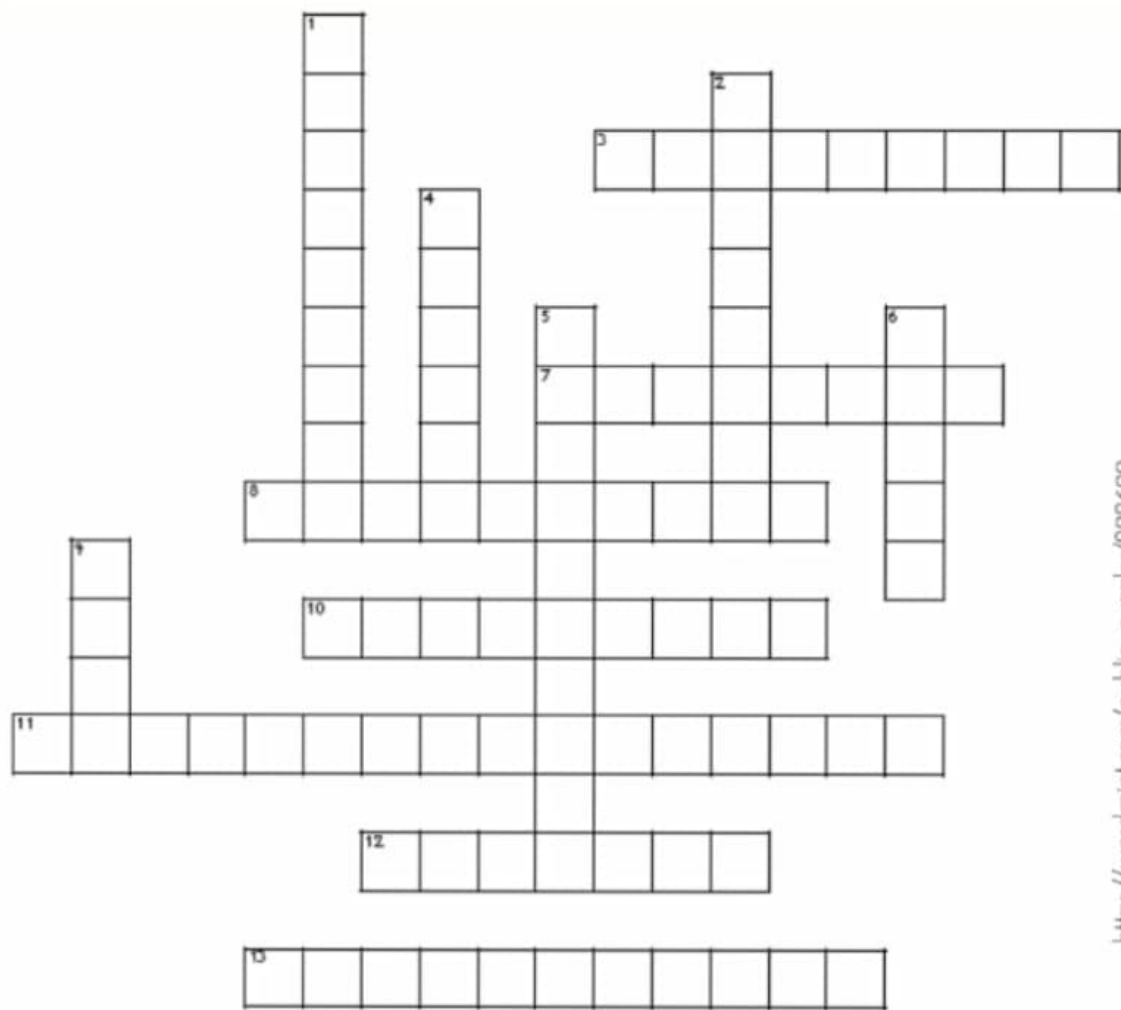
- **Udeshna, Himani and Mahesheed** (T.Y.B.Sc.) - Reached the Final Round of the 14th Inter-Collegiate Aavishkar Research Convention: 2019-20
- **Aishwarya Patel** (S.Y.B.Sc.) - Honourable Sumitomo Scholarship
- **Anoushka Agarkhe and Udeshna Chakravarty** (T.Y.B.Sc.) - 1st Prize for Product Presentation event in Microbia at SIWS college, 1st Prize for Debate Competition and Treasure Hunt at Mithibai College, 2nd Prize for Quiz Competition (The Brain Jam) in Microscope, at K.J Somaiya College, 2nd Prize for Crime Investigation event at Jai Hind College.
- **Himani Jain** (T.Y.B.Sc.) - 1st Prize for Product Presentation at SIWS College, 1st Prize for Treasure Hunt at Mithibai college, 2nd Prize for Debate Competition at Mithibai College.
- **Samrin Khatri** (T.Y.B.Sc.) - 1st Prize for Product Presentation event in Microbia at SIWS college, 1st Prize for Treasure Hunt at Mithibai College, 2nd Prize for Debate Competition at Mithibai College.
- **Zainab Shahiwala and Aamena Qureshi** (T.Y.B.Sc.) - 1st Prize for Debate (Health fair) at K.J. somaiya college, 1st Prize for Bio Imagica (Health fair) at K.J. somaiya college, 1st Prize for Star event (Microbia) at SIWS College, 2nd Prize for Fast and Furious (Quiz-Alchemia) at St. Xavier's College.
- **Aishwarya Patel, Mansi Shah and Disha Patel** (T.Y.B.Sc.) - 1st Prize for Video Making at K.C College.
- **Tabassum, Shivesh and Tamanna** (F.Y.B.Sc.) - 3rd Prize for Microbiolympiad (National Level)
- **Laraib, Jitendra and Ankita** (F.Y.B.Sc.) - 2nd Prize for X'plore, Jai hind College.
- **Tabassum and Shivesh** (F.Y.B.Sc.) - 3rd Prize for X'plore, Jai hind College.

FACULTY

- **Ms. Roonal Kataria** got her University Minor Project proposal entitled 'Extraction of essential oils from spices and study of its antimicrobial properties on spoilage organisms isolated from food' sanctioned.
- **Dr. Shuchita Deepak** received the 'Best Teacher' award at the Achievers' Nite at Jai Hind College.
- **Mr. Nandkishor Sonkar** was felicitated for successfully completing M.A (Hindi)
- **Mr. Joobkesh Khatik** received the 'Best Employee' award at the Achievers' Nite at Jai Hind College.



FUN ZONE!



https://wordmint.com/public_puzzles/292699

Across:

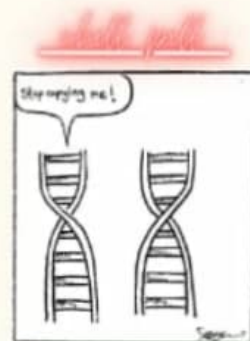
3. Helps bacteria to move.
7. Element or compound organisms use to make protein.
8. Most bacteria are _____.
10. Organisms that produce disease.
11. Conversion of nitrogen into a usable form is known as _____.
12. Bacteria reproduce asexually through _____.
13. The process that involves the transfer of genetic material by direct cell-to-cell contact is called _____.

Down:

1. A bacterium can become dormant if conditions become unfavorable by use of a(n) _____.
2. Single celled organisms without membrane-bound organelles.
4. NOT a common shape for a virus.
5. Vaccines trigger the production of _____.
6. Viruses attack and destroy these.
9. Helps bacteria adhere to the surface.

FACT CHECK:

Changes in your gut flora can cause depression. Beware of what you eat!

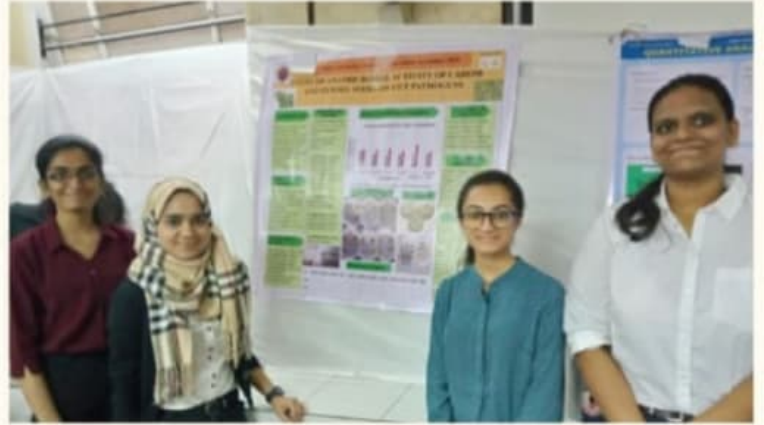
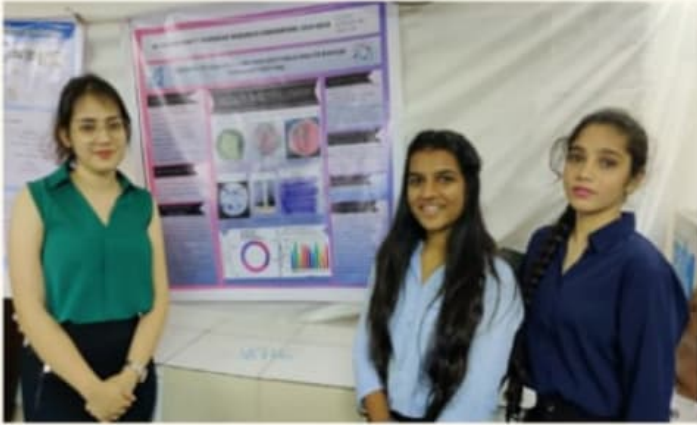


1. Endospore 2. Bacteria 3. Flagellum 4. Square 5. Antibodies 6. Cells 7. Nitrogen 8. Beneficial 9. Pill 10. Pathogens 11. Nitrogen Fixation 12. Fission 13. Conjugation

Answers:



PHOTO GALLERY



Aavishkar 2019-2020



Achievers of 2019-2020



Faculty Achievers



Aavishkar participants felicitated



SY students with students of Abinav Vidya Mandir



Farewell Party for Ms. Sequeira



Class of 2019



Class of 2020

Credits:

WE WOULD LIKE TO DEDICATE OUR FIRST EDITION OF MICRO BULLETIN TO OUR BELOVED RETIRED PROFESSORS DR. MADHURA GHAYAL AND MS. PETRA SEQUEIRA WHO HAVE BEEN A SOLID SUPPORT TO OUR DEPARTMENT.

THIS WOULD NOT HAVE BEEN POSSIBLE WITHOUT THE SUPPORT OF OUR PRINCIPAL AND PROFESSOR DR. ASHOK WADIA AND ALSO MRS. ROONAL KATARIA ALONG WITH DR. SHUCHITA DEEPAK AND MS. CANDIDA SILVEIRA. WE THANK THEM FOR THEIR SUPPORT.

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