Department of Science & Technology
(Government of Gujarat)

GBRC NEWS

Volume I, Issue IV
November 2021-March 2022

VIRTUAL INAUGURATION OF NOVASEQ 6000 AND UNVEILING THE NEW BIOTECHNOLOGY POLICY FACILITY

The Hon'ble Chief Minister of Gujarat, Shree Bhupendra Patel, announced the new Biotechnology Policy 2022-27 at the Science City, Ahmedabad, on February 18, 2022. The policy was announced with the expectation of over Rs. 20,000 crore in capital investment and aid to more than 500 enterprises in the state, which will most likely result in the creation of over 1.20 lakh new job opportunities. The Hon'ble Chief Minister also launched Illumina NovaSeq 6000 through a virtual platform. On January 14th, 2022, GBRC deployed a new instrument, the Illumina NovaSeq 6000. The adoption of the Illumina NovaSeq 6000 at the GBRC facility will provide a technological boost to Gujarat's genome sequencing capabilities. This equipment will be capable of sequencing 1,000 samples per month.

GUJARAT VIGYAN SAMMELAN - 2022

On the footprints of the Central Government theme of celebrating Indian Sciences and Azadi Ka Amrit Mahotsav, GBRC, in association with Vigyan Gurjari (Gujarat state unit of VIBHA, New Delhi), organised a national level event entitled "Gujarat Vigyan Sammelan (GVS-2022)" from January 30th to February 5th, 2022 with the prime focus of disseminating the real enjoyment of science in an inclusive manner. GVS-2022 brought all scientific mindsets together on a single platform. GBRC operates under the auspices of GVS-2022. The GBRC hosted a thematic conference on "Biological Sciences and Technology" on January 31, 2022, under the guidance of Prof. Chaitanya Joshi, Director, GBRC, who is also the State President, Vigyan Gurjari, and Event Chairperson for GVS-2022, with the goal of discussing cutting-edge findings from various domains of biotechnology and their correlation with Indian sciences.





CONTENTS

MEDIA COVERAGE

HEAVILY MUTATED B.1.1.529 VARIANT

ALERT GUJARAT ORDERS COVID TEST FOR FLIERS FROM 9 COUNTRIES, EU

REPRESENTATIONAL PICTURE

The countries mentioned in the order are the UK, Zimbabwe, South Africa, Brazil, Botswana, Bangladesh, China, Mauritius, New Zealand and whole of Europe

If tested positive, the test samples of passengers at international arrivals will be sent for compulsory genome sequencing; while no trace of the Omicron variant has yet been found in state, GBRC scientists are prepared for sequencing that is likely to be commissioned soon

Ahmedabad Mirror Bureau
feedback@ahmedabadmirror.com
TWEETS @ahmedabadmirror

As the world limps back to normalcy after 18-20 months of Covid pandemic and lockdowns, a new variant of the coronavirus — called B.1.1.529 — identified in South Africa, threatens to trigger fresh outbreaks and sabotage health systems once again. Amid global alarm over the variant, the UK has banned flights from six southern African countries while Europe too prepared similar moves. World Health Organization called it a 'variant of concern', renaming it Omicron.

Closer home, in Gujarat, the state government on Friday ordered compulsory Covid-19 testing

CONTINUED ON PAGE 4

AhmedabadMirror Sat, 27 November 2021 https://epaper.ahmedabadmirror.com/c/64606294

Guj's genome sequencing gets 5x boost

State-of-the-art Illumina NovaSeq 6000 machine installed at GBRC will be able to sequence 1,000 samples a week

Brendan.Dabhi
@ahmedabadmirror.in
TWEETS @BrendanMIRROR

Gujarat's genome sequencing capacity has received a technological upgrade. From less than 200 samples per week, it will now be able to sequence about 1,000 samples per week. The 5x jump in capacity is thanks to the new state-of-the-art sequencing machine installed at the Gujarat Biotechnology Research Centre (GBRC) earlier this week.

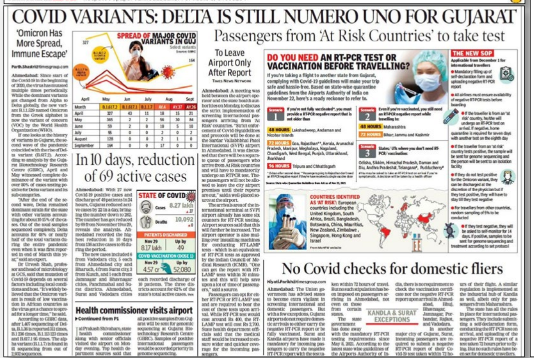
GBRC is currently working with a sequencing target of 1,000 samples a month.

With training of researchers expected to be underway by next week, officials told Mirror that the full capacity of the machine – the Illumina NovaSeq 6000 – will begin to be used by the end of January.

This is the second such machine in Gujarat and the first to be owned by a government laboratory. It costs about Rs 12 crore and generates more than 6TB of data from a single run.

The Illumina NovaSeq 6000 – will begin to be used by the end of January

These sites are at Gujarat University (GU), Veer Narmad South Gujarat University (VNSGU) and SN Genelab, a private entity in Surat. All have Illumina machines and require kits from the company in the US to begin sequencing at the local level.



COVID VARIANTS: DELTA IS STILL NUMERO UNO FOR GUJARAT

'Omicron Has More Spread, Immune Escape'

SPREAD OF MAJOR COVID VARIANTS IN GUJ

Passengers from 'At Risk Countries' to take test

To Leave Airport Only After Report

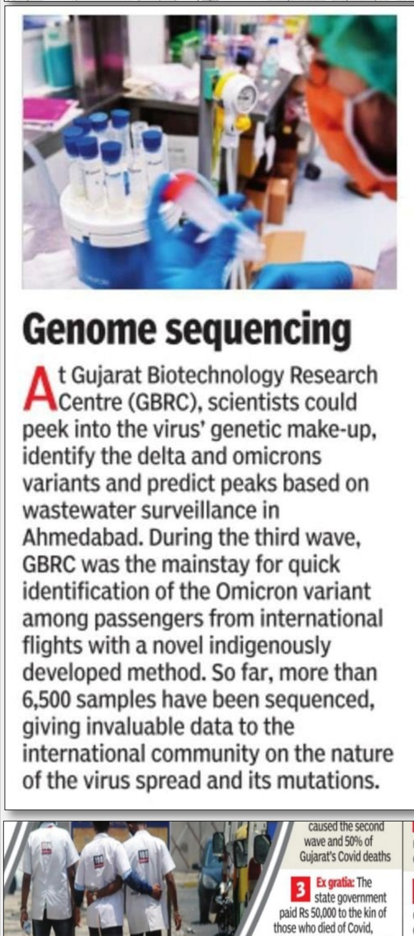
DO YOU NEED AN RT-PCR TEST OR VACCINATION BEFORE TRAVELLING?

THE NEW SOP

In 10 days, reduction of 69 active cases

Health commissioner visits airport

No Covid checks for domestic fliers



Genome sequencing

At Gujarat Biotechnology Research Centre (GBRC), scientists could peek into the virus' genetic make-up, identify the delta and omicrons variants and predict peaks based on wastewater surveillance in Ahmedabad. During the third wave, GBRC was the mainstay for quick identification of the Omicron variant among passengers from international flights with a novel indigenously developed method. So far, more than 6,500 samples have been sequenced, giving invaluable data to the international community on the nature of the virus spread and its mutations.

GUJARAT BIOTECH RESEARCH CENTRE

Method developed to detect Omicron variant within 8 hours; kit soon

EXPRESS NEWS SERVICE
AHMEDABAD, DECEMBER 14

GUJARAT BIOTECHNOLOGY Research Centre (GBRC) in Gandhinagar has developed a polymerase chain reaction (PCR)-based method to detect the Omicron variant of SARS-Cov-2 within eight hours. Whole genome sequencing can otherwise take up to 72 hours.

The GBRC, which is also part of the Indian SARS-CoV-2 Genomics Consortium (INSACOG), utilised its genomic resource of SARS-Cov-2 data to develop the method. The institute now plans to translate this method into a kit and send the same for validation to Indian Council of Medical Research (ICMR) for approval for commercial use.

Additional Chief Secretary of health Manoj Aggarwal on Tuesday made the announcement of the development by GBRC during a press conference at Gandhinagar.

Explaining the method developed, Professor Madhvi Joshi, joint director at GBRC, said, "We have designed a simple PCR-based method where if a sample is run, it will firstly tell whether it is Covid-19 positive and will also tell if it is the Omicron variant of the virus or not. There are a lot of mutations in the Omicron variant so we picked a region in the spike protein-specific mutation which will be amplified only

CONTINUED ON PAGE 4

City | AhmedabadMirror | Wednesday, December 8, 2021 | 5

Previously infected, vaccinated likely to fend off Omicron better

GBRC completes test on first Omicron patient found in Gujarat; report shows variant has more infectivity, but lacks immune evasion mutation and has better binding efficiency with host receptor cells of patients

Brendan.Dabhi
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Molecular analysis of the nasopharyngeal sample of the 72-year-old man, who became the first Omicron (B.1.1.529) variant victim in Gujarat, shows that the latest variant has more infectivity than both the wild-type Coronavirus in Wuhan as well as the Delta variant. However, it does not have the critical immune escape mutation present in the Delta variant. The testing was done by scientists at the Gujarat Biotechnology Research Centre (GBRC). Following

REPRESENTATIONAL PHOTO

with the host receptor. In this respect, the Omicron variant is more efficient than the wild type Wuhan virus as well as the Delta variant," said a source in the Gujarat Department of Science and Technology (DST).

The mutations that make Omicron more infective are K417N, G446S, Q493K, G496S, Q498R, N501Y, Y505H, S477N, T478K, E484A and N440K.

Lacks immune escape mutations of Delta

The second significant finding out of Gujarat, albeit just from the first detected case, is that the Omicron variant lacks the immune evasion

have mutations in Amino Acid numbers 157 and 158.

"This implies that those who have had previous exposure to the virus through infection, or have completed their immunisation through vaccines, their antibodies are more likely to work well against the Omicron variant," said the official.

Two lineages of Omicron

While some scientists have suggested splitting the Omicron variant into two lineages - BA.1 and BA.2 - the latter having 24 different mutations from the former, scientists in Gujarat are yet to classify which of the two lineages have been seen in the state.

caused the second wave and 50% of Gujarat's Covid deaths

3 Ex gratia: The state government paid Rs 50,000 to the kin of those who died of Covid, which increased the death toll numbers around ninefold

F Food packets and fines: Good Samaritans fed lakhs during lockdowns, and citizens also paid crores in fines for Covid guideline violations

G Genome sequencing: Gujarat recently got a machine at GBRC to carry out virus genome sequencing quicker and in larger numbers

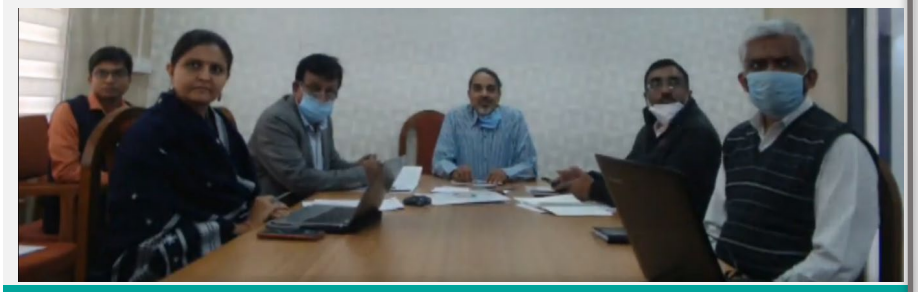
H Healthcare sector: There was a boom in the healthcare and IT sectors when others struggled

Text: Parth Shastri
Design: Ayaz Daruwala

ઓમિક્રોનની તપાસ હવે ગુજરાતમાં જ માત્ર 8થી 10 કલાકમાં થશે

RESEARCH ADVISORY COMMITTEE (RAC) MEETING

The RAC meeting of the GBRC was held on January 24th and 25th, 2022, and February 7th, 2022. All finished and continuing projects were discussed and critically reviewed at the RAC conference. The RAC's primary function is to advise the GBRC on various research goals and to keep track of the Centre's scientific and technical progress. The goal also included providing scientific input on planning, new programs, schemes, projects, activities related to research and development, human resource development, facility development, and other issues, as well as facilitating GBRC's networking and collaboration within the scientific community both internationally and within the country. The meeting was quite productive, and panel members offered a number of key comments.



Team Capacity Building

GBRC members Dr. Satyamitra Shekh (Scientist-B) and Sadik Dantroliya (SRF) attended the training on "Handling of Campylobacter cultures" for "One Health Poultry Hub" project during 10th - 15th January, 2022 at Gobind Ballabh Pant University (G.B. Pant).

INVITED TALKS BY GBRC TEAM

Prof. C.G. Joshi (Director)

- Invited for a lecture on "Role of GBRC in COVID-19 Pandemic" at MSU, Vadodara on the occasion of National Science Day on 28th Feb, 2022 celebrated on the theme of Vigyan Sarvatra Pujyate.

Dr. Madhvi Joshi
Joint Director (Scientist-D)

- Dr. Madhvi Joshi was invited to give a talk at Clinician Conference at State Health Team on 27th January 2022.
- Dr. Madhvi Joshi, Joint Director, GBRC, has been invited to give a talk on "One Health Approach on COVID-19 Management" on February 28th, 2022, at Charotar University of Science and Technology (CHARUSAT), Changa, in honour of Science Day.

Dr. Amrutlal Patel
Joint Director (Scientist-D)

- Invited for an expert lecture at SRISTI, Ahmedabad for BIRACs SITARE-BIIS 10 program on the topic "Applications of Biotechnology to Veterinary Medicine "on 24th Feb, 2022.

ARRIVAL & DEPARTURE

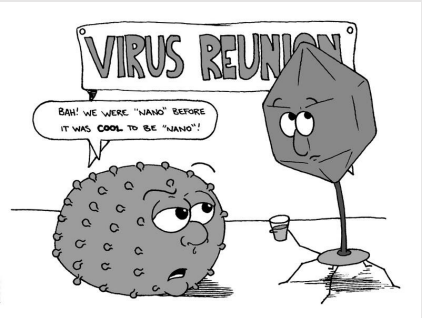
GBRC would like to extend a hearty welcome of new members to the family

- Rakeshpal Bhagat
- Chavan Monica
- Monika Jain
- Shreya Kalan
- Sangeeta Kumari
- Bhagirathbhai Dave
- Rahul Parmar
- Krisha Thakkar
- Neha Trivedi
- Krishna Bharwad
- Vemula Harshini
- Maheshkumar Barad
- Aman Tripathi
- Animesh Singh
- Dixsha Jamkhandi
- Pooja Patel

GBRC wishes best for the future of the bright minds who had left

- Shruti Darshan Sharma
- Shilpa Doltani
- Sachin Vyas
- Parth Thakor
- Neha P Patel
- Minal Chaudhari
- Hiral manojkumar Sanghvi
- Joshi Halak Vibhakarbhai
- Dipalee kumar ThombreNihar Purohit
- Narendra Chaudhary
- Devki Prabhu
- Sandhya Nanjani
- Avani Nakum
- Bambhaniya Sandipkumar Mohanlal
- Garima Rajan Abbi
- Shivendu Ranjan
- Shiv kumar Yadav
- Piyuli Asit Gupta
- Foram Ujjval kumar Vaidya
- Twinkle Soni

ON LIGHTER NOTE



MEMORANDUM OF UNDERSTANDING (MoU)

MoU between GBRC and Ganpat University

The Memorandum of Understanding (MOU) was signed between the Government of Gujarat's "Biotechnology Research Centre" (GBRC), "Vigyan Gurjari," and Ganpat University. The core aim is to assess the interest and potential of research students in science as well as their suitability for the job.

MoU between GBRC and SN GeneLab Private Limited, Surat

SN GeneLab Private Limited was established under the Companies Act, 2013 with the prime objective of providing cost-effective, error-free clinical laboratory services of international standards. The MoU was signed on December 3rd, 2021.

MoU between GBRC and Bhakta Kavi Narsinh Mehta University

Bhakta Kavi Narsinh Mehta University is a state university located in Junagadh, Gujarat, India. It was established in 2015 by the Bhakta Kavi Narsinh Mehta University Act, 2015 by the Government of Gujarat. The MoU was signed on December 27th, 2021.

MoU between GBRC and Hemchandracharya North Gujarat University

Hemchandracharya North Gujarat University is a public university in Patan, Gujarat, India. The MoU was signed on December 27th, 2021.

MoU between GBRC and GeneXplore Diagnostic and Research Centre

On February 19th, 2022, this MoU was signed between GBRC and GeneXplore Diagnostic and Research Centre with the objective of collaborative research in biotechnology, biomedical technology, and related interdisciplinary areas.

MoU between GBRC and Setgene Lab - Centre for Human Genetics

On February 19th, 2022, this MoU was signed between GBRC and Setgene Lab-Centre for Human Genetics with the objective of collaborative research in biotechnology, biomedical technology, and related interdisciplinary areas.

Visit by Dignitaries

GBRC believes in opening its door to other institutes and dignitaries. Every month there are dignitaries that come and visit GBRC, which helps us build collaborations.

Visit on 12/11/2021

Dr. Ashutosh Sharma
Institute Chair Professor, IIT-Kanpur,
Uttar Pradesh, India
Former Secretary, DST
Government of India, New Delhi

Visit on 26/11/2021

Dr. Bharatbhai Patel
Dentist,
Prant Sanghchalak,
Gujarat Prant
Rashtriya Svaymsevak Sangh

Shree R. K. Jhala
Retired Registrar Ayurveda University, Gujarat
Nagar Sah Sampark Pramukh,
Gandhinagar
Rashtriy Svaymsevak Sangh

Visit on 03/12/2021

Dr. Alpesh Patel
Director
GeneXplore Diagnostic and Research Centre Pvt. Ltd.

Visit on 03/01/2022

Shri Meenesh Shah
Chairman,
National Dairy Development Board,
Anand, Gujarat

Visit on 10/01/2022

Mr. Sudhir Vaid
CEO/Managing Director,
Concord Biotech Ltd,
Ahmedabad

Visit on 13/01/2022

Dr. Nitinkumar Pethani
Vice Chancellor,
Saurashtra University,
Rajkot

Visit on 31/01/2022

Dr. Nayana H. Patel
Medical Director,
Akansha Hospital and Research Institute, Anand

Visit on 05/02/2022

Dr. Kundan Mishra
Assistant Professor,
Natubhai V. Patel College of Pure & Applied Sciences,
Vallabh Vidhyanagar, Anand, Gujarat

Visit on 08/02/2022

Shri Jai Prakash Shivahare, IAS
Commissioner of Health,
Government of Gujarat

PRABODH

GBRC is conducting "PRABODH" (Promoting Research Awareness in Biotechnology for Development of Human Resource) to accelerate the research work and to develop research-oriented thought processes in staff.

INVITED GUEST

Expert (19/09/2021)

Dr. Ravishankara N.

Senior General Manager,

R & D, Biotechnology Department

Sun Pharma, Vadodara, Gujarat

Topic: "Analytical Compability of Biosimilars-Challenges and Expectations"

Dr. Ravishankara has over twenty years of experience working in analytical activities related to the development of biosimilar and new drugs, as well as their metabolism and pharmacokinetics studies. He gave a very informative talk on the current challenges and cutting-edge analytical technologies for testing biosimilars.

Expert (16/10/2021)

Prof. Rama Shanker Dubey

Vice Chancellor

Central University of Gujarat,

Gandhinagar, Gujarat

Topic : "Stress, Metal Toxicity and Tolerance in Plants"

Prof. Ramashanker Dubey gave lecture about metal stress on plants and also what are the biotechnology interventions that can be applied to overcome effects of stresses. He also explained about plant tissue culture and its importance in creating the desired breed and quality products.

Expert (20/11/2021)

Prof. Manjunath Ghate

Director & Dean,

Faculty of Pharmacy,

Nirma University

Ahmedabad, Gujarat

Topic : "Small Molecules for Drug Discovery"

Prof. Ghate briefly introduced the urgency of new drug discovery and its fine parameters. He highlighted his research journey that how India is developing the MDR (Medical Device Reporting) & XDR (X-Ray Crystallography) resistance to tuberculosis and by identifying new small molecules, He thoroughly explained his research expertise on the design and synthesis of new chemical entities for diseases.

Expert (18/12/2021)

Dr. Sunil K. Raghav

Scientist-F,

Institute of Life Sciences-DBT,

Bhubaneshwar

India

Topic : "NCoR1 regulates Mycobacterium tuberculosis xenophagy by fine-tuning cellular ATP and TFEB homeostasis".

Dr. Sunil K. Raghav briefly explained the role of NCoR1 in tuberculosis and the genes affecting its upregulation and downregulation. He also introduced his team working on different projects, including Ph.D. and post-doctoral students. He explained the immune response generated by dendritic cells in the body. He discussed the importance of relevant branches such as epigenomics, bioinformatics, transcriptomic, Chip-Seq, etc. with their studies. He explained their studies, including protein level studies on xenografting and their effects on the granuloma formation of tuberculosis. He also explained how some pathogens survive in immune cells and overcome the immune response, such as Mycobacterium.

Expert (19/02/2022)

Dr. Snehal Bagatharia

Joint Director,

Gujarat State Biotechnology Mission,

Gandhinagar, Gujarat

Topic : ""Business Opportunities in Biotechnology".

Dr. Snehal Bagatharia, Joint Director, Gujarat State Biotechnology Mission (GSBTM) discussed about "Business Opportunities in Biotechnology" and give insight on development of bio-entrepreneurship by translating ideas into products. New ideas, with the government support, under various schemes can boost the Indian Bio-economy. Biotechnological innovations in the field of Agriculture, Medical, Biofuels, Environment Management, Food and Medicines have immense scope in promoting bio-based economy. Dr. Bagatharia have also presented introduction of various bio-based business startups running and continuously growing, which is showing the growing interest in bio-entrepreneurship and reflecting evolution of bio-based economy.

PRABODH

PRESENTATION FROM GBRC MEMBERS

Dr. Satyamitra Shekh
Scientist-B

Article: "A Dual-Mechanism Antibiotic Kills Gram-Negative Bacteria and Avoids Drug Resistance"
Journal: Science
Impact factor: 47.728

Mr. Bhargav Waghela
Research Associate

Article: "Oncogenic TRIM37 links chemoresistance and metastatic fate in triple-negative breast cancer"
Journal: Cancer research
Impact factor: 12.7

Minal Chaudhary
Junior Research Fellow

Article: "Reprogramming to recover youthful epigenetic information and restore vision"
Journal: Nature
Impact factor: 49.962

Akhilesh Modi
Junior Research Fellow

Article: "Engineering a genome reduced bacterium to eliminate Staphylococcus aureus biofilms in vivo"
Journal: Molecular systems biology
Impact factor: 11.43

Mr. Jaykumar Rangani
Research Associate

Article: "Shoot-to-root mobile polypeptides involved in systemic regulation of liquid acquisition."
Journal: Nature Plants
Impact factor: 15.793

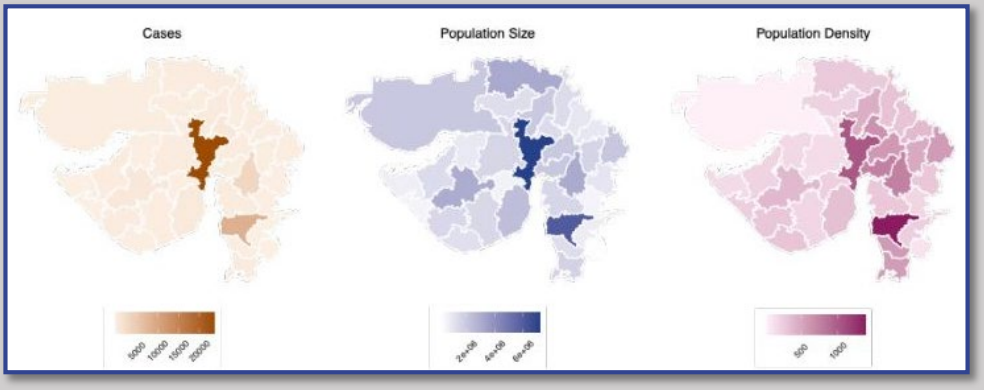
Dr. Bhakti Patel
Technical Assistant

Article: A nanotherapeutic strategy to overcome chemotherapeutic resistance of cancer stem-like cells
Journal: Nature Nanotechnology
Impact factor: 39.21

RECENT PUBLICATIONS

GENOMIC EPIDEMIOLOGY OF EARLY SARS-COV-2 TRANSMISSION DYNAMICS, GUJARAT, INDIA.

Authors: Jayna Raghwani, Louis du Plessis, John T McCrone, Sarah C. Hill, Kris V. Parag, Julien Thézé, Dinesh Kumar, Apurva Puvar, Ramesh Pandit, Oliver G. Pybus, Guillaume Fournie, Madhvi Joshi, Chaitanya Joshi
Journal: Emerging Infectious Diseases
Impact factor: 6.88

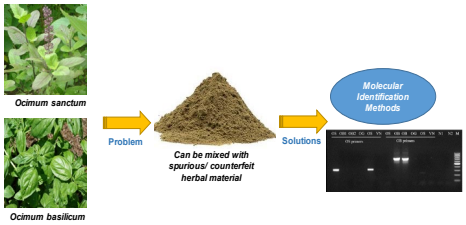


Global genomic surveillance of the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) has revealed important details about viral distribution and evolution at local, national, and international levels. This will aid in illness management as well as estimate the risk of virus spread. The above study looked at the dynamics of SARS-CoV-2 transmission in Gujarat, India, during the state's first pandemic. Gujarat was chosen because of its high population density and as one of the pandemic's hardest-hit regions. The epidemic dynamics and spatial dissemination of SARS-CoV-2 in Gujarat were discovered using whole genome sequence data from 434 people collected across 20 districts. This study found that global and regional connectedness, as well as population density, were important causes of the Gujarat outbreak. More than 100 virus lineages have been identified, most of which appear to be associated with international travel. Virus dissemination in Gujarat has moved from densely populated regions to geographically proximate locations with low population density. It has been determined that urban areas contribute disproportionately to virus spread.

RECENT PUBLICATIONS

A DUPLEX PCR ASSAY FOR AUTHENTICATION OF *OCIMUM BASILICUM* L. AND *OCIMUM TENUIFLORUM* L. IN TULSI CHURNA. FOOD CONTROL

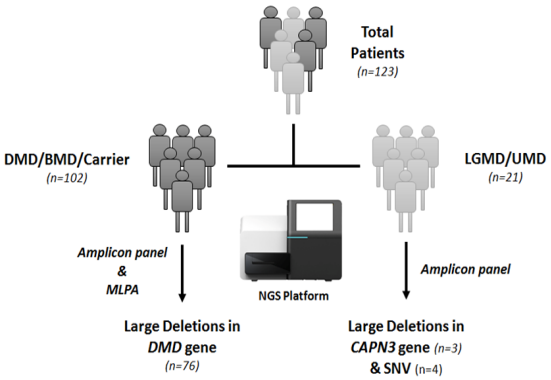
Authors: Tasnim Travadi, Sonal Sharma, Ramesh Pandit, Mittal Nakrani, Chaitanya Joshi, Madhvi Joshi
Journal: Food Control
Impact factor: 5.5
Botanical adulteration is a major concern all over the globe due to natural, thus safer ideology. Adulteration can result in allergies, toxicity, and a decrease in therapeutic effectiveness. Tulsi is one of India's most widely cultivated botanicals. As a result, researchers in this study developed rapid and cost-effective PCR-based methods to detect substitute/adulteration in tulsi churna.



CREATING WEALTH FROM WASTE: AN APPROACH FOR CONVERTING ORGANIC WASTE IN TO VALUE-ADDED PRODUCTS USING MICROBIAL CONSORTIA

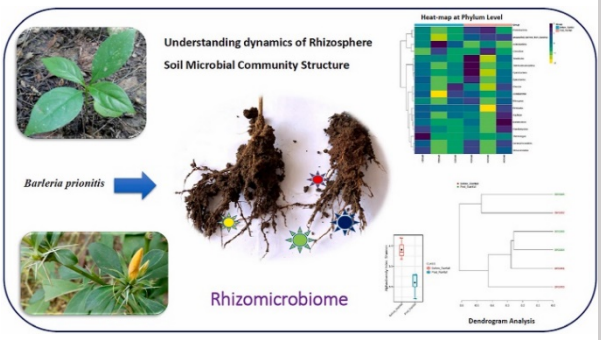
Authors: Sadik Dantroliya, Chinmayi Joshi, Archit Mohapatra, Deshna Shah, Poonam Bhargava, Shivang Bhanushali, Ramesh Pandit, Chaitanya Joshi, Madhvi Joshi
Journal: Environmental Technology & Innovation
Impact factor: 5.23
This study demonstrates the role of microorganisms in the bioconversion of organic waste into value-added products such as biofertilizer, animal feed, crude enzymes, and compost. Municipal vegetable waste was treated with microbial consortia. Consortia of *Aspergillus terreus* and Myrothecium verrucaria proved to be very effective in producing enzymes that are very useful in industry. The research is a good example of the recovery, recycling, and reconditioning of organic solid waste and its conversion into useful products.

MOLECULAR DIAGNOSIS OF MUSCULAR DYSTROPHY PATIENTS IN WESTERN INDIAN POPULATION: A COMPREHENSIVE MUTATION ANALYSIS USING AMPLICON SEQUENCING



Authors: Komal M. Patel, Arpan D. Bhatt, Krati Shah, Bhargav N. Waghela, Ramesh J. Pandit, Harsh Sheth, Chaitanya G. Joshi, Madhvi N. Joshi
Journal: Frontiers in Genetics
Impact factor: 4.99
The paper discusses how NGS technology can be used to diagnose muscular dystrophies (MDs). At GBRC, an amplicon panel-based diagnosis method based on 40 genes involved in MD, has been developed. This method has a high throughput, is affordable, and can save time. It has also been found to be more effective than currently available diagnostic methods.

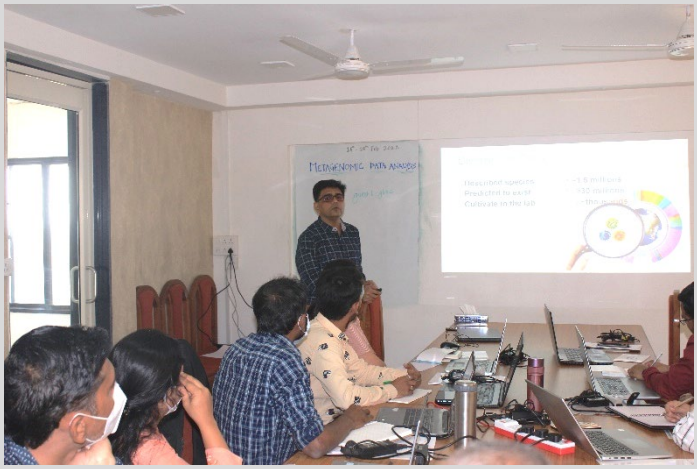
HOST PLANT RHIZO-MICROBIOME INTERACTIONS: SEASONAL VARIATION AND MICROBIAL COMMUNITY STRUCTURE ANALYSIS ASSOCIATED WITH BARLERIA PRIONITIS.



Authors: Dinesh Kumar, Meenu Saraf, Chaitanya Joshi, Madhvi Joshi
Journal: Ecological Genetics And Genomics
Impact factor: 1.9
Interaction of host plants with rhizomicrobiomes plays a pivotal role in plant adaptation and their ecological behavior. In this research study, microbial diversity assessment of the *Barleria prionitis* has been investigated under different environmental conditions. This aids in determining the structure and dynamics of microbial communities, as well as their potential roles in nutrient uptake, climate resilience, phytopathology, and disease resistance in host plants growing in various ecosystems.

SKILL DEVELOPMENT PROGRAMS

Training	Month	Collaborative Institute
Molecular Docking and Molecular Dynamics	September	University and Institute of Advanced Research
Basic Bioinformatics	September	Sterling Accuris Diagnostics, Ahmedabad
Animal Cell Culture and Flow Cytometry	September	Ahmedabad University
In vitro production of Embryos	October	Kamdhenu University
Basic Molecular Biology Techniques	October	Gujarat Technological University
Advanced Bioinformatics	October	Gujarat University
Metagenomics Data Analysis	November	Veer Narmad South Gujarat University
Metabolite Extraction and Analytical Techniques	November	Gujarat Vidyapith
Real Time PCR and Digital PCR	November	Sterling Accuris Diagnostics
Basic Bioinformatics	December	GeneXplore Diagnostics & Research Centre Pvt. Ltd.
Next Generation Sequencing	December	Anand Agricultural University
Research Data and Statistical Analysis using R programming	December	Information and Library Network Centre
Protein purification, HPLC and LC-MS	December	Department of Chemistry and Forensic Science, Bhakta Kavi Narsinh Mehta University Junagadh
Genome-Wide Association Studies	January	National Dairy Development Board (NDDB)
Recombinant DNA Technology	January	Indrashil University
Molecular Docking and Molecular Dynamics	January	Institute of Advanced Research
In-vitro Production of Embryos	February	Kamdhenu University
Metagenomics Data Analysis	February	Veer Narmad South Gujarat University



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GUJARAT BIOTECHNOLOGY RESEARCH CENTRE

DEPARTMENT OF SCIENCE AND TECHNOLOGY
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ANNOUNCES

Shared LAB

Online System

NGS Illumina NovaSeq 6000

NGS Illumina MiSeq

NGS Ion S5 Semiconductor Sequencer

NGS Ion Proton

NGS Ion Personal Genome Machine

BD Flow Cytometer & Cell sorter

Capillary ABI 3500 Sequencer

Digital PCR

Real time PCR machine

PCR + Gel Doc

Nanodrop, Qubit

Lyophilizer

HPLC

GC-MS (Clarus 680 /Clarus SQ8C

LC-MS

HPC Server & Param Shavak Server for Bioinformatics (with CLC Genomics and MATLAB)

GBRC SHARED LAB ONLINE BOOKING SYSTEM: https://gbrc.org.in

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