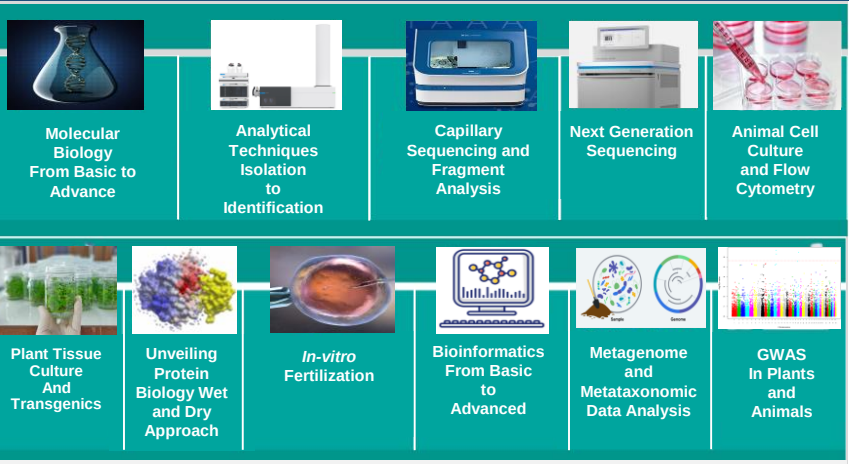
Department of Science & Technology (Government of Gujarat)

GBRC NEWS

Volume IV, Issue IV
December 2024

CONTENTS

KAUSHALYA TRAINING PROGRAM FOR SKILL DEVELOPMENT IN BIOTECHNOLOGY 2024-25



KAUSHALYA ***(****Knowledge* ***A****dvancement* ***U****shering* ***S****kills* ***on*** ***H****igh-end* ***A****pplied* ***L****ifetechnolog****Y*** *For* ***A****spirants****)*** is an innovative initiative by GBRC, aims to bridge the gap between theoretical learning and practical application by providing hands-on training in cutting-edge biotechnology fields to aspiring stakeholders. Through KAUSHALYA, participants gain the necessary skills and knowledge to excel in their chosen fields, unlocking new opportunities for personal and professional growth. In this regard, GBRC has developed 12 training modules for the year, with 99 hrs training session held monthly in collaboration with partner institute.

TRAININGS COMPLETED

SPECIALISED WORKSHOPS

GBRC hosted two pre-conference workshops organized by the Association of Medical Biochemists of India (AMBI) Gujarat Chapter on “Nucleic Acid Extraction and PCR Techniques” and “LC MS/MS QTIOF and MALDI TOF”.

GBRC IN MEDIA

Two lumpy disease variants found in Jamnagar samples

Study Finds 1,819 Variations In 22 Sequenced Genomes

IMPORTANT FINDINGS

KEY MUTATIONS

PRECAUTIONS

શુક્રવાર 25.10.2024

ગુજરાતમાં બાયોટેક્નોલોજીકલ ક્ષેત્રમાં સંશોધન માટે સ્થપાયેલ GBRC અને સરદાર પટેલ યુનિવર્સિટી વચ્ચે MOU

CAN DIAGNOSE CANCERS AND MUSCULAR DYSTROPHIES, TREAT BOVINE ENDOMETRIOSIS

Three GBRC techs transferred to private firms for wider application

IAR યુનિવર્સીટી તથા GBRC વચ્ચે બાયોટેક્નોલોજી રિસર્ચ ક્ષેત્રે MOU કરાયા

Dr. Ishan Raval was invited as expert for the special discussion on the topic of “Micro RNA: discovery and research” at DD News Gujarati and DD GIRNAR broadcast on October 15th at 3:30 pm.

5 TECHNOLOGIES TRANSFERED

Inventa systems, Ahmedabad, Gujarat

- Amplicon Panels For Hereditary Breast & Ovarian Cancer Detection
- Amplicon Panels For Muscular Dystrophies Detection

Prompt Equipment's Pvt. Ltd., Ahmedabad, Gujarat

- Probiotic formulation to treat Endometritis in bovines

Shree Ramkrishna Trust, Kutch, Gujarat

- PCR Based Sex Determination in Date Palm

Biolaxi Enzymes Pvt. Ltd, Thane, Maharashtra

- Serratiopeptidase Overproduction

RECENT PUBLICATIONS

ANTIMICROBIAL RESISTANCE IN PLANT ENDOPHYTES ASSOCIATED WITH POULTRY-MANURE APPLICATION REVEALED BY SELECTIVE CULTURE AND WHOLE GENOME SEQUENCING

Authors: Animesh Tripathi, Anjali Jaiswal, Dinesh Kumar, Priyank Chavda, Ramesh Pandit, Madhvi Joshi, Damer P. Blake, Fiona M. Tomley, Chaitanya G. Joshi, Suresh Kumar Dubey

Journal: Journal of Hazardous Materials (Volume 480, 136166)

Impact factor: 12.2

Persistent high-level use of antibiotics in poultry production has raised concerns about the selection for reservoirs of antimicrobial resistance genes (ARGs). Previous studies have shown that the addition of poultry manure can increase the abundance of genes associated with microbial resistance to various antibiotics. Here, the authors tested the hypothesis that environmental exposure to poultry manure increases the occurrence of antimicrobial resistance (AMR) in plant endophytes using selective culture, phenotypic. Endophytes from poultry manure treated *Sorghum bicolor* (L.) Moench plant root and stem samples showed increased phenotypic and genotypic resistance against multiple antibiotics compared to untreated controls. Comparison of AMR phenotype-to-genotype relationships highlighted the detection of multi-drug resistant (MDR) plant endophytes, demonstrating the value of genomic surveillance for emerging drug-resistant pathogens. The increased occurrence of ARGs in poultry manure-exposed endophytes highlights the need for responsible antibiotic use in poultry and animal farming to reduce contamination of ecological niches and transgression into endophytic plant microbiome compartments. It also emphasizes the requirement for proper manure management practices and vigilance in monitoring and surveillance efforts to tackle the growing problem of antibiotic resistance and preserve the efficacy of antibiotics for human and veterinary medicine.

UNTARGETED METABOLOMICS UNRAVEL THE PHARMACEUTICAL POTENTIAL OF CALLUS CULTURE OF *COMMIPHORA WIGHTII*

Authors: Sahil Kapoor, Poonam Patel, Jaina Patel, Ishan Raval, Amrutlal Patel, Chaitanya Joshi, Madhvi Joshi, Fenil Patel

Journal: Industrial Crops & Products (Volume 222, 119904)

Impact factor: 5.6

In this study pharmaceutical potential and bioactive properties of *Commiphora wightii* (Arnott) Bhandari callus culture and leaf extract were explored by GC-MS based untargeted metabolomics. The leaf-derived callus culture was established. A total of 55 metabolites were identified in different callus extract including pharmaceutically important phenylpropanes (1,3-ditert-butylbenzene, 2,4-ditert-butylphenol (DTBP)), diterpenoids (2,6,10,14-tetramethylheptadecane) and sesquiterpenoids (3,7,11-trimethyldodecan-1-ol, 2,6,10,15- tetramethylheptadecane). Results revealed that 1-(4-bromobutyl) piperidin-2-one (PNBB) and DTBP were significantly up-regulated in callus as compared with a leaf. The callus has 2-fold higher concentration of Total phenolic content (TPC) (115.30 ± 4.7 µg/mg DW) and Total flavonoid content (TFC) (178.25 ± 10.9 µg/mg DW) as compared with a leaf ($p \leq 0.05$). The callus extract exhibited strong DPPH scavenging activity (IC50: 0.11 mg/mL, EC50: 1.49 mg/mL, ARP: 67.11) in comparison to leaf extract ($p \leq 0.05$). Molecular docking and molecular dynamic simulation analysis revealed that PNBB ligand has the highest binding affinity with the ERα receptor. The metabolites identified in different callus extracts have diverse pharmacological activities including antimicrobial, anti-inflammatory, anticancer, and antiviral activity. Overall, the results suggest that callus cultures of *C. wightii* can be used as an attractive alternative source of biologically active metabolites with potential implications in pharmaceutical industries.

RECENT PUBLICATIONS

SPATIAL DISTRIBUTION OF POULTRY FARMS USING POINT PATTERN MODELLING: A METHOD TO ADDRESS LIVESTOCK ENVIRONMENTAL IMPACTS AND DISEASE TRANSMISSION RISKS

Authors: Marie-Cécile Dupas, Francesco Pinotti, Chaitanya Joshi, Madhvi Joshi, Damer Blake, Fiona Tomley, Marius Gilbert, Guillaume Fournié

Journal: PLOS Computational Biology (Volume 20(10), 1011980)

Impact factor: 3.8

The distribution of farm locations and sizes is paramount to characterize patterns of disease spread. With some regions undergoing rapid intensification of livestock production, resulting in increased clustering of farms in peri-urban areas, measuring changes in the spatial distribution of farms is crucial to design effective interventions. However, those data are not available in many countries, their generation being resource-intensive. Here, we develop a farm distribution model (FDM), which allows the prediction of locations and sizes of poultry farms in countries with scarce data. The model combines (i) a Log-Gaussian Cox process model to simulate the farm distribution as a spatial Poisson point process, and (ii) a random forest model to simulate farm sizes (i.e. the number of animals per farm). Spatial predictors were used to calibrate the FDM on intensive broiler and layer farm distributions in Bangladesh, Gujarat (Indian state) and Thailand. The FDM yielded realistic farm distributions in terms of spatial clustering, farm locations and sizes, while providing insights on the factors influencing these distributions. Finally, we illustrate the relevance of modelling realistic farm distributions in the context of epidemic spread by simulating pathogen transmission on an array of spatial distributions of farms. We found that farm distributions generated from the FDM yielded spreading patterns consistent with simulations using observed data, while random point patterns underestimated the probability of large outbreaks. Indeed, spatial clustering increases vulnerability to epidemics, highlighting the need to account for it in epidemiological modelling studies. As the FDM maintains a realistic distribution of farm location and sizes, its use to inform mathematical models of disease transmission is particularly relevant for regions where these data are not available.

INTEGRATING AZO DYE DEGRADATION AND LIPID ACCUMULATION BY *CANDIDA TROPICALIS* AND *PICHIA KUDRIAVZEVII* ALONG WITH INSIGHTS INTO UNDERLYING METABOLOMICS FOR TREATMENT OF TEXTILE EFFLUENTS

Authors: Sadik Dantroliya, Pooja Doshi, Ishan Raval, Chaitanya Joshi, Madhvi Joshi

Journal: Biochemical Engineering Journal (Volume 212, 109521)

Impact factor: 3.7

Traditional method for azo dye removal often result in harmful by products complicating disposal efforts. This study explores the potential of two yeast strains, Candida tropicalis and Pichia kudriavzevii, to effectively decolorize azo dyes (TD4, TD5, and TD6) while simultaneously accumulating lipids. The cultures achieved 80–90 % decolorization of the selected dyes during incubation, with Pichia showing higher efficiency across multiple dyes compared to Candida. Lipid profiling identified valuable fatty acids, such as palmitic acid and oleic acid, with potential applications in biofuels and other industries. Total Organic Carbon (TOC) analysis revealed a reduction in TOC, indicating degradation and mineralization of the dyes by the yeasts. Metabolic profiling via LC-MS confirmed the degradation, showing the presence of intermediates such as azoles, azolines, isoquinolines, pyridines, and benzopyrans in dye-supplemented cultures. Additionally, pathways related to energy metabolism, amino acid metabolism, drug metabolism (cytochrome P450), degradation of aromatic compounds, and steroid biosynthesis were enriched in the dye-treated cultures. The study thus demonstrates a proof of concept for economically viable lipid production combined with efficient dye removal beneficial to industry and environment.

RECENT PUBLICATIONS

EFFECT OF HEARTFULNESS MEDITATION ON MENTAL WELL-BEING, BIOMARKERS AND GENE EXPRESSION: A RANDOMIZED CONTROLLED TRIAL

Authors: Jayaram Thimmapuram, Kamlesh Patel, Deepti Bhatt, Ajay Chauhan, Divya Madhusudan, Kashyap Bhatt, Snehal Deshpande, Urvi Budhbhatti, Chaitanya Joshi

Journal: JMIR Bioinformatics and Biotechnology (Volume 5, e65506)

Impact factor: 2.9

Health care students often experience high levels of stress, anxiety, and mental health issues, making it crucial to address these challenges. Variations in stress levels may be associated with changes in dehydroepiandrosterone sulfate (DHEA-S) levels, interleukin-6 (IL-6), and gene expression. Meditative practices have demonstrated effectiveness in reducing stress and improving mental well-being. The enrolled participants were randomized to the Heartfulness meditation and control groups and completed a Perceived Stress Scale (PSS) and Depression Anxiety Stress Scale (DASS-21) at baseline and after week 12. A total of 78 participants enrolled in the study with 42 randomized to the Heartfulness group and 36 to the control group. Heartfulness group exhibited a significant reduction in PSS score compared to a nonsignificant reduction in the control group. The DASS scores also decreased significantly by 27.14% in the Heartfulness group while it increased by 17% in the control group without significance. For the DASS subcomponents—Heartfulness group saw statistically significant reduction in anxiety by 28.53%, 27.38% reduction in stress versus an insignificant increase in anxiety by 22% and stress by 6%. Further, DHEA-S levels showed a significant 20.27% increase in the Heartfulness group compared to an insignificant 9% increase in the control group. IL-6 levels showed a statistically significant difference in both the groups. Notably, group comparison at 12 weeks revealed a significant difference in perceived stress, DASS, and its subcomponents, as well as IL-6. The gene expression profile with mRNA sequencing identified a total of 875 genes to be upregulated, 1539 genes downregulated in the Heartfulness group compared to baseline, and 292 genes were found to be upregulated and 1180 downregulated in the post-Heartfulness group compared to the postcontrol group. Heartfulness practice was associated with decreased depression, anxiety, and stress scores and improved health measures in DHEA-S and IL-6 levels. The gene expression data point toward possible mechanisms of alleviation of symptoms of stress and depression.

IN VITRO AND PLANT-BASED LC-MS/MS ASSESSMENT OF GUGGULSTERONE E AND Z IN *COMMIPHORA WIGHTII* (ARNOTT.) BHANDARI: A SUSTAINABLE SOURCE OF PHYTOSTEROIDS AND ANTIOXIDANTS

Authors: Fenil Patel, Vartika Srivastava, Sahil Kapoor, Chaitanya Joshi, Madhvi Joshi, Amrutlal Patel

Journal: Applied Food Research (Volume 4, 100643)

Impact factor: 4.5

Commiphora wightii, a medicinal plant native to India, is renowned for its therapeutic properties, primarily due to the presence of the phytosteroids guggulsterone E (G-E) and guggulsterone Z (G-Z). However, excessive extraction of these compounds from the oleo-gum resin has placed the plant in the endangered category. This study explores plant cell culture techniques to generate *in vitro* callus cultures as an alternative source of these valuable phytosteroids. The highest biomass yield (4.84 g/50 ml FW and 0.193 g/50 ml DW) was obtained using Gamborg's B5 medium, supplemented with 2 mg/L 2, -D and 0.5 mg/L kinetin. UPLC-ESI-Q-TOF-MS analysis confirmed the presence of G-E and G-Z in both the callus and oleo-gum resin, with characteristic parent and product ion peaks. Quantitative analysis revealed G-E and G-Z levels in callus at 28.90 ± 2.4 µg/g and 92.85 ± 7.7 µg/g, significantly lower than in the resin. However, callus exhibited higher antioxidant properties, including 2.35-fold increased flavonoid content, 1.60-fold higher phenolic content, and a 4.86-fold rise in ascorbic acid. These findings suggest that *C. wightii* callus cultures offer a promising alternative for guggulsterone production and antioxidant therapy.

RECENT PUBLICATIONS

ISOLATION, EXPRESSION, AND CHARACTERIZATION OF POTATO (*SOLANUM TUBEROSUM*) GH FAMILY 17 B-1,3-GLUCANASE (STGLU) FOR EXPLORING ITS POTENTIAL AS AN ANTIFUNGAL AGENT

Authors: Mansi Jani, Komal K. Sapara, Darshan Dharajiya, Amrutlal K. Patel, Chaitanya Joshi

Journal: Protein Expression and Purification (Volume 228, 106658)

Impact factor: 1.4

Plant glucanases, including potato glucanase, are pivotal in biological processes such as cell growth, development, and defense against pathogens. These enzymes hold substantial promises in biotechnological applications, especially genetic engineering for enhancing crop disease resistance and stress tolerance. In this study, from *Solanum tuberosum*, glycosyl hydrolases family 17 (GH-17) β-1,3-glucanase (Stglu) was cloned, expressed, characterized and its antifungal activity was evaluated. The gene was isolated from infected potato plants and cloned into the pDrive and subsequently into the pET32a (+) protein expression vector. Sequence analysis revealed a 1044 bp open reading frame encoding a 347 amino acid protein with an anticipated molecular weight of 38 kDa and a signature motif (-IEIIVSESGWPSEG-) of the GH-17 family. The recombinant β-1,3 glucanase (Stglu) protein was expressed in *E. coli* Rosetta-gami 2 (DE3) cells. After recovery from inclusion bodies using urea buffer solubilization and refolding by dialysis, expression of Stglu protein was confirmed by Western blot analysis using an anti-His antibody. Enzymatic assays were performed to characterize β-1,3-glucanase activity which showed its maximum activity at pH 7.0 and 37°C. Plate assays for substrate specificity showed that the enzyme hydrolyzed azo-barley β-glucan and laminarin. The metal ions strongly affected the enzyme's activity; Ca2+ acted as a weak activator. Plate assays further indicated the antifungal activity of Stglu against the plant pathogen *Fusarium solani*, showing a biotechnological potential tool in controlling fungal pathogenicity in crop plants.

UNDERSTANDING CARDIOMETABOLIC DISEASES THROUGH TRANSCRIPTOMIC APPROACH

Authors: Kashish Gupta, Apurvasinh Puvar, Madhvi Joshi, Chaitanya Joshi, Niraj Kumar Singh

Book: Biochemical Mechanisms for Metabolic Syndrome

Publisher: Springer Nature**, Editors:** Gandhi, T., Mehta, A.

Transcriptomics, focusing on ribonucleic acid (RNA) molecules in cells, provides insights into gene expression's molecular mechanisms, aiding in disease understanding, functional genomics, and response to stimuli. Technologies like RNA-sequencing (RNA-seq) revolutionize transcriptome analysis, enabling deep exploration of non-coding RNA and gene expression dynamics, shaping medical, environmental, and developmental research. Primarily through RNA-seq, transcriptomics has transformed gene expression research, enabling advancements like single-cell investigations and long-read sequencing. Integrating transcriptomics with other omics data unveils regulatory networks and functional relationships, elucidating disease mechanisms and biological processes. Cardiometabolic diseases, including cardiovascular diseases, diabetes, kidney disease, and liver disease, are preventable conditions whose molecular underpinnings are elucidated by transcriptomics, identifying biomarkers, clarifying gene-environment interactions, and guiding personalized treatments. Transcriptomics is pivotal in understanding and managing cardiometabolic diseases, offering insights into biomarkers, treatment targets, and disease mechanisms. Challenges include integration with other omics techniques, tissue-specific gene expression detection, sample heterogeneity, and limited validation of non-coding RNA biomarkers. Nonetheless, transcriptomics provides insights into disease mechanisms and therapies. Future perspectives include multi-omics integration, single-cell analysis, and personalized medicine, enhancing understanding and treatment strategy.

OUTREACH, COLLABORATION, AND KNOWLEDGE DISSEMINATION

INVITED TALKS DELIVERED BY GBRC TEAM

- Dr. Amrutlal Patel, Scientist-D & Joint Director attended one-day workshop on 'Advancing research collaborations to tackle AMR at the livestock, environment and human interface' at ICAR-NIVEDI, Bengaluru on November 25th, 2024 and delivered talk on "Network program on AMR, superbugs and One health".
- Dr. Niraj Kumar Singh, Scientist-D & Joint Director attended one-day workshop on "Monitoring of antimicrobial resistance in the environment" at ICMR-NIOH on November 22nd, 2024 and delivered an expert talk as part of the celebrations for World Antimicrobial Awareness Week.
- Dr. Madhvi Joshi, Scientist-D & Joint Director attended as a panelist in a session "From sewage to strategy: Role of wastewater surveillance in pathogen and AMR surveillance" as a part of 47th Annual Congress of the Indian Association of Medical Microbiologists (MICROCON-2024) at Pune on November 23rd, 2024.
- Dr. Madhvi Joshi, Scientist-D & Joint Director delivered an lecture on 'Environmental surveillance as a potential tool to complement public health' in 15th National Level Science Symposium at Christ College, Rajkot, on December 15th, 2024.

MOU's

OCTOBER 23RD , 2024

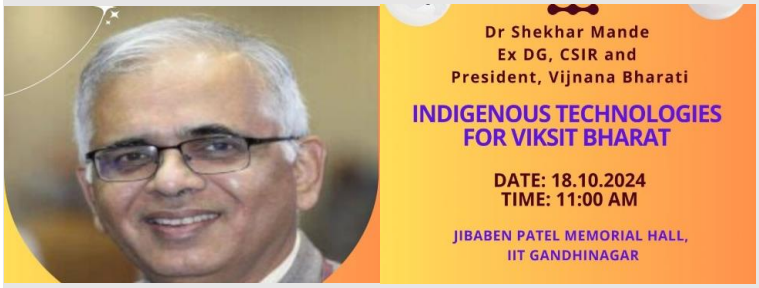
With Gujarat Veterinary Research & Diagnostic Center (GVRDC), Ahmedabad

With Sardar Patel University, Vallabh Vidyanagr, Anand

DECEMBER 4TH, 2024

With Institute of Advanced Research- The University for Innovation, Gandhinagar

SEMINAR ORGANIZED



GBRC hosted a lecture by Dr. Shekhar Mande (Ex DG, CSIR; President, Vigyan Bharti) on October 18th, 2024 att IIT, Gandhinagar . The topic of the talk was "Indigenous Technologies for Viksit Bharat" .

PAPER PRESENTED

INDIA INTERNATIONAL SCIENCE FESTIVAL 2024 (IISF2024)

The India International Science Festival (IISF), organized by the Ministry of Science and Technology, Ministry of Earth Sciences, and Vijnana Bharati, aims to celebrate science and engage the public in a joyful manner. By fostering collaboration between the public and the scientific community, IISF promotes scientific exploration for the well-being of India and humanity through innovative programs and activities. The event was held on November 30th - December 3rd, 2024 at IIT, Guwahati. Scientist and fellows from the GBRC has attended the event participated and presented their research work in an oral presentation at the event. Dr. Apurvasinh Puvar, delivered a talk on "Metabolomic profiling in rheumatoid arthritis: Identification of Key Biomarkers and Pathways through LC-MS Analysis". Dr. Ishan Raval, delivered talk on "Uncovering biomarkers in oral squamous cell carcinoma through differential gene expression analysis" and Dr. Ramesh Pandit, presented on "A comprehensive analysis of gastrointestinal bacteriome of sheep (*Ovis aries*) using 16S amplicon analysis"

Dr. Apurvasinh Puvar and Dr. Ishan Raval presenting the paper in the summit

TRIALOGUE DAYS CONFERENCE

Dr. Madhvi Joshi presenting the work in the conference

Dr. Madhvi Joshi attended the Trialogue Days conference at IISC Bengaluru between December 1st - 3rd , 2024 organized by Swiss Embassy in India. This event facilitated interdisciplinary dialogue among government representatives, non-profit organizations, media, and civil society, focusing on planetary health from diverse perspectives. She presented the work on "One Health approach for planetary health: case studies from GBRC".

ACHIEVEMENTS

पेटेंट कार्यालय,भारत सरकार The Patent Office, Government Of India
पेटेंट प्रमाण पत्र | Patent Certificate
(पेटेंट नियमावली का नियम 74) | (Rule 74 of The Patents Rules)

पेटेंट सं. / Patent No. : 562394
आवेदन सं. / Application No. : 202321030515
फाइल करने की तारीख / Date of Filing : 27/04/2023
पेटेंटी / Patentee : 1.Chirag A. Chamakiya 2.Savankumar R. Chothani 3.Dr. Navalbhai P. Kapuriya 4.Dr. Madhvi Joshi

प्रमाणित किया जाता है कि पेटेंटी को, उपरोक्त आवेदन में यथाप्रकटित *PROCESS FOR THE PREPARATION OF 7-AZAINDOLE HYBRIDS AS POTENTIAL ANTITUMOR AGENTS* नामक आविष्कार के लिए, पेटेंट अधिनियम, 1970 के उपबंधों के अनुसार आज तारीख अप्रैल 2023 के सत्ताईसवें दिन से बीस वर्ष की अवधि के लिए पेटेंट अनुदत्त किया गया है।

It is hereby certified that a patent has been granted to the patentee for an invention entitled *PROCESS FOR THE PREPARATION OF 7-AZAINDOLE HYBRIDS AS POTENTIAL ANTITUMOR AGENTS* as disclosed in the above mentioned application for the term of 20 years from the 27th day of April 2023 in accordance with the provisions of the Patents Act,1970.

अनुदान की तारीख / Date of Grant : 15/10/2024

पेटेंट नियंत्रक / Controller of Patents

टिप्पणी - इस पेटेंट के नवीकरण के लिए फीस, यदि इसे बनाए रखा जाना है, अप्रैल 2025 के सत्ताईसवें दिन को और उसके पश्चात प्रत्येक वर्ष में उसी दिन देय होगी।
Note. - The fees for renewal of this patent, if it is to be maintained, will fall / has fallen due on 27th day of April 2025 and on the same day in every year thereafter.

*चूंकि पेटेंटी व आविष्कारकों की संख्या अधिक है, पेटेंटी व आविष्कारकों के नाम पृष्ठ संख्या 2 पर जारी है।
*Since the Number of Patentees / Inventors is more, the name of Patentees / Inventors are continued on Page No. 2

GBRC granted a process patent on inventing the process preparation of 7-azaindol hybrids as potential antitumor agents

CAPACITY BUILDING

TRAINING ON ENVIRONMENTAL SURVEILLANCE OF LUMPY SKIN DISEASE VIRUS (LSDV)

A training program was conducted at the ICAR - National Institute of Veterinary Epidemiology and Disease Informatics (NIVEDI), Bangalore, aimed at developing protocols for environmental surveillance of Lumpy skin disease virus (LSDV). The program was organized in collaboration with the CSIR-NCL, Pune, and the NCBS, Pune a part of the Tata Institute of Fundamental Research under the Department of Atomic Energy, Government of India. GBRC scientist and fellows have been invited as the participants.

TRAINING ON ENVIRONMENTAL SURVEILLANCE OF FOOT AND MOUTH DISEASE VIRUS (FMDV)

In collaboration with NIFMD, NCL-Pune, NCBS-Bengaluru, PKCF-Pune, and CCMB-Hyderabad, a training program was conducted at ICAR - National Institute of Foot and Mouth Disease (NIFMD), Bhubaneshwar, Odisha, to develop protocols for environmental surveillance of FMDV during December 16th-19th, 2024. Dr. Ramesh Pandit, Scientist-B at GBRC, participated in this training program.

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.

OCTOBER-2024

INVITED GUEST

Shri Hasmukh Patel,

IPS, DGP, Managing Director- The Gujarat Police Housing Corporation Limited, Chairman- Gujarat Police Recruitment Board, and Gujarat Panchayat Service Selection Board (GPSSB)

Topic: Life: A journey of learning

PRESENTATION FROM GBRC MEMBER

Ms. Dhara Raval

JRF

Article: Reverse Complement PCR: A novel one step PCR system for typing highly degraded DNA for human identification

Journal Name: Forensic Science International: Genetics

Impact Factor: 3.8

NOVEMBER-2024

INVITED GUEST

Dr. (Prof) K. Parameswaran,

Professor of Law, Gujarat National Law University, Gandhinagar

Topic: New approaches to research: Integrating spiritual, psychological & ethical perspectives for peace, order, justice & wholistic society

PRESENTATION FROM GBRC MEMBER

Mr. Nimesh Patel

TA

Article: SSEmb: A joint embedding of protein sequence and structure enables robust variant effect predictions

Journal Name: Nature Communication

Impact Factor: 14.7

PRABODH

PRESENTATION FROM GBRC MEMBER

Dr. Karthik Kumar Gajjar

RA

Article: Development of nutritious rice with high zinc/ selenium and low cadmium in grains through QTL pyramiding

Journal Name: Journal of Integrative Plant Biology

Impact Factor: 13.2

DECEMBER-2024

INVITED GUEST

Dr. Sreedhar Chinnaswamy

Scientist-G

BRIC- NIAB, Hyderabad

Topic: Genetics of the Human Interferon Lambda Locus: examples for confounding and effect modification

PRESENTATION FROM GBRC MEMBER

Mr. Krutarth Raval

SRF

Article: Why flying insects gather at artificial light

Journal Name: Nature Communication

Impact Factor: 14.8

ARRIVAL & DEPARTURE

GBRC welcome to the new members

Dr. Anil Pandey
Dr. Debashrita Mittra
Ms. Zarna Patel
Dr. Harsh Mistry
Ms. Gemini Gajera
Dr. Manoj Sharma
Ms. Sharlet Parmar
Ms. Priya Ladani
Mr. Parth Parekh
Dr. Jagrutiben Mahla
Mr. Akhil
Ms. Shivangi Parmar
Ms. Aakanksha Shukla
Ms. Devarshi Raval
Ms. Harsha Poddar
Ms. Himanshi Katariya
Mr. Parth Pandit
Mr. Kunjan Panchal
Mr. Harshal Purohit

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

Dr. Anupam Kumari
Ms. Diksha Borade
Ms. Tanvi Bhatt
Mr. Suhas Karle
Ms. Janki Pandya
Mr. Kunj Bhatt
Ms. Urmi Vyas
Ms. Dhara Raval
Mr. B Vigneshwaran
Ms. Pratiksha Sevra
Dr. Bablu Prasad

STAFF WELFARE CLUB ACTIVITIES

The main objective of the Staff Welfare Club is to establish, promote, subsidize, encourage, provide, maintain, organize, undertake, manage, equip, develop, recondition, operate, conduct and run activities such as music, dance, sports, social welfare, carry out scientific and technical, other than political activities.

OCTOBER-2024

BEST MONTHLY PRESENTATION AWARD

Dr. Anitaba Chauhan
RA

AWARD FOR BEST QUESTION IN PRABODH

Ms. Laliteshwari Bhardwaj
PA

EMPLOYEE OF THE MONTH AWARD

Mr. Nitin Shukla
SRF

BEST CUBICLE AWARD

Pathogen Lab
In charges
Dr. Satyamitra, Scientist
Ms. Rajvi Der, JRF
Mrs. Laliteshwari Bhardwaj, PA

NOVEMBER-2024

BEST MONTHLY PRESENTATION AWARD

Dr. Kartikkumar Gajjar
RA

AWARD FOR BEST QUESTION IN PRABODH

Ms. Nandini Vasa
JRF

EMPLOYEE OF THE MONTH AWARD

Mr. Gauravkumar Rana
JRF

BEST CUBICLE AWARD

NGS Lab
In charges
Dr. Ramesh Pandit, Scientist
Dr. Sonal Sharma, Scientist
Mr. Priyank Chavda, TA
Ms. Jinal Thakor, RA

STAFF WELFARE CLUB ACTIVITIES

DECEMBER-2024

BEST MONTHLY PRESENTATION AWARD

Ms. Kashish Gupta
JRF

AWARD FOR BEST QUESTION IN PRABODH

Ms. Bhavika Sisodia
JRF

EMPLOYEE OF THE MONTH AWARD

Mr. Nitin Shukla
SRF

BEST CUBICLE AWARD

PCR Lab
In charges
Dr. Pritesh Sabara, Scientist
Ms. Meha Bhatt , SRF
Ms. Aerika Patel , JRF

MONTHLY EVALUATION ACTIVITY

GBRC has internal evaluation system of the project progress where all the fellows present their work for the month and their performances are also evaluated in front of external expert.

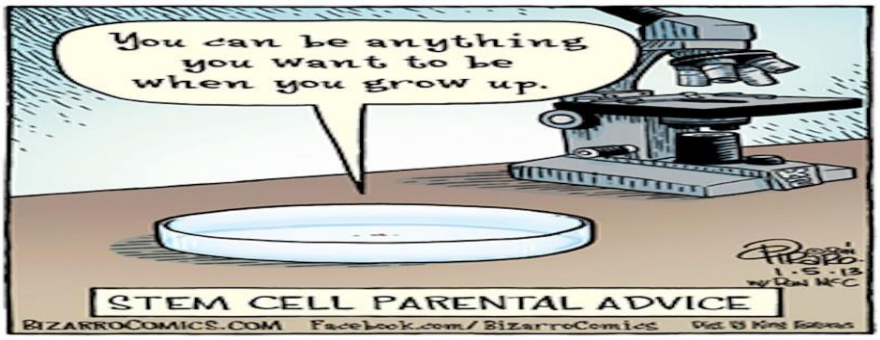
OCTOBER-2024

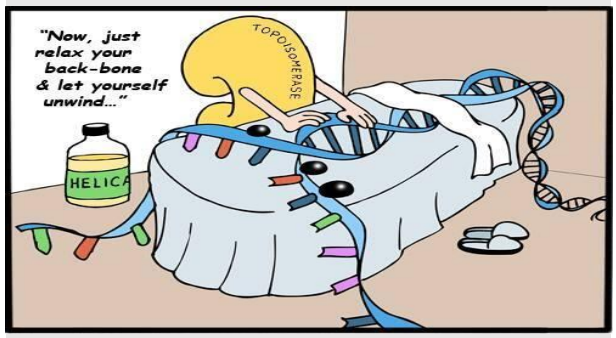
Prof. Suresh Balakrishnan,
Head of the Department, Department of Zoology, The Maharaja Sayajirao University of Baroda

NOVEMBER-2024

Dr. Neelam Kungwani
Assistant Professor,
Gujarat Biotechnology University, Gandhinagar

LIGHTER NOTE





Source: https://www.pinterest.com

VISIT BY DIGNITARIES AND TESTIMONIALS

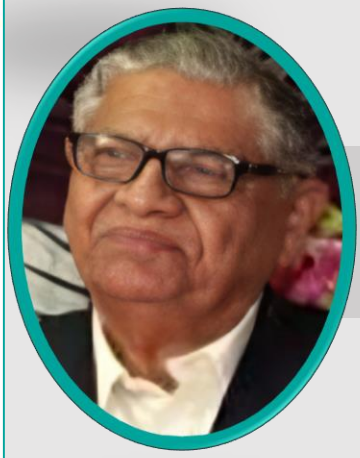
Today on the occasion of rollout of Two-weeks Training at GBRC. I wish great luck to all students who are attending this training at a pious place of GBRC. Today I saw numerous instruments being used at GBRC which seems to be at a best level and are utilized for upliftment of Science and its Applications.

Dr. Gaurav Dahiya
Addl. Development Commissioner,
Government of Gujarat, Gandhinagar

Dr. Atya Kapley
Chief Scientist, CSIR-National Environmental Engineering Research Institute, (NEER)I, Nagpur

Amazing infrastructure and great projects. What was most satisfying is all all equipment is functioning and in use. The server room is great. Bioinformatic support is always the bottleneck at most institutes working with NGS but this work at GBRC is also extraordinary.
The only suggestion I can make is to add some environmental projects too.
Wonderful work & wonderful team
Thank you Dr Niraj for the detailed tour.

I feel very lucky to visit GBRC, Gandhinagar to day and attend the valedictory function of the training very nice to see well equipped lab's and the young attitude of all Faculty members. Congratulation to Director Dr. Joshi sir and all Faculty members.



Dr. K. G. Mehta
Secretary and Former President,
Gujarat Association for Agricultural Sciences (GAAS), Ahmedabad

Prof. Bruce Whitelaw
Director,
The Roslin Institute, Royal (Dick) School of Veterinary Studies,
The University of Edinburgh

VERY IMPRESSIVE, WITH DIVERSITY OF CAPABILITY, HUGELY IMPRESSIVE CONNECTIVITY AND COMMUNITY

VISIT BY DIGNITARIES AND TESTIMONIALS

Excellent facility, impressed by the motivation of staff of GBRC & their Commitment for the advancement of knowledge & skill upgradation.
Best wishes

Dr. R. Dixit
Addl. Director,
Medical Education Services, Govt. of Gujarat

Prof. Riaz A Shah
Head of Department,
Sher-e-Kashmir University of Agricultural Sciences and Technology of Kashmir (SKUAST-K)

Amazed to see the facilities and services offered to researchers under one-roof. Excellent staff and well managed work flow. Best wishes for the future endeavors

Impressed to see the high end facilities & state of art infra with dedicated Research culture in area.

Dr. Ramesh Pradhan
Prof. and HOD,
GCS Medical College, Ahmedabad

Dr. Shilpa Jain
Professor,
AIIMS Bathinda, Punjab

Very good, state of art facilities and very good work going on. The faculty is very supportive and explaining elaborately.
Best wishes.

VISIT BY DIGNITARIES AND TESTIMONIALS

- Excellent lab facilities
- Research activities related to Bioinformatics
- Looking forward for joint research collaboration.

excellent

Prof. Dharmendra Singh
Director,
IIIT Vadodara,

Shri Sandeep Kumar, IAS
Director,
IIIT Vadodara,
Punjab

I had the opportunity to understand various activities of GBRC, the lab and the equipments research activities they are involved. Overall its an excellent facility with dedicated & inspired manpower. It's been a great learning experience.

It was mesmerising experience to visit GBRC and closely understand the facilities available in this centre. The centre is doing exemplary work in the field of Bio informatics & Genomics. Equipment sharing model is unique and need huge application.

Best wishes for more contribution for development of society centred biotech research.

30/12/14

Prof. (Dr.) S. P. Singh
Director General,
Kaushalya- The Skill University,
Ahmedabad

Shri Ramesh Joshi
IAS (Retd.)

VISIT BY COLLEGES/ ACADEMIC INSTITUTES

Students and faculty from Department of Biotechnology and Biochemistry, LJ School of Applied Science, Ahmedabad

Students and faculty members from Department of Biosciences, School of Science, Indrashil University, Rajpur, Mehsana

Students and faculty members from Government Akhandanand Ayurveda College, Ahmedabad

VISIT BY COLLEGES/ ACADEMIC INSTITUTES

Students and faculty members from Department of Biotechnology, U. V. Patel college of Engineering, Ganpat University, Ganpat Vidhyanagar, Mahesana

Students and faculty members from S.P.T. Arts & Science College, Shri Govind Guru University, Godhra

Students and faculty members from Aspee Shakilam Biotechnology Institute, Navsari Agricultural University, Surat

UPCOMING TRAININGS

Environmental Surveillance using Molecular Methods

NEW FACILTIES

GridION sequencing unit from Oxford Nanopore Technologies

PromethION 2 sequencing unit from Oxford Nanopore Technologies

Know Your Scientist

Har Gobind Khorana

9th January, 1922– 9th November, 2011

He shared the 1968 Nobel Prize for Physiology or Medicine with Marshall W. Nirenberg and Robert W. Holley for research that showed the order of nucleotides in nucleic acids, which carry the genetic code of the cell and control the cell's synthesis of proteins.

Source: https://en.wikipedia.org/wiki/Har_Gobind_Khorana

Contact Information

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Contact no.: +91-079- 23258500
Website: https://gbrc.gujarat.gov.in; http://gbrc.res.in
For Shared Lab Facility : https://gbrc.org.in/

GUJARAT BIOTECHNOLOGY RESEARCH CENTRE

DEPARTMENT OF SCIENCE & TECHNOLOGY

GOVERNMENT OF GUJARAT

ANNOUNCES

Shared LAB

Online System

- NGS Illumina NovaSeq 6000
- NGS Illumina MiSeq
- NGS Ion S5 & S5 Plus
- NGS IonChef
- BD Flow Cytometer & Cell sorter
- Capillary ABI 3500 Sequencer
- PCR + Gel Doc
- Nanodrop, Qubit
- Lyophilizer
- HPLC
- GC-MS (Clarus 680/Clarus SQ8C)
- LC-MS
- Digital PCR
- Real time PCR machine
- HPC Server & Param Shavak Server for Bioinformatics (with CLC Genomics)

GBRC shared lab online booking system:

https://gbrc.org.in


KAMDHENU UNIVERSITY
GANDHINAGAR, GUJARAT
THE MAHARAJA SAYAJIRAO UNIVERSITY OF BARODA
सत्यं शिवं सुन्दरम्
ADGE INDUSTRIES
AMITY UNIVERSITY MUMBAI
ADVAIT THERAGNOSTICS
AIIMS New Delhi
AAU
कृणवन्तो राष्ट्र कृषि संपन्नम्
BABA GHULAM SHAH BADSHAH UNIVERSITY RAJOURI J&K
CENTRAL UNIVERSITY OF HARYANA
विद्याधनं सर्वधनप्रधानम्
VNSGU
VEER NARMAD SOUTH GUJARAT UNIVERSITY
SDAU
BIRLA INSTITUTE OF TECHNOLOGY & SCIENCE, PILANI
ज्ञानं परमं बलम्
गुजरात केन्द्रीय विश्वविद्यालय
CENTRAL UNIVERSITY OF GUJARAT
CSIR INDIA
HNGU
CONCORD BIOTECH
Biotech for Mankind...
GANPAT UNIVERSITY
॥ विद्यया समाजोत्कर्षः ॥
GUJARAT TECHNOLOGICAL UNIVERSITY
CHARUSAT
CHAROTAR UNIVERSITY OF SCIENCE & TECHNOLOGY
अमृतं तु विद्या
INDIAN INSTITUTE OF TECHNOLOGY BOMBAY
ज्ञानम् परमम् ध्येयम्
INDIAN INSTITUTE OF TECHNOLOGY GANDHINAGAR
॥ विज्ञानंब्रह्म ॥
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