

**2018-2019**

## **P D Patel Institute of Applied Sciences**

### Curriculum feedback analysis and action taken report

Sr. No.	Stakeholder	Feedback	Action Taken
1	Industry experts	Students should be aware on current industrial technologies and updates	Industrial expert lectures were arranged (Annexure 1)
2	Employers	Students need to be train for basic etiquettes for personal interview and profession relation  Quality of fundamental concepts need to be improved	Industry expert came and addressed on role of skills in employability. To Improve the concepts students were encouraged to take NPTEL courses (Annexure 2)
3	Academic Peers	Technical paper writing guidance required	Guidance provided on technical paper writing during dissertation. Sample paper copy attached (Annexure 3)
4	CHARUSAT teachers	Vacation internship must be encouraged among students	Encouraged students to take internship (Annexure 4)
5	Alumni	Industry oriented experiments should be included in curriculum	List of experiments related to industry are attached (Annexure 5)
6	Parents	Improvement required in communication skill and personality development	Special sessions were provided on communication skill by humanities department (Annexure 6)
7	Present-students	1. Curriculum should included the list of practical 2. Library should be enriched with reference books	List of the practical was provided before the commencement of semester and new reference books were purchased for library (Annexure 7)



Janki Thakker <jankithakker.bt@charusat.ac.in>

**Invitation for : A talk on "How to start a "startup" with special reference ...." on March 1st, 2019**

1 message

**Principal PDPIAS CHARUSAT** <principal.pdpias@charusat.ac.in>  
To: Charusat Family <charusatfamily@charusat.ac.in>

Tue, Feb 26, 2019 at 2:55 PM

Dear CHARUSAT Family Members

Amnaque )



&

(EDIC)

Jointly organizes

A talk on

"How to start a "Startup" with special reference to  
Entrepreneurship, Novel Biologics and Nanotechnology based products"



Eminent Speaker

Dr. C N Ramchand

CEO, Saksin Lifesciences Pvt. Ltd. Chennai & San Francisco CEO,  
MagGenome technologies Pvt. Ltd., Cochin, Kerala

Date: 1st March 2019, Friday

Time: 10.15 am to 12.15 pm (with 10 minutes break)

Venue: Conference Hall, P D Patel Institute of Applied Sciences

Interested students, research scholars and faculty members are invited

Coordinated by : Dr. Rucha Desai, Assistant Professor, PDPIAS  
[ruchadesai.neno@charusat.ac.in](mailto:ruchadesai.neno@charusat.ac.in)

The abstract and short CV is attached herewith.

We cordially invite all the interested faculty members, research scholars and students for the same.

With Regards

Dr Ramesh V Upadhyay  
Professor of Physics,  
Dean Applied Sciences, Charotar University of Science and Technology,  
CHARUSAT campus, Changa 388421, Gujarat, India

Accredited Grade 'A' by NAAC & KCG  
Mobile: 09427215242, Contact: 02697-265091  
e-mail: dean.fas@cahrusat.ac.in : rvu.as@charusat.ac.in  
[www.charusat.ac.in](http://www.charusat.ac.in)

 Dr. CN Ramchand CHARUSAT abstract and Short CV-final 3.pdf  
149K

## **Shree Pramukh Swami Maharaj Endowment Chair Activity @ PDPIAS - 26th April 2021**

1 message

Principal PDPIAS CHARUSAT <principal.pdpias@charusat.ac.in>  
 To: Charusat Family <charusatfamily@charusat.ac.in>, Narottam Sahoo <narottam.sahoo@gmail.com>, Chaitanya Joshi <cgjoshi@aau.in>, avron@rediffmail.com, mdbm@gujarat.gov.in, jdbdbm@gujarat.gov.in, prajaljar@rediffmail.com, skannan@csmc Mon, Apr 26, 2021  
 drnkj11@gmail.com, Vijay Thiruvekakatam <vijay@iitgn.ac.in>, kirankalla@gmail.com, H T Patel <htpatel2004@gmail.com>, Swapriya Kirubakaran <priyak@iitgn.ac.in>, balaji.prakash@arduni.edu.in,  
 vasuithakar@gmail.com, "R.B Subramanian" <subrajanianrb@gmail.com>, vilasy@iitnail.com, amita@icbose.ac.in, gnareen\_k@yahoo.co.in, raktimmukherjee203@yahoo.co.in, ashish.bhattacharjee@iitb.ac.in, Siriram Sesh  
 sarat.dalai@iirmauni.ac.in, suvendra@iitb.res.in, sariagupta9@gmail.com, Digvijaysinh Rana <digvijaysinhra@aribas.edu.in>, kinnarimistry@arib  
 sarat.dalai@iirmauni.ac.in>, shivsain@gmail.com, Debashree Bandyopadhyay <banerjee.debi@hyderabad.bits-pilani.ac.in>, suvendra@iitb.res.in, sariagupta9@gmail.com, Digvijaysinh Rana <digvijaysinhra@aribas.edu.in>, kinnarimistry@arib

Dear Sir/ Madam,

Greetings!

P. D. Patel Institute of Applied Sciences, CHARUSAT is pleased to announce Shree Pramukh Swami Maharaj Endowment Chair Activity during April-May 2021. Total six lectures delivered by highly reputed and internationally acclaimed speakers as per the given schedule.

Date and Day	Time	Name and affiliation of Endowed Chair Professors	Title of talk
16 <sup>th</sup> April, 2021 Friday	09.30 am to 11.00 am	Prof. Subeer Majumdar, Director, National Institute of Animal Biotechnology, Hyderabad	Modern day biotechnology for societal benefit
22 <sup>nd</sup> April, 2021 Thursday	3.30 pm to 05.00 pm	Prof. Deepak Dhar, Emeritus Professor, Indian Institute of Science Education and Research (IISER), Pune	Modelling proportionate growth
23 <sup>rd</sup> April, 2021 Friday	02.00 pm to 03.30 pm	Prof. Vivek Polshettiwar, FRSC, FIMSc, FNASC, Associate Professor, Department of Chemical Sciences, Tata Institute of Fundamental Research (TIFR), Mumbai	Climate Change on Earth and Nanotechnology
24 <sup>th</sup> April, 2021 Saturday	11.00 am to 12.30 pm	Prof. T. P. Singh, SERB Distinguished Fellow, All India Institute of Medical Sciences (AIIMS), New Delhi	"Using Oral IODIDE in the prevention of COVID-19 infections by exploiting the innate immune action of mammalian heme lactoperoxidase"
<b>26<sup>th</sup> April, 2021 Monday</b>	<b>11.00 am to 12.30 pm</b>	<b>Prof. Sudhir Sopory, Emeritus Senior Scientist, International Centre for Genetic Engineering and Biotechnology, New Delhi</b>	<b>Omics role in plant biotechnology</b>
4 <sup>th</sup> May, 2021 Tuesday	11.00 am to 12.30 pm	Prof. Gauram Desiraju, Honorary Professor, Solid State and Structural Chemistry Unit, Indian Institute of Science (IISc), Bangalore	Enhancement of physicochemical properties of solid forms with crystal engineering

The Target audience of the lecture series includes PhD scholars, faculty members and students of CHARUSAT.

# Faculty of Science



P D Patel Institute of  
Applied Sciences



CHARUSAT  
Accredited with 'Grade A' by NAAC  
Accredited with 'Grade A' by NCG

## Since Pramudhi Swami Maharaj Endowment Chair Activity



### Chair Professor

Brief Overview:

BSc (Hons), MSc: Jammu and Kashmir University, India

Ph.D: University of Delhi, India

MSc: Jammu and Kashmir University, India

Area of Specialization:

Molecular plant physiology

Research Focus:

Mechanisms of abiotic stress tolerance in plants, role of different genes and more specifically the glyoxalase pathway in stress tolerance, molecular basis of stress priming mediated responses and stress memory

### Awards and Fellowships

1. Padma Shri, Govt. of India-2007

2. Fellow: The Indian National Academy of Sciences

3. Fellow: The Indian Academy of Sciences

### Positions held

1. Vice Chancellor, Jawaharlal Nehru University

2. Director, ICSEB, New Delhi, India

Details: <https://www.icseb.org/Sudhir-k-sopory/>

## Lecture Series April-May 2021

**Lecture -5**  
**26 April, 2021**  
**11:00 a.m. to 12:30 p.m.**

**Title of the talk:**  
**Omics approaches in plant biotechnology: towards developing tolerance to abiotic stresses**

**Zoom Link:**  
<https://zoom.us/j/99913256750?pwd=UWhvSjU5bmQwU8ybUFKTmnyNS9rZz09>

**Passcode:** 891Q7C

**Advisors**  
Dr. R. M. Patel  
Dr. Datta Madanwar  
Dr. C. H. Sumash

**Coordinators:**

Dr. Arunit Buch

Dr. Abhishek Dodiya

Dr. Palash Mandal

Dr. R. M. Patel

Dr. Datta Madanwar

Dr. C. H. Sumash

Please click the link below to join the webinar:  
<https://zoom.us/j/99913256750?pwd=UWhvSjU5bmQwU8ybUFKTmnyNS9rZz09>  
Passcode: 891Q7C

Thanks & Regards,

Prof. Palash Mandal

Professor: Department of Biological Sciences

Principal In Charge: P. D. Patel Institute of Applied Sciences (PDIAS)

Email: [palaishmandal@charusat.ac.in](mailto:palaishmandal@charusat.ac.in); [principal-pdias@charusat.ac.in](mailto:principal-pdias@charusat.ac.in)

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CHARUSAT campus, Changa 388421, Gujarat, India

Accredited Grade 'A' by NAAc & KCC

Mobile: 9666164654, Contact: 02697-265191, Fax: +9102697247100

# NOTICE

## Equal Opportunity cell (PDPIAS)

As part of Equal opportunity cell we have arranged an expert talk on  
“Role of skills in employability”

Details of the Expert lecture are as follows

Date of event	5 <sup>th</sup> March, 2020 (Thursday)
Time/duration of event	10.15 am – 11.15 am
Name of event	Role of skills in employability (with special emphasize on Biological Sciences)
Venue	PDPIAS Conference Hall
Name of Resource person	Dr. Anjali Bose, Assistant manager, Zytex Biotech Private ltd, Baroda.

For registration, EOC coordinators are requested to send the names of interested students to jankithakker.bt@charusat.ac.in

Janki N Thakker



(EOC coordinator, PDPIAS)

**CHAROTAR UNIVERSITY OF SCIENCE AND  
TECHNOLOGY (CHARUSAT), CHANGA – 388 421**

**EQUAL OPPORTUNITY CELL**

**Event Report**

Name of Department: PDPIAS

Name of Event : Role of skills in employability

Date and Time of Event : 5<sup>th</sup> March 2020, 10.15 to 12.15 pm

Event coordinator : Dr. Janki N. Thakker

Resource person details:

Sr. No.	Name of the resource person	Organization of resource person
1	Dr. Anjali Bose	Assistant manager Strain Management Zytex Biotech PVt Ltd Vadodara

**Event Schedule:**

Date	Time	Session	Activity
05/03/2020	10.15 am – 12.15 pm	one	Expert Talk

### **Summary of the Event :**

Dr. Janki Thakker introduced Dr. Anjali Bose and her HR team to M.Sc. Sem IV and Sem II Biological Sciences students

Dr. Anjali has done her Ph.D. in Microbiology and Post doctorate from Hyderabad University in Plant pathology

She had 5 years of experience in industry and is also involved in placement at Zytex for Microbiology section

Dr. Anjali started about the general skills required for the students to get placed and what an employee look in the candidate.

She explained about the techniques to be known for good opportunities in research and industry

She told about the attitude to be inculcated by the students during their masters and in an industry

She discussed about the failures and success are the part and everything leads to development

After that they took the interview of the interested candidate as Dr. Thakker discussed earlier if they need the candidates and they agreed for Campus on the day of the talk

Dr. Anjali gave brief about the company and HR Mr. Rajeev explained what quality they look when they hire any candidate.

After exam and interview two students were Ms Meera from Micro and Ms. Shivani from Biotech were selected and offer letter was received on June 27<sup>th</sup>, 2020

After analysis of feedback forms, it indicated that

- They found relevant to their needs most extend and some of them found very relevant
- Students also found the facilitator very enthusiastic, with good communications skills, timely managed. Most of them found these qualities excellent
- Students rated the overall program excellent and were motivated

Lot of students were interested and motivated to opt of career in education sector  
Registration fee (if any): NA

**List of Participants:** Details as per entered in Registration form is submitted to EOC coordinator

Number of male students participated in activity: 10

→ Number of female students participated in activity: 85

Number of teaching staff participated in activity: 1

Number of non-teaching staff participated in activity: 0

Organizing body: PDPIAS & EOC

Collaborating agency (If any): NA

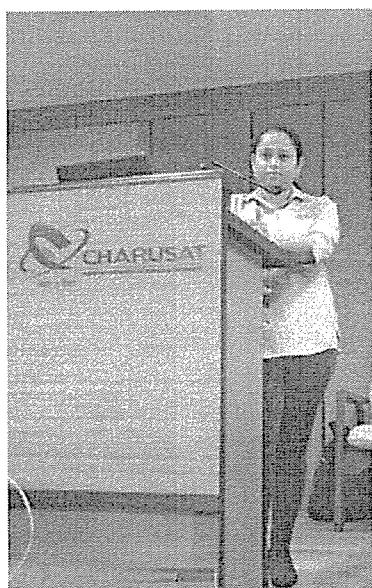
Name of the scheme (If any): NA

Total Budget sanctioned for the activity: NA

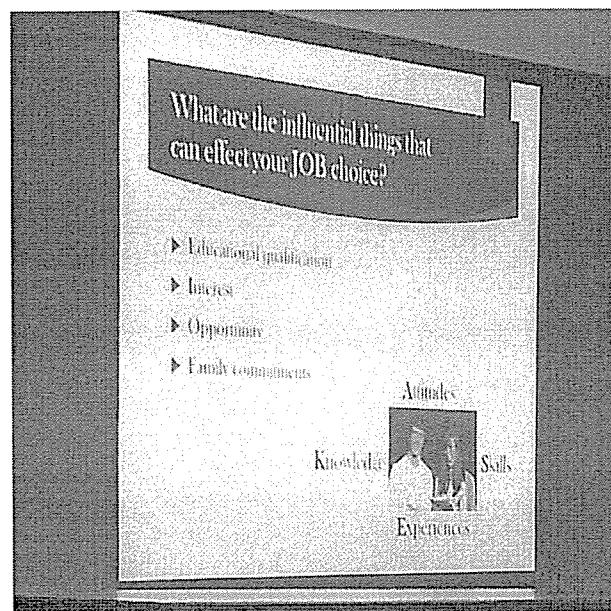
Accounts details: No expense was incurred

**Overall impact of workshop:** Excellent

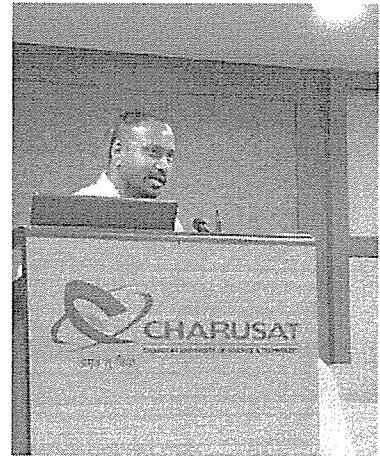
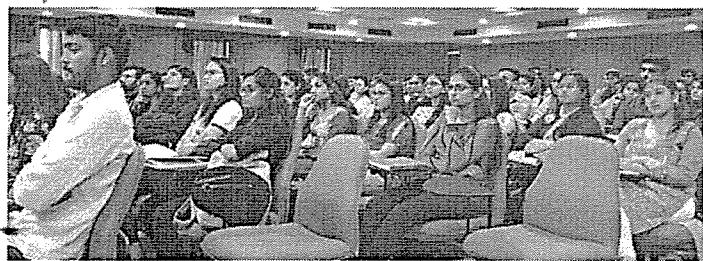
**Photographs of the event**



Dr. Anjali delivering talk (PDPIAS Auditorium 5/3/2020)



Slide on which things influence job choice. (PDPIAS Auditorium 5/3/2020)



***MSc sem IV and MSc sem II  
attending sessions (PDPIAS  
Auditorium\_5/3/2020)***

***Mr. Rajeev, HR, Zytex interacting  
with students (PDPIAS  
Auditorium\_5/3/2020)***



***Dr. Jain thanking Dr. Anjali on behalf of EOC  
and PDPIAS (PDPIAS Auditorium\_5/3/2020)***



***Students giving feedback and asking  
questions (PDPIAS  
Auditorium\_5/3/2020)***

  
Department Coordinator Sign:

EOC coordinator  
(Janki N Thakker, PDPIAS)

PDSI  
DEPARTMENT OF SCIENTISTS  
TECHNOLOGISTS AND SCIENCE  
COUNCIL OF INDIA FOR SCIENCE & TECHNOLOGY  
CHANDIGARH, PUNJAB-160042  
DR. ANAND KUMAR (F)



Head of Institute Sign

This certificate is computer generated and can be verified by scanning the QR code given below. This will display the certificate from the NPTEL repository, <https://nptel.ac.in/noc/>

Roll No: NPTEL20BT29S61090044

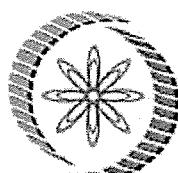
To  
CHARMI PATEL  
5, CHETNA SOCIETY  
GOVIND NAGAR  
DAHOD  
GUJARAT - 389151  
PH. NO :9408380331



Score	Type of Certificate
>=90	Elite+Gold
75-89	Elite+Silver
>=60	Elite
40-59	Successfully Completed
<40	No Certificate

No. of credits recommended by NPTEL:1

An additional 1 credit may be awarded if the University deems it fit, based on the actual student effort involved.



Elite

# NPTEL Online Certification

(Funded by the Ministry of HRD, Govt. of India)



This certificate is awarded to

**CHARMI PATEL**

for successfully completing the course

## Biomedical Nanotechnology

with a consolidated score of **72** %

Online Assignments	24.17/25	Proctored Exam	48/75
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Total number of candidates certified in this course: **733**

Prof. V. C. Srivastava  
Coordinator, Continuing Education Centre  
IIT Roorkee

Sep-Oct 2020  
(4 week course)

Prof. Inderdeep Singh  
NPTEL Coordinator  
IIT Roorkee



Indian Institute of Technology Roorkee

Roll No:NPTEL20BT29S61090044

To validate and check scores: <https://nptel.ac.in/noc/>



This certificate is computer generated and can be verified by scanning the QR code given below. This will display the certificate from the NPTEL repository, <https://nptel.ac.in/noc/>

Roll No: NPTEL20BT29S61040187

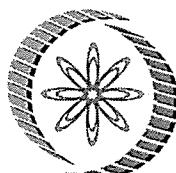
To  
MEENAKSHI HITENDRA PUROHIT  
1/B ADHIKAR SOCIETY PART-1  
DCABIN, SABARMATI  
AHMEDABAD  
GUJARAT - 380019  
PH. NO :9825318509



Score	Type of Certificate
>=90	Elite+Gold
75-89	Elite+Silver
>=60	Elite
40-59	Successfully Completed
<40	No Certificate

No. of credits recommended by NPTEL:1

An additional 1 credit may be awarded if the University deems it fit, based on the actual student effort involved.



Elite

# NPTEL Online Certification

(Funded by the Ministry of HRD, Govt. of India)



This certificate is awarded to  
**MEENAKSHI HITENDRA PUROHIT**  
for successfully completing the course

## Biomedical Nanotechnology

with a consolidated score of **69** %

Online Assignments	23.33/25	Proctored Exam	45.75/75
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Total number of candidates certified in this course: **733**

Prof. V. C. Srivastava  
Coordinator, Continuing Education Centre  
IIT Roorkee

Sep-Oct 2020  
(4 week course)

Prof. Inderdeep Singh  
NPTEL Coordinator  
IIT Roorkee



Indian Institute of Technology Roorkee

Roll No: NPTEL20BT29S61040187

To validate and check scores: <https://nptel.ac.in/noc/>



This certificate is computer generated and can be verified by scanning the QR code given below. This will display the certificate from the NPTEL repository, <https://nptel.ac.in/noc/>

Roll No: NPTEL20BT32S51090046

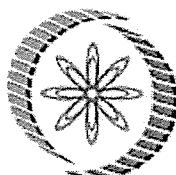
To  
JOBANPUTRA KHUSHI RAMESHBHAI  
3 / 37 , RELIANCE SARYU APARTMENT  
DAHEJ BY PASS ROAD , OPP. V.D. TOWNSHIP  
BHARUCH  
GUJARAT - 392001  
PH. NO :9998964474



Score	Type of Certificate
>=90	Elite+Gold
75-89	Elite+Silver
>=60	Elite
40-59	Successfully Completed
<40	No Certificate

No. of credits recommended by NPTEL:3

An additional 1 credit may be awarded if the University deems it fit, based on the actual student effort involved.



Elite

# NPTEL Online Certification

(Funded by the Ministry of HRD, Govt. of India)



This certificate is awarded to  
**JOBANPUTRA KHUSHI RAMESHBHAI**  
for successfully completing the course

## Genetic Engineering: Theory and Application

with a consolidated score of **63** %

Online Assignments	19.09/25	Proctored Exam	43.5/75
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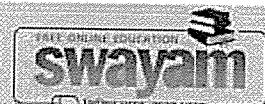
Total number of candidates certified in this course: **342**

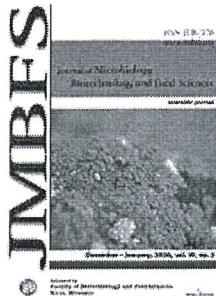
Sep-Dec 2020  
(12 week course)

  
Prof. Hemant B Kaushik  
Head, Centre for Educational Technology  
& NPTEL Coordinator  
IIT Guwahati



Indian Institute of Technology Guwahati

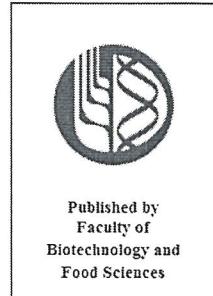




# JMIBFS

**Journal of Microbiology, Biotechnology and Food Sciences**

International peer-reviewed scientific online journal



## ELICITATION OF PLANT DEFENSE AGAINST *FUSARIUM OXYSPORUM* F.SP. *CICERIS* IN CHICKPEA PLANT USING MARINE *MICROCOCCUS* SP.

Palak Patel<sup>1</sup>, Keyur Patel<sup>1</sup>, Pinakin Dhandhukia<sup>2</sup> and Janki N. Thakker<sup>\*1</sup>

### Address(es):

<sup>1</sup>Department of Biotechnology, P.D. Patel Institute of Applied Sciences, Charotar University of Science and Technology, CHARUSAT Campus, Changa-388421, Anand (Gujarat), India.

<sup>2</sup>Department of Microbiology, Sheth P T Mahila College of Arts and Home Science, Veer Narmad South Gujarat University, Athwa Gate, Surat, Gujarat 395001.

\*Corresponding author: jankithakker.bt@charusat.ac.in

doi: 10.15414/jmibfs.2020.10.3.361-365

### ARTICLE INFO

Received 19. 4. 2020  
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Published 1. 12. 2020

Regular article

OPEN ACCESS

### ABSTRACT

Chickpea is produced as well as consumed highest in India amongst the whole world but, production is seriously curtailed by *Fusarium* wilt, caused by *Fusarium oxysporum* f.sp. *ciceris* (FOC). In stressful conditions, the reactive oxygen species (ROS) production increases in plants which cause significant damage. To reduce this ROS, plants have inbuilt antioxidants that can detoxify ROS and protect cells of plants. The present study aimed to investigate the effect of *Micrococcus luteus* on the induction of defense enzymes in the presence and absence of *Fusarium* in chickpea. Talc-based bio-formulation of marine *M. luteus* was employed under pot trials to scrutinize mechanism of induced resistance against *Fusarium* by the improvement of defense enzymes like SOD, POX as well as accumulation of L-proline, total phenolic and pigments like chlorophyll and carotenoids. Pot trials were done using four different conditions- T1 (control), T2 (*M. luteus* treated), T3 (FOC treated), and T4 (*M. luteus* + FOC treated). Defense enzymes were studied and a maximum increase in *M. luteus* treated plants as compared to control and pathogen treated plants were noted. The chlorophyll and carotenoid content were improved in *M. luteus* treated plants to pathogen treated plants. This study indicated that *M. luteus* helps the plant to protect itself from free radicals as it showed significant induction of enhanced plant defense response against soil-borne pathogen to protect chickpea plant.

**Keywords:** L-proline, total phenolic compounds, superoxide dismutase, peroxidase, chlorophyll, carotenoid

### INTRODUCTION

Chickpea (*Cicer arietinum L.*) is one of the major legume crops widely cultivated for its edible seeds in the Indian sub-continent. Garbanzo beans are mainly used by humans and are an essential constituent of the Mediterranean diet. Seeds provide a decent and economical source of protein for essentially the vegetarian population, by choice or economic reasons, of developing countries especially in South Asia (Gaur *et al.*, 2012). This plant has a significant role in agriculture but the overall crop productivity is sternly hampered by the incursion of soil-borne pathogens such as fungi, bacteria, and viruses. The first report of a soil-borne pathogenic fungus *Fusarium oxysporum* f.sp.*ciceris* (FOC) as a causative agent of *Fusarium* wilt in India and its correct etiology was determined by Butler in 1918 and Padwik in 1940, respectively (Cunnington *et al.*, 2007). *Fusarium* wilt considered a major exotic disease-causing wilting at any time from the seedling stage to podding. The fungus invades plant root through wounds, assault cortical region, and reach to the stele resulted in characteristic vascular wilt (Singh *et al.*, 2011). Wilt in chickpea occurs in 32 countries across 6 continents (Singh *et al.*, 2014).

In response to the cross-talk between plant and pathogen, plants trigger a substantial array of defense mechanisms to ward off pathogens. A most decisive factor imparting successful warding of the pathogen is the swiftness of their defense response initiation which requires an apparent conception of the plant's ability to comprehend pathogen attack and control the expression of defense mechanisms. When plants are exposed to any biotic or abiotic stressful condition, the reactive oxygen species (ROS) production increases and it causes significant damage to the cellular components of plants. Plants have several inbuilt antioxidants that can detoxify ROS and in turn protect cellular components. Assorted defense-related genes chiefly encoding pathogenesis-related (PR) proteins are present in plants, bestow resistance from pathogens attributed to their potential to ward off pathogens. Therefore, the resistance mechanism of the host can be scrutinized by measuring the alteration in defense-related marker enzymes in response to external stimuli such as biotic and abiotic

The simulated response of plants is often complemented by the production of an array of host proteins with the ability to mount a defense against invader (Tahsili *et al.*, 2014). Research on the elucidation of host defensive responses to pathogen invasion have determined catalase, superoxide dismutase (SOD), peroxidase (POX), polyphenol oxidase (PPO), phenylalanine ammonia-lyase (PAL) and "pathogenesis-related" (PR) proteins (Swarupa *et al.*, 2014 and Dehgahi *et al.*, 2015). A multifaceted association of diverse signals regulates the plant's response for protection against pathogens (Datta and Lal, 2018). The number of chemical fungicides adopted to control fungal pathogens for a prolonged period, however, immoderate use of chemicals exert a detrimental effect on soil fertility and lead to a decrease in crop productivity. Moreover, the effectiveness of these fungicides remains for a stunted time during the cropping season (Akram and Anjum, 2011). Plant growth-promoting bacteria were used to maintain the biogeochemical cycle of soil and helps to induce anti-oxidant property against reactive oxygen species (ROS) - used for detoxification against biotic and abiotic stress.

The present investigation aimed to ascertain the effect of *M. luteus* on the induction of defense enzymes in the presence and the absence of *Fusarium* in chickpea plant. Yellow pigmented actinobacterial strain *M. luteus* was previously isolated from the marine environment and used as a talc-based bio-elicitor to induce plant defense under pot trials. Further, induced defense mechanisms were studied against *Fusarium* by enhancement of defense enzymes and markers like SOD, POX, L-proline, and total phenolic in chickpea. Chlorophyll and carotenoid content were also assessed in plants that were treated with *M. luteus* as compared to FOC treated plants.

### MATERIAL AND METHODS

#### Isolation of Marine bacteria

*M. luteus* strain (Accession No. JX679497) was isolated from the marine freshwater of Khambhat, Gujarat, India. *M. luteus* was inoculated on a nutrient

*Annexure 4*

Sr. No.	2017 Training Roll number	Student name	Branch	Semester	Place of training	Duration/ Dates	Certificate copy	Report	Renumeration/F Industrial
<b>2018 Training</b>									

1	17BSC093	PATEL TANYA	BT	V	ARYA AGRO BIOTECH & RESEARCH CENTER	28-11-18 TO 5-12-18	YES	NO	YES
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**2019 TRAINING**

*	1	17BSC118	VAGHELA SHREYA	BT	V	GUJARAT STATE FERTILIZERS & CHEMICAL LTD	15-5-19 TO 5-6-19	YES	NO	*
2	17BSC100	PATIL NIRALI KISHOR	BT	V	GSFC AGROTECH LIMITED	15-5-19 TO 30-5-19	YES	NO		
3	17BSC090	PATEL SHRADDHABEN	MI	V	AMUL DAIRY	31-5-19 TO 19-6-19	YES	NO		
4	17BSC067	PATEL MANSIBEN	MI	V	AMUL DAIRY	31-5-19 TO 19-6-20	YES	NO		
5	17BSC060	PATEL KRINABEN RAMESHBHAI	MI	V	AMUL DAIRY	31-5-19 TO 19-6-21	YES	NO		
6	17BSC020	KANSARA HENY HETALKUMAR	MI	V	AMUL DAIRY	31-5-19 TO 19-6-22	YES	NO		
7	17BSC093	PATEL TANYA	BT	V	AMUL DAIRY	14-5-19 TO 30-5-19	YES	NO		
8	17BSC101	PRAJAPATI BHAVUMIK	BT	V	AMUL DAIRY		YES	NO		
9	17BSC038	PATEL ATIT M	BT	V	AMUL DAIRY		YES	NO		
10	17BSC034	PARIKH HIRAK SAMIR	BT	V	AMUL DAIRY		YES	NO		
11	17BSC028	PAHILANI PAVAN M	MI	V	BANASKANTHA DISTRICT CO.OP MILK PRODUCERS UNION LTS	13-5-19 TO 1-6-2019	YES	NO	YES	

## *Annexure 5*

B.Sc V
<b>BT 505 Industrial Biotechnology</b>
Effect of pH on bacterial culture or growth
Effect of temperature on bacterial culture or growth
Effect of different carbon sources on bacterial culture or growth
Effect of different nitrogen sources on bacterial culture or growth
Measurement of microbial growth after exposure to different pH
Measurement of microbial growth after exposure to different temperatures
Measurement of microbial growth after exposure to different carbon sources
Measurement of microbial growth after exposure to different nitrogen sources
Estimation of citric acid production
Estimation of alcohol production

(S)

MICROBIOLOGY	
MI821 (Industrial Microbiology)	
1	Partial purification and concentration of amylase
2	Estimation of specific activity, fold purification and yield of protein purification
3	Ethanol fermentation by free and immobilized cells and its downstream processing
4	Purification of citric acid by Ca(OH)2 method
5	Isolation of antibiotic producers
6	Production and purification of Exopolysaccharides
7	Isolation of auxotrophic mutants
8	Chemical Assay of penicillin

*Annexure 6*

CHAROTAR UNIVERSITY OF SCIENCE AND TECHNOLOGY  
P. D. PATEL INSTITUTE OF APPLIED SCIENCES  
B.Sc

Date : 09/07/2020

Syllabus Details

Effective Year 2020-21

Degree	: B.Sc	Semester	: 5
Total Subjects	: 7		
Total Regular Subjects	: 2		
Total Elective Subjects	: 5		

Group Name : Core Courses

Course Code	Course Title	Teaching Scheme					Examination Scheme					
		CREDIT				TOTAL HOURS	TH		PR		PRJ	
		TH	PR	PRJ	TOTAL		Internal	External	Internal	External	Internal	External
BS503	BIOINFORMATICS	2.00			2.00	2.00	0/15	14/35	-	-	-	-
BS511.02	COMMUNICATION AND SOFT SKILLS		2.00		2.00	2.00	-	-	0/30	28/70	-	-
					4.00	4.00						
												150

Group Name : BSCSEM-5E

Course Code	Course Title	Teaching Scheme					Examination Scheme					
		CREDIT				TOTAL HOURS	TH		PR		PRJ	
		TH	PR	PRJ	TOTAL		Internal	External	Internal	External	Internal	External
BE510	BIOETHICS AND BIOSAFETY	3.00			3.00	3.00	0/30	28/70	-	-	-	-
BE511	MICROBIAL ENZYMES	3.00			3.00	3.00	0/30	28/70	-	-	-	-
BE512	MANAGEMENT OF HUMAN MICROBIAL DISEASES	3.00			3.00	3.00	0/30	28/70	-	-	-	-
BE513	AGRICULTURAL BIOTECHNOLOGY	3.00			3.00	3.00	0/30	28/70	-	-	-	-
BE514	DRUG DESIGNING	3.00			3.00	3.00	0/30	28/70	-	-	-	-

Group Name : BSCMISem5Core

Course Code	Course Title	Teaching Scheme					Examination Scheme					
		CREDIT				TOTAL HOURS	TH		PR		PRJ	
		TH	PR	PRJ	TOTAL		Internal	External	Internal	External	Internal	External
MI505	FOOD AND DAIRY MICROBIOLOGY	3.00			3.00	3.00	0/30	28/70	-	-	-	-
MI506	ENVIRONMENTAL MICROBIOLOGY	3.00			3.00	3.00	0/30	28/70	-	-	-	-
MI507	PLANT PATHOLOGY	3.00			3.00	3.00	0/30	28/70	-	-	-	-
MI508	MICROBIOLOGY LABORATORY-V		8.00		8.00	16.00	-	-	0/50	40/100	-	-

*Ramdev*  
DFAN

Annexure A  
Library Book procurement PDPAS

2019-20					
Bill no	Dep	Date	Qty	Cost	Acc No
1150	Phy	14/05/2019	2	1890	3770 to 3771
36	phy	22/06/2019	3	17555	3772 to 3774
58	Bio	29/07/2019	12	17950	3775 to 3786
1123	Bio	25/07/2019	18	8730	3787 to 3804
14527	Phy	8/7/2019	1	16983	3805
1126	BOT	3/8/2019	3	15419	3806 to 3808
1125	Math	3/8/2019	10	18180	3809 to 3818
310	BIO	8/8/2019	25	53440	3819 to 3843
311	BIO	9/8/2019	7	34998	3844 to 3850
109	BIO	7/9/2019	19	50325	3851 to 3869
1226	Math	18/09/2019	10	18180	3870 to 3879
			110	253650	