

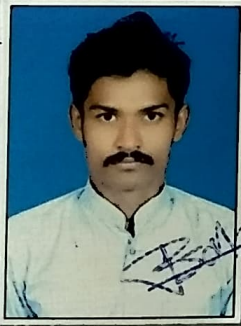


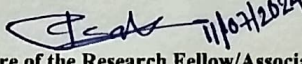
UNDERTAKING BY A RESEARCH FELLOW/ ASSOCIATE ON ACCEPTANCE OF THE AWARD OF RESEARCH FELLOWSHIP/ ASSOCIATESHIP

I Purushottam Son of Shri Surdarshan

resident of **40/2 Village- Sikola Post- Dagania Tehsil- Gunderdehi District – Balod C.G. 491221** have been awarded the Junior/Senior Research Fellowship/ SPM Fellow/Research Associateship/CSIR-Nehru PDF of the Council of Scientific & Industrial Research (hereinafter called Council). I accept the award and undertake that:

- I. During the entire tenure of the Fellowship/Associateship, I shall abide by the rules and regulations of the Council. Any change in rules and regulations by the Council in future will be applicable to me.
- II. I shall devote full time to research during the tenure of Fellowship/Associateship except as provided in the rules.
- III. I shall obtain the approval of the Council before accepting any award or allowance, if offered to me during the tenure of Fellowship/Associateship.
- IV. I shall prepare the progress report of my work of at the end of each year and communicate it to the Council through the Guide / Supervisor / Faculty Member.
- V. I shall send two copies of a detailed consolidated report of research work through the Supervisor on termination of the Fellowship / Associateship.
- VI. I also hereby declare that if the results of research are such that can be exploited commercially by taking a patent or otherwise commercial exploitation and patent rights will be decided/governed as per the rules for Fellowships/Associateships on Patents available on www.csirhrdg.res.in.
- VII. I have gone through CSIR Terms & Conditions & have clearly understood that the fellowship is for a fixed period / tenure of 2/3/4 Years for JRF/SRF i.e. a total of 5 Years for JRF+SRF and for Research Associates, initially for a period of one year, extendable on yearly basis at the discretion of CSIR up to a maximum of three years. For CSIR Nehru PDF, the tenure is 2 years whereas the tenure for SPM Fellow is 5 years.
- VIII. I further understand clearly that I shall have no claim whatsoever for regular / permanent absorption on expiry of Fellowship / Associateship.




Signature of the Research Fellow/Associate with date

Name of Supervisor/Guide: **Dr. Madhulika Singh**

Email address of Supervisor/ guide: madhulikasinghggv@gmail.com

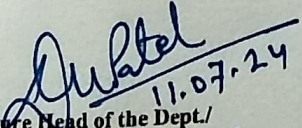
Signature of Supervisor/ guide :

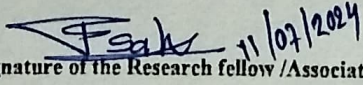
With official Seal and Date


Dr. Madhulika Singh
Assistant Professor
Department of Botany
Guru Ghasidas Vishwavidyalaya
(A Central University), Bilaspur (C.G.)

I report myself on duty as Junior/Senior Research Fellow/SPM Fellow/Research Associate/CSIR-Nehru PDF in the Forenoon/Afternoon of **01/07/2024** (Date) **Department of Botany** (Name of Department) of **Guru Ghasidas Vishwavidyalaya** (Name of University /Institute / College).

In JRF/SPMF cases, date of joining will be the date of issue of JRF (NET) certificate or effective date of fellowship or actual date of joining whichever is later. Without receiving NET certificate from Examination Unit, the candidate cannot join and the joining report in such cases will not be accepted.


Signature Head of the Dept./
Dean of the faculty/Head
With official Seal & Date


Signature of the Research fellow /Associate with date

वनस्पति शास्त्र विभाग
Department of Botany
गुरु घासीदास विश्वविद्यालय (केन्द्रीय वि.वि.), बिलासपुर (छ.ग.)
Ghasidas Vishwavidyalaya (A Central University), Bilaspur (C.G.)

Roll No. CG01040642

Date of Exam 06/06/2023



ATTESTATION

Purushottam

(Name of the Candidate)

I recommend the candidate for the award of Junior Research Fellowship and undertake to guide him/her on:

Role of exogenous applied H₂S in nutrient deficient plant.

(Please
indicate Topic)

For the duration of fellowship in case he/she is awarded the Fellowship by CSIR. Necessary facilities for research on the problem are available in the Institution. I also certify that I am authorized to guide Research Fellows under the University Rules. I have personally verified the concern degree, marks sheets and other relevant testimonials, which have been enclosed herewith by the candidates with reference to their original.

Signature Name and Designation of the Guide :- **Dr. Madhulika Singh** (Assistant Prof. in Botany)

Name of the Department :- Botany

Name of the University - Guru Ghasidas Vishwavidyalaya, Bilaspur C.G. (A Central University), Bilaspur (C.G.)

Date 11/07/2024

Necessary facilities are available and will be provided to the applicant for research during the tenure of Fellowship in case of his/her selection. The candidate will be allowed to join the Fellowship immediately on receiving the award and registered in the University for higher degree.

Dr. D.K. Patel 11.07.2024

Department of Botany
Guru Ghasidas Vishwavidyalaya Bilaspur C.G.

Signature & Name of Head of the Department /
Institution with seal **Department of Botany**

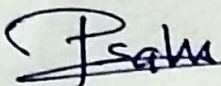
Date 11/07/2024

गुरु घासीदास विश्वविद्यालय (केन्द्रीय वि.वि.), बिलासपुर (उ.प्र.)
Guru Ghasidas Vishwavidyalaya (A Central University), Bilaspur (C.G.)

**Declaration by the Research
Fellow/Associate**

I, **Purushottam** declare as under:

1. That as a recipient of the Council's Fellowship/Associateship, I shall be governed by the disciplinary regulations of the host institute where I have proposed to avail the CSIR fellowship/associateship for pursuing my doctoral/postdoctoral research work.
2. That I have never been punished or debarred from government (central/state), autonomous organization and CSIR service.
3. That my fellowship will be liable to cancellation for any kind of misconduct.

 17/07/2024
Signature of the Research Fellow/ Associate

1. Topic of Research: **Role of exogenous applied H_2S in nutrient deficient plant.**
2. Board/Area of Research: **Plant Stress Physiology.**

Subject	Code No.	Subject	Code No.
Physics	01	Biophysics	11
Pure Mathematics	02	Medical & Allied Sciences	12
Applied Mathematics	03	Botany	13✓
Statistics & Operational Res.	04	Zoology	14
Analytical Chemistry	05	Geology	15
Applied/Industrial Chem.	06	Geophysics	16
Inorganic Chemistry	07	Geochemistry	17
Physical Chemistry	08	Meteorology & Oceanography	18
Organic Chemistry	09	Engineering & Tech.	19
Biochemistry	10	Others	20

****Subject Code number may be ticked/encircled.**

3. The proposed work indicating overall aim of the research and how it is to be Progressed may be described briefly (in the space provided below)

Hydrogen sulfide (H_2S) is predominantly considered as a gaseous transmitter or signaling molecule in plants. It is known to be an important component plays role in a variety of plant cellular and physiological processes. H_2S actively participates in abiotic stresses and improves plant tolerance against them. H_2S decreased the amount of root-bound apoplastic micronutrient and increased the micronutrient content in leaves and roots by regulating the enzyme activities and nutrient homeostasis and sulphur metabolism related gene expression levels and promoting photosynthesis in nutrient-deficient crop plants. H_2S changed the plant hormone concentrations by modulating plant hormone-related gene expression abundances in crop plants. Because of their gaseous nature, they are efficiently disseminated to various parts of the cell to supply sulphur and balance the antioxidant pools. To the best of our knowledge much studies have not been reported related to this work. So, we want to investigate the mode of action of H_2S in nutrient-deficient crop plants.

Objectives:

1. To study the growth parameter, biochemical and physiological process and oxidative stress biomarkers in nutrient deficient crop plant under H_2S exogenous application.
2. To study the H_2S biosynthetic pathways in nutrient deficient crop plant.