



**RAMAIAH**  
College of Arts, Science &  
Commerce

ಎಮ್ ಎಸ್ ರಾಮಯ್ಯ ಕಲಾ, ವಿಜ್ಞಾನ ಮತ್ತು ವಾಣಿಜ್ಯ ಕಾಲೇಜು

**M S Ramaiah College of Arts, Science and Commerce**

Re-accredited 'A' by NAAC, Permanently Affiliated to Bengaluru City University,  
Approved by Government of Karnataka, Approved by AICTE, New Delhi,

Recognized by UGC under 2f & 12B of UGC act 1956



(National Institutional Ranking Framework, Ministry of Education, Govt of India)

Ranked 55<sup>th</sup> in NIRF India Ranking by MHRD, New Delhi

DBT Star College Scheme

Ref: MSRCASC/MB/21-22/9

Date: 10.07.2022

## Circular

### Department of Microbiology

A visit to GKVK has been organized on 15<sup>th</sup> of July 2022 for 4<sup>th</sup> semester MSc microbiology students. This GKVK visit showcases latest advances in mushroom cultivation and biofertilizer production. In this regard all the students should assemble by 8.30 am. A transportation arrangement has been made.

Dr. A G Triveni, Assistant professors and, Dr. Pushpa H, Professor and HOD will accompany students.

HOD

10/7/22  
Head of the Department  
MICRO BIOLOGY  
Ramaiah College of Arts  
Science & Commerce  
Bangalore - 560 054

Principal

Principal,

M.S. Ramaiah College of Arts, Science & Commerce  
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**Fwd: Permission to visit Biofertilizer Production Unit for Microbiology Students of M.S.Ramaiah College of Arts, Science and Commerce, Bangalore**

Dr. Pushpa H <pushpa\_microbio@msrcasc.edu.in>  
To: ramesha alurappa <ramesha.micro@gmail.com>

Wed, Nov 9, 2022 at 3:23 PM

----- Forwarded message -----

From: Dr. Pushpa H <pushpa\_microbio@msrcasc.edu.in>

Date: Thu, Jun 30, 2022 at 1:29 PM

Subject: Permission to visit Biofertilizer Production Unit for Microbiology Students of M.S.Ramaiah College of Arts, Science and Commerce, Bangalore

To: <deanagben@uasbangalore.edu.in>

To,  
The Dean (Agri),  
College of Agriculture, UAS,  
Gandhi Krishi Vignan Kendra,  
Bellary Road,  
Bangalore - 560 065.

✓ Sender notified by  
Mailtrack

Respected sir,

To introduce myself, I am Dr. Pushpa. H, HOD, Microbiology, MSRCASC, Bangalore.

we are conducting a value-added course on Biofertilizer production techniques for BSc- Microbiology Students, In this regard, we would like to visit the Biofertilizer production unit at your esteem University so that students could understand the mass production of biofertilizer so that students will be benefited if you give us permission to visit. Kindly help us in this regard and give us permission and oblige.

Waiting for a positive response from your side.

With regards,

Dr. Pushpa.H  
Program Coordinator, DBT-Star College Scheme,  
Professor and HOD,  
Department of Microbiology,  
MSRCASC, Bangalore.

  
Principal,  
M.S. Ramaiah College of Arts, Science & Commerce  
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e-mail : deanagben@uasbangalore.edu.in

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UNIVERSITY OF AGRICULTURAL SCIENCES, BANGALORE  
College of Agriculture, GKVK, Bengaluru-560 065

**Dr.N.B.Prakash, Dean(Agri.)**

No.D (Agri.)B/Visit/M.S.R-B/2022-23 /984

04.07.2022

Dear Sir,

**Sub:** Visit by students and staff of M.S.Ramaiah, Bangalore.....reg.  
**Ref:** Your e-mail letter No. Nil dated 30.07.2022

B.Sc. Microbiology students (50 Nos.) and faculty / staff (02 Nos.) of M.S.Ramaiah, College of Horticulture are permitted to visit the Department of Agril. Microbiology, College of Agriculture, GKVK, Bengaluru on **15.07.2022 at 9.00 AM.**

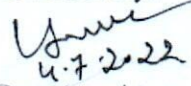
In this regard, you are required to remit Rs. 1,400/- (Rupees One thousand four hundred only) by cash, on the day of your visit as fee. towards the visits to Assistant Comptroller, College of Agriculture, GKVK, Bangalore.

Arrangements have been made for the visit.

It is the discretion of the University to cancel the visit without prior intimation at any time due to unforeseen circumstances.

With regards,

Yours Sincerely,

  
4.7.2022  
Dean(Agri.)  
Dean (Agri.)  
College of Agriculture  
UAS, GKVK, Bengaluru-560 065

To

Dr.Pushpa.H  
Program Coordinator, DBT-Star College  
Scheme, Professor and Head of Department,  
Microbiology, MSRCASC,  
Bangalore.  
(e-mail: [pushpa\\_microbio@msrcasc.edu.in](mailto:pushpa_microbio@msrcasc.edu.in))

To follow CAB (Covid appropriated  
behavior ) for Covid -19 prevention  
as per the guidelines of UGC /  
ICAR

- Copy to: 1. Prof. & Head, Depts. of Agril. Microbiology, CoA, GKVK with a request to arrange for the visit on the above mentioned date.  
2. Asst. Comptroller, Accts. Sec., CoA, GKVK to collect the requisite fee.  
3. File.

  
Principal,  
S. Ramaiah College of Arts, Science & Commerce  
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Banaalora - 560 054



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## M S RAMAIAH COLLEGE OF ARTS, SCIENCE AND COMMERCE

### DEPARTMENT OF MICROBIOLOGY

### GKVK

### (GANDHI KRISHI VIGYANA KENDRA)

#### INTRODUCTION:

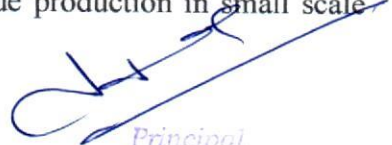
On the 15<sup>th</sup> of July 2022 we, the students of MSc Microbiology (Semester 4), visited Gandhi Krishi Vigyana Kendra (GKVK) for learning about Mushroom cultivation and Biopesticides.

GKVK is one of the campus & administration Head Quarters of University of agricultural science. The govt of India & ICAR have develop state specific document on what has done to each state & how agricultural university and ICAR institutes should work together along with farmers so that the technology required for doubling farmers income to directly go to them.



#### OBJECTIVES OF VISIT:

- The main purpose of this visit is to learn about mushroom cultivation
- The main purpose of this visit is to learn about biopesticide production in small scale and large scale.



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## CONTENT / LEARNING HISTORY:

### MUSHROOM CULTIVATION:

Grain, wheat or paddy straw are taken, washed, dried and packed in autoclavable bags and are autoclaved. Then the bags are inoculated with the mother culture sample (mushroom seeds) and kept for incubation for 15 days. They are arranged in such a manner that they have alternate layers of paddy straw and mushroom spawn and mushroom spawns are generally placed in the corner. Temperature is generally maintained at  $-4^{\circ}$ .

Further this can be harvested and used for consumption.



### BIOFERTILIZERS PRODUCTION

“ Biofertilizers are substances that contain microorganism, which when added to the soil increases its fertility and promotes plant growth”

It comprises living organisms which include mycorrhizal fungi, blue green algae and bacteria which can be isolated from the soil and grown in the specific media.

For example - Pseudomonas – King’s B media, Rhizobium - Yeast extract manitol congo red agar.

  
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The mother culture is taken for mass production and huge fermentors are used at industrial scale for the preparation of liquid and carrier based formulations.

Lignite, charcoal powder, vermicompost, talcum powder can be used for the preparation of carrier based biofertilizers and for liquid based adjuvants like PEG and Glycerol and stabilizers.

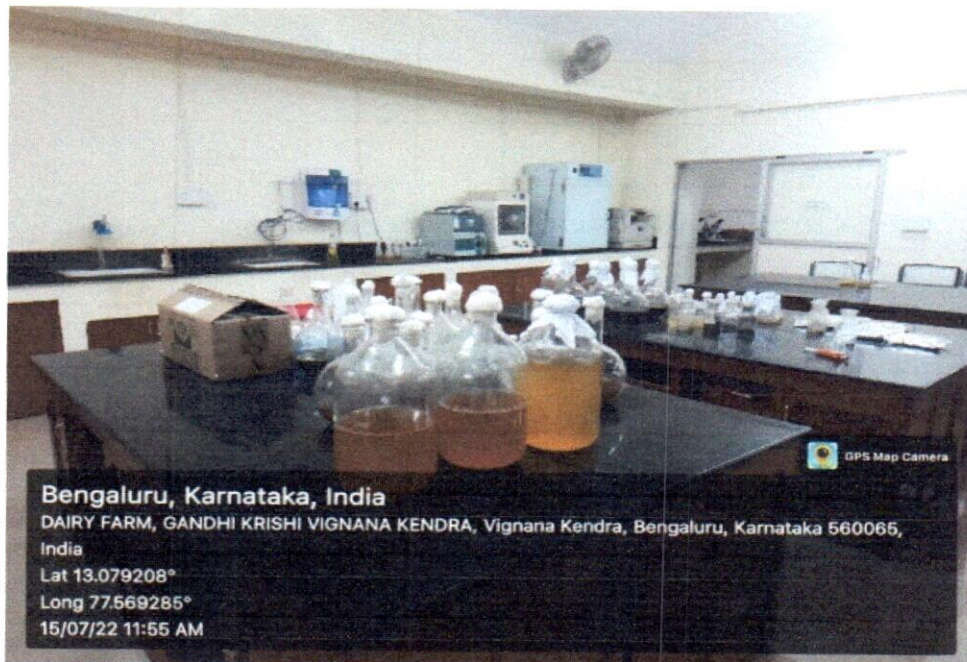
For biofertilizers preparation moisture content should be 35-40% (carrier based) and pH should be maintained neutral for both types.

In solid base fertilizers  $5 \times 10^7$  colonies per gram should be present and  $1 \times 10^8$  colonies per gram for liquid based biofertilizers and the contaminants should not be more than  $10^5$ .

Seed Treatment: For 10kg of seeds 200g of biofertilizer is required which is mixed by adding sticky sugary syrup.

Nowadays in commercial companies biofertilizers are also available as tablets, capsules and granules.

Through the use of biofertilizers, healthy plants can be grown while enhancing the sustainability and the health of the soil and it can be expected to reduce the use of synthetic fertilizers and pesticides, but they are not yet able to replace them.



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### **CONCLUSION:**

This visit was a really great and detailed learning experience about both mushroom cultivation and biofertilizer production. We had an opportunity to enter the mushroom cultivation laboratory and prepare a mushroom cultivation bag, which was a really great learning experience. In the biofertilizers lab we had an opportunity to see different types of organisms (like azotobacter, rhizobium, azospirillum, pseudomonas, etc.) in large culture flasks.

**Head of the Department**  
**MICRO BIOLOGY**  
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**E** principal.msrtcasc@gmail.com  
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**Department of Microbiology**  
**Industrial Visit, M. Sc 2020-22 batch**

Sl No	Reg No	Name	Signature
1	MR200001	Afrina Laskar	Afrina
2	MR200002	Ankita Hore	Ankita Hore
3	MR200003	Arpitha SN	Arpitha
4	MR200004	Chandana.B	Chandana B
5	MR200005	Chandana C	Chandana C
6	MR200006	Defeny D lopes	Defeny
7	MR200007	Durgashree J	Durgashree
8	MR200008	Gaanashree M	Gaanashree M
9	MR200009	Godogula Kiranmayi Madhusudhan	Kiranmayi
10	MR200010	Guttina Sripriya Srinivas	Sripriya
11	MR200011	Harshini P	Harshini
12	MR200012	Hithin H Shetty	Hithin H Shetty
13	MR200013	Kavya.R	Kavya
14	MR200014	Manisha Dembi	Manisha
15	MR200015	Md Dastageer Ahemad	Md Dastageer
16	MR200016	Nahida Kausar	Nahida Kausar
17	MR200017	Nikita Paul	Nikita Paul
18	MR200018	Nithya G	Nithya G
19	MR200019	Pooja N	Pooja N
20	MR200020	Pooja V	Pooja V
21	MR200021	Prakriti B	Prakriti B
22	MR200022	Prema.R	Prema R
23	MR200023	Pushpa sri	Pushpa sri
24	MR200024	Ruchi Jhavar	Ruchi
25	MR200025	Ruqiya khamroon	Ruqiya
26	MR200026	S Jeevika	S Jeevika
27	MR200027	Sahana E	Sahana E
28	MR200028	Sandhya E	Sandhya E
29	MR200029	Sarbashree Roy	Sarbashree Roy
30	MR200030	Sharanya B	Sharanya B
31	MR200031	Swagata Sanyal	Swagata Sanyal
32	MR200032	Syeda Nargis Mehdi	Syeda Nargis Mehdi
33	MR200033	Umashankar L	Umashankar L
34	MR200034	Venkatesh R	Venkatesh R
35	MR200035	Vennela C	Vennela C

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