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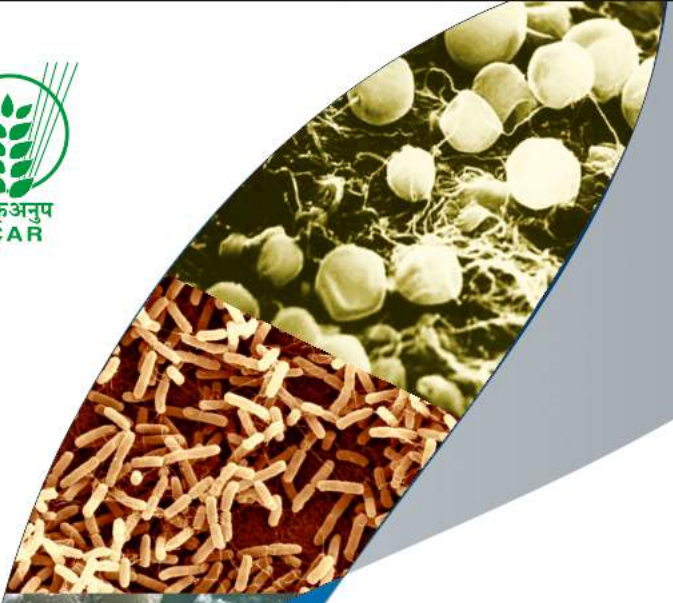

Azadi Ka Amrit Mahotsav

Guidelines for Registration of Microbial Germplasm

NBAIM
रा.कृ.उ.सू.ब्यू.

ICAR - NATIONAL BUREAU OF AGRICULTURALLY IMPORTANT MICROORGANISMS

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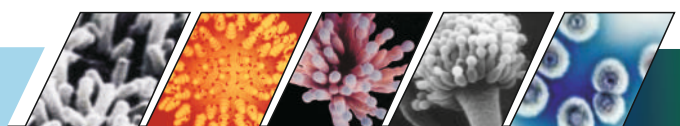
PREAMBLE

Microorganisms are considered to be the richest natural biological resource due to their enormous metabolic diversity. Their contribution in sustenance of the higher life forms in the earth is unparallel. Over a period of time, they abound in all kinds of habitats, viz., with extremes of temperature, pH, salinity, aridity etc. These tiny but mighty organisms are involved in biogeochemical cycling, beneficial mutualistic relationships (e.g., nitrogen fixation, animal digestion, mycorrhiza), and in the production of the bulk of atmospheric oxygen. Microorganisms have diverse applications in agriculture, biotechnology industries, pharmaceuticals and food industries. In agricultural production, they have been exploited for augmentation, supplementation and recycling of plant nutrients and ecofriendly management of pests and pathogens.

Microbial diversity is a crucial component for functioning of the world's agroecosystems and is vital for the maintenance of their capacity to adapt to change. The extent of microbial diversity is enormous and the number of microbial species is almost incalculable. In collecting and describing them, priority needs to be given to those of greater agricultural importance. In any case, *ex-situ* conservation is technically feasible and cost-effective for certain microorganisms. The key to conserving and managing the diversity of microorganisms important to food and agriculture is, therefore, to design integrated sustainable management strategies that not only conserves this resource for the future but also enhances the delivery of ecosystem services like nutrient cycling and biological control, which ultimately contributes to the livelihoods of farmers and rural communities. In the process of evolution, several valuable strains of microbes have evolved and developed in diverse eco-geographical regions. The future availability of these key microorganisms can be ensured through *ex-situ* conservation. Under the present global scenario of WTO and intellectual property rights (IPR), such valuable biological resources need to be protected according to Convention on Biological Diversity (CBD) requirements. However, in our country we still do not have a robust system to protect these biological resources as an intellectual property which might be having numerous commercial applications in future.

Recognizing the need for an authentic national documentation system on valuable microbial genetic resources, the registration of microorganisms has been initiated at ICAR-NBAIM. This would provide protection to our microbial wealth and facilitate its access for various applications particularly in agriculture.



REGISTRATION OF MICROBIAL GERMPLASM

Definitions for the Purpose of Registration

i. References to "Registration of Microorganisms" shall be construed as references to a process of notifying unique microorganism(s) based on its trait(s) of academic, scientific and applied values so as to provide recognition/protection to the researcher(s) who has /have developed/ identified the germplasm.

ii. "Depositor" means the person or legal entity depositing a microorganism to ICAR-NBAIM.

iii. "Deposit of a microorganism" means the deposition of a microorganism from a depositor to ICAR-NBAIM.

iv. Unique germplasm' means microorganisms endowed with stable and potentially proven agriculturally or industrially or biotechnologically important trait(s) that could be useful in agriculture and allied sectors.

v. "Depository institution" means an institution which provides the receipt, acceptance and storage of microorganisms and the furnishing of samples thereof.

vi. "Culture collection" refers to the National Agriculturally Important Microbial Culture Collection (NAIMCC)

vii. For purposes of registration, microorganisms include archaea, bacteria, cyanobacteria and fungi of Biosafety Level 1 or Biosafety level 2.

viii "Notification" refers to public release of information on validly registered microorganisms in the form of official publication

GUIDELINES FOR REGISTRATION OF MICROBIAL GERMPLASM

1. *Microbial Germplasm to be Registered*

Microbial germplasm such as bacteria, cyanobacteria, fungi and archaea which is unique and has potentially proven stable attributes of academic, scientific, agricultural and industrial or commercial value shall be registered.

2. *Eligibility Criteria for Registration*

i. The germplasm should accompany complete passport data information, including taxonomy, source, geographical location, methods of preservation, risk group, utility and uniqueness.

ii. All claims concerning the material submitted for registration should accompany scientific evidence for uniqueness, novelty, reproducibility and value in the form of :

a. Publication in standard peer reviewed journal (a copy of reprint to be submitted).

and / or

b. Certified evaluation data for at least three years under AICRP trial/nursery tests supported with relevant extracts of the documents or verification by concerned Project Director (PD)/ Project Coordinator (PC) or data from three locations under any other relevant system.

and / or

c. Publication of information on potential value of proposed germplasm in Institute's annual report or any other official reports.

and / or

d. Certificate of the validation test of the claimed attribute by any institution as per the advice of the registration authority.

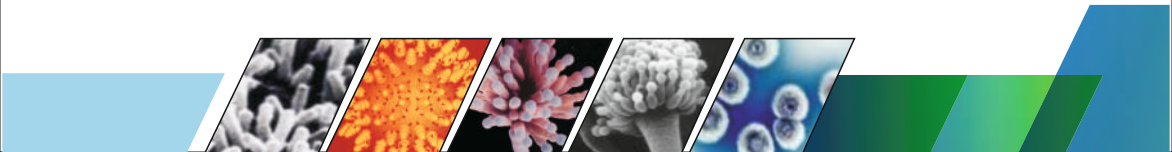
3. *Microbial Germplasm Ineligible for Registration*

i. Microbial germplasm and genetic stock without accompanying documentary evidence(s) for the claim(s) made in the application.

ii. Does not contain complete passport data

iii. Material for which any form of protection has been sought elsewhere.

iv. Genetically modified microorganisms, pathogens and viruses



v. Microorganisms which needs to be handled above BSL2

4. *Microbial Germplasm Registration Committee (MGRC)*

i. A committee would be constituted under the chairmanship of Deputy Director General (Crop Sciences), Indian Council of Agricultural Research (ICAR).

ii. Assistant Director General (Plant Protection and Biosafety), ICAR and Director, ICAR-NBAIM will be permanent members of the committee.

iii. In-Charge, NAIMCC will function as Member Secretary.

iv. It will have a provision for adoption of need-based specialists for a group of microorganisms with reference to the material under consideration with the approval of the Chairman.

5. *Nodal Agency*

i. ICAR-NBAIM, Maunath Bhanjan, U.P. will be the nodal agency for registration of germplasm. The application should be addressed to the Director, ICAR-NBAIM, along with the microbial cultures and a certificate of submission of culture of respective microorganism for conservation.

ii. The Member Secretary, MGRC will duly acknowledge with date, the receipt of the application and of the microbial culture(s).

iii. ICAR-NBAIM will maintain a permanent register and database listing the germplasm materials approved by MGRC with details on unique traits and other related information.

6. *Application Form*

Application shall be made in the prescribed Proforma (Form A, Annexure I).

7. *Screening of Application(s) and their Consideration by the MGRC*

i. The Member Secretary, MGRC, will screen the proposal(s) submitted on prescribed Proforma as per the guidelines of the checklist at ICAR-NBAIM (Annexure II).

ii. After initial screening, the incomplete application(s) would be advised for appropriate revision.

iii. The application where the validation of the data is felt necessary, the applicant would be asked to produce a validation report from an appropriate institute as advised by the Director, ICAR-NBAIM. The revised application should accompany such report duly endorsed by the competent authority of the institute.

iv. The proposal(s) complete in all respects shall be put up to the Registration Committee for consideration.

v. The MGRC shall consider the proposal as early as possible but not later than one year.

vi. The decision of the MGRC will be final.

8. *Validity of Registration*

The period for validity of registration shall be for ten years from the date of registration.

9. *Notification of Registered Germplasm*

All registered microbial germplasm would be officially communicated to the applicant(s) along with Registration Number. A certificate to this effect will also be issued to the applicant. A brief description of the germplasm for the purpose of registration will be published in appropriate periodicals, such as:

a. Indian Journal of Microbiology – published by Association of Microbiologist of India; Indian Journal of Agricultural Sciences-published by ICAR

or

b. Annual Reports of ICAR-NBAIM, Maunath Bhanjan, UP. 275103

or

c. ICAR News/ DARE report

or

d. ICAR- NBAIM website http://www.nbaim.icar.gov.in and MGR portal(www.mgrportal.org.in)

10. *Conservation, Maintenance and Sustainable Utilisation of Registered Germplasm*

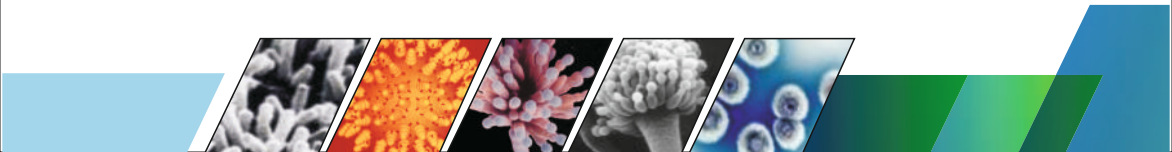
Registered germplasm will be conserved in the culture collection of ICAR-NBAIM.

11. *De-registration*

i. A registration may be revoked by the MGRC in case of false claim(s) or disputed IPR claims.

ii. Appeal for counter claim, if any, should reach the MGRC within a period of three months of notification.

iii. In case counter claims are found correct, the de-registration will be notified in official publication mentioned at Sl. No. 9.



PROCEDURE FOR SUBMISSION OF PROPOSAL FOR MICROBIAL REGISTRATION

1. Submission of Application and Material

i. All microbial germplasm proposed to be registered should be submitted to the following address:

The Director
ICAR-National Bureau of Agriculturally Important Microorganisms (NBAIM)
Kushmaur, Maunath Bhanjan, UP. 275103
Phone: 0547-2970733
E-mail: director.nbaim@icar.gov.in; nbaimicar@gmail.com

ii. The material must be accompanied by properly filled Form-A (Annexure -I) duly signed by the applicant and the competent authority with official seal (05 hard copies along with a soft copy as single PDF with documentary evidences). Applications must accompany an endorsement (Annexure II) regarding the unique claims from the competent authority.

iii. The Form-A must be accompanied by complete description of the germplasm using standard taxonomic descriptors in the Passport data sheet (Form-B). It may include morphological characters (along with colony and microphotograph), biochemical and molecular characteristics.

2. Guidelines for Submission of the microorganism(s)

i. Two lyophilized tubes or three slants of bacteria/fungi/archaea. Cyanobacteria should be provided both as agar slants and broth cultures (in duplicate).

ii. In case of spore forming fungi, only sporulated cultures in slants should be submitted.

iii. The cultures should be viable and pure.

APPLICATION FOR REGISTRATION OF MICROBIAL GERMPLASM

(Please refer to guidelines for filling the application form appended and Codes)

1. Application status (Code)

New	Revised

2. Type of microorganism

Archaea	Bacteria
Cyanobacteria	Fungi

3. Scientific name

4. Criteria for registration [Unique feature(s)]

5. Brief note on the microbial germplasm proposed to be registered (not exceeding one page; as separate annexure)

For use of ICAR -NBAIM

1. Application number:

2. Date of application:

DD	MM	YYYY

3. Whether new or revised

4. If revised, date of 1st application

DD	MM	YYYY

5. If validation test suggested, whether report attached

YES	NO

6. Action taken

a. Forwarded for registration
b. Sent for validation
c. Incomplete, sent for revision

7. Date of MGRC meeting

DD	MM	YYYY

8. Recommendation of MGRC

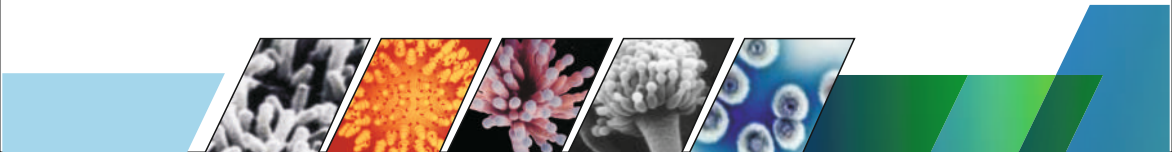
ACCEPTED	REJECTED

9. In case of acceptance, registration number

10. Date of notification

DD	MM	YYYY

11. Remarks



6. Supporting documents in favour of claims
(Complete documents to be attached as annexures)

7. Protocol(s), if any, for reproducing the claims (Details to be attached as annexures)

8. Particulars of the scientist(s)/person(s) who developed the microbial germplasm

Name: (Dr./Mr./Ms.)	
Affiliation	
Address	
Telephone	
Mobile no.	
E-mail	

[*Additional name(s) and address(es) of co-developers, if any, to be included; Corresponding personnel should be indicated with "*"*]

UNDERTAKING

I/We undertake to ensure deposition of microbial germplasm for long-term conservation at the NAIMCC, ICAR-NBAIM. I/We undertake its sustainable use by maintaining appropriate quantity of active/working collection. I/We have read the guidelines of registration and the information provided in this application is correct. There is no conflict of interest and nobody entitled to due credit has been deprived.

Countersigned by Competent authority
Name:
Designation:
Date:
Seal:

Signature of the Depositor
Name:
Designation:
Date:

Annexure II

Endorsement

This is to certify that the following unique traits as claimed by…… (Name, designation and affiliation of the developer) for registration of …… (Name of the microorganism proposed to be registered) are true to the best of my knowledge.

Unique traits-

1. _____

2. _____

3. _____

4. _____

5. _____

……..

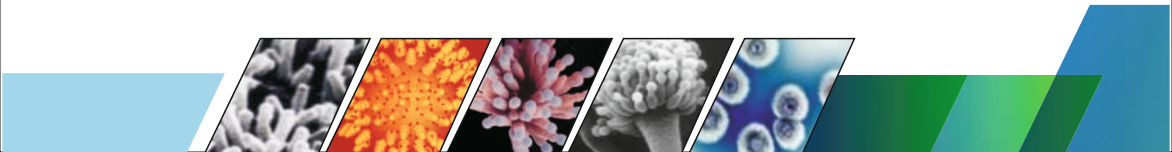
Signature with Seal

Name:……....

Designation:……..

Affiliation:……

Address:……



Form –B

(Microbial Passport data sheet for submission of cultures to NAIMCC)

राष्ट्रीय कृषि उपयोगी सूक्ष्मजीव कल्चर संग्रह (रा. कृ. उ. सू. क. सं.)
NATIONAL AGRICULTURALLY IMPORTANT MICROBIAL CULTURE COLLECTION (NAIMCC)
भा. कृ. अनु. प.-राष्ट्रीय कृषि उपयोगी सूक्ष्मजीव ब्यूरो
ICAR-NATIONAL BUREAU OF AGRICULTURALLY IMPORTANT MICROORGANISMS
भारतीय कृषि अनुसंधान परिषद
Indian Council of Agricultural Research
Kushmaur, Maunath Bhanjan 275103, Uttar Pradesh
कुशमौर, मऊनाथ भंजन 275103, उत्तर प्रदेश
Tel (दूरभाष): 0547-2970733
Email (ई मेल): director.nbaim@icar.gov.in, naimcc.nbaim@icar.gov.in
Web: www.nbaim.icar.gov.in, www.mgrportal.org.in

Passport Data for Submission of Microbial Culture(s)

Name of depositor(s):	
Designation:	
Address:	
Phone/Fax:	
E-mail:	

Microorganism's details

Name of microorganism (with isolate/strains/race /biotype etc.)					
Type of microorganism (**Please Tick**) ✓	☐ Fungus	☐ Bacterium	☐ Actinomycetes	☐ Cyanobacterium	☐ Other (please specify)

Isolation details

Source of isolation (**Please Tick**) ✓	☐ Plant	☐ Soil	Water		
	☐ Animal	☐ Insect	☐ Brackish	☐ Freshwater	☐ Marine
	☐ Any other, please specify				
Name of host; Variety (if known)					
Isolated from which part					
Isolated by with date					

Geographical origin

Longitude &latitude	
Place/village	
District	
State	

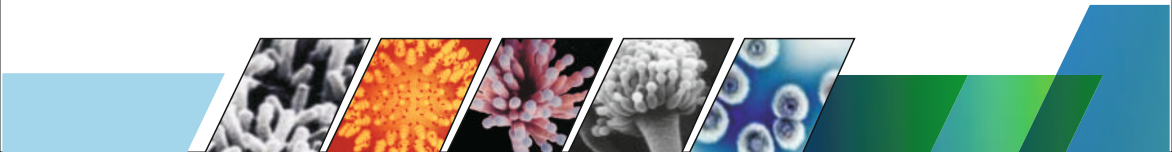
Growth and maintenance

Media	
Temperature	
Incubation time	
Sub-culturing period	
Special requirement for growth and sporulation, if any	
Light Intensity*	
Light duration*	
pH	
Other if any	

***Required only for cyanobacteria**

Identification details

Morphological description Image (Colony photograph is mandatory in case of bacteria, fungi, actinomycetes; for cyanobacteria please provide clear microphotographs showing morphological features like veg. cells, heterocysts, akinetes, hormogonia etc.)	Insert image
Taxonomical reference used for identification	
Any typical biochemical character, if known	
Molecular description (with NCBI/EMBL/DDBJ accession number is essential)	Insert image, If any & sequence if possible
Unique marker, if any	
Identified by	



Economic importance(provide details in the form of publication, if any)

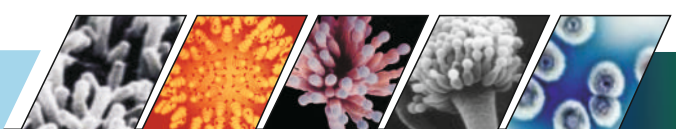
Agricultural	
Industrial	
Medicinal	
Biotechnological	
Pathogenic (virulence/aggressiveness)	
Other (if any)	

Other

Deposited in form of	
Provide accession number, if culture deposited elsewhere	
Publication involving the strain (if any)	
Any risk associated with the culture	
IPR/Patent information, if any	
Culture deposited as	Microbial Germplasm Registration

Place: Date:	Signature with Seal

NOTES



NOTES

Mandate

"To act as a nodal centre for acquisition and management of indigenous and exotic microbial genetic resources for food and agriculture, and to carry out related research and human resource development for sustainable growth of agriculture"

कार्य अधि-पत्र

"कृषि की संपोषणीय बढ़त को बनाये रखने और तत्सम्बन्धी अनुसंधान एवं मानव संसाधन विकास कार्यों को पूरा करने के लिए, कृषि हितार्थ देशी एवं विदेशी सूक्ष्मजैविक संसाधनों के अधिग्रहण एवं प्रबन्धन हेतु राष्ट्रीय और अन्तर्राष्ट्रीय स्तर पर एक प्रमुख केन्द्र के रूप में कार्य करना।"

ICAR-NATIONAL BUREAU OF AGRICULTURALLY IMPORTANT MICROORGANISMS

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