

Implementation of externally funded Ad hoc Research Project on “Mitigation of biotic and abiotic Stresses in crop plants mediated through potassium metaphosphate dimer, a new nutrient immunity booster”.

Implementation of 2025-26 to 2027-28



**MAHATMA PHULE KRISHI VIDYAPEETH  
RAHURI, DIST. AHILYANAGAR (MAHARASHTRA)**

Univ. Reso. No. MTG-3(755)/236 /of 2026

Date- 13/01/2026

- Read:** 1) No.RGSTC/File-2024/DPP-345/CR-117/486 date- 18/08/2025.  
2) Executive Council Resolution No.51/345, dated 24/08/2025.  
3) Proposal Submitted vide letter No.HOD/Bioch/650/2025, dated – 25.11.2025

The development of climate-resilient crops and judicious use of natural resources are key challenges for Sustainable agriculture under climate change. Improving nutrient and water use efficiency is vital in this context, Potassium metaphosphate dimer (PMPD, 00:40:40), also known as potassium salt of active phosphorus (PSAP), is a novel formulation of activated phosphorus and Potassium, developed through catalytic and split technologies. It is recommended for foliar, drip or drench applications in different crops such as sugarcane, grape, soybean, maize and chickpea as it is highly water soluble and had shown improved growth, yield, and quality. PMPD enhances photosynthesis, key regulatory enzymes, involved in key plant metabolic processes and secondary metabolism due to timely nutrient availability at critical stages. Although its agronomic benefits are evident but its mode of action requires scientific validation. The proposed study aims to investigate biochemical and molecular mechanisms, establishing the immunity profile of crops for climate resilience. The main goal of this project is to study the efficacy of PMPD in managing wilt of chickpea, leaf eating caterpillar of soybean and alleviation drought and salinity stress in chickpea and soybean. To study the effect of PMPD on crop growth and yield of soybean and chickpea under salinity and moisture deficit stress in pot culture and field experimental condition experiments, and to understand the mechanisms of alleviation of biotic and abiotic stresses in soybean and chickpea by the application of PMPD.

After due deliberations and presentation before the Project Appraisal Committee (PAC) of the Rajiv Gandhi Science and Technology Commission, Government of Maharashtra, Mumbai (RGSTC) in its meeting held on 22-23 April, 2025 reviewed and processed the research proposal with suggestions. Accordingly, the revised research project budget of Rs.48.32 lakh along with required justifications was submitted to the commission.

The RGSTC, Mumbai has sanctioned an amount of Rs. 48.32 lakh (Rupees Forty Eight Lakh Thirty Two Thousand Only) for implementation of collaborative research project entitled “**Mitigation of biotic and abiotic stresses in crop plants mediated through potassium metaphosphate dimer, a new nutrient immunity booster**”. The institute will be Mahatma Phule Krishi Vidyapeeth, Rahuri including Department of Biochemistry, Biotechnology Centre, Organic Farming Research and Training Centre and Department of

Soil Science, MPKV, Rahuri and ICAR-National Institute for Abiotic Stress Management, Baramati as a collaborating institute for a period of three years w.e.f. 2025-26 to 2027-28.

**RESOLUTION:**

On approval accorded by the Rajiv Gandhi Science and Technology Commission, Government of Maharashtra, Mumbai vide letter under reference at Sr. No. 1 and Resolution passed by the Executive Council referred to at Sr. No.2 above, the Hon'ble Vice Chancellor is pleased to accord sanction for implementation of a collaborative project entitled **“Mitigation of biotic and abiotic stresses in crop plants mediated through potassium metaphosphate dimer, a new nutrient immunity booster”**, The project will be implemented at Mahatma Phule Krishi Vidyapeeth, Rahuri (Lead Institute) including the Department of Biochemistry, Biotechnology Centre, Organic Farming Research and Training Centre and Department of Soil Science, MPKV, Rahuri, in collaboration with ICAR-National Institute for Abiotic Stress Management, Baramati. The project duration is three years w.e.f. 2025-26 to 2027-28 with a total outlay of Rs. 48.32 lakh (Rupees Forty Eight Lakh Thirty Two Thousand only) out of which Rs. 26.94 lakh (Rupees Twenty Six Lakh Ninety Four Thousand only) is the share of Lead institute, MPKV, Rahuri and Rs.21.38 lakh (Rupees Twenty One Lakh Thirty Eight Thousand only) is the share of collaborating institute, ICAR-NIASM, Baramati. The terms and conditions prescribed by funding agency needs to be followed scrupulously. The head wise allocation of funds is shown in Annexure-A.

Dr. P. K. Lokhande, Professor and Head, Department of Biochemistry, MPKV, Rahuri shall act as Principal Investigator of this project and Dr. V. P. Chimote. In-charge, State Level Biotechnology Center, Dr. U. S. Surve, Professor of Agronomy & Chief Scientist, Organic Farming Research and Training Centre, Dr. U. S. Dalvi, Associate Professor of Biochemistry, Dr. S. R. Shelke, Assistant Professor of Soil Science, MPKV, Rahuri, shall act as Co-Principal Investigators from lead institute MPKV, Rahuri. Dr. S. S. Changan, Scientist (Plant Biochemistry), will act as the Principal Investigator at the Project Coordinating Centre, ICAR-NIASM, Baramati and Dr. Aliza Pradhan, Scientist (Agronomy), Dr. P. S. Khapte, Scientist (Vegetable science) and Dr. K. K. Pal, Head, School of Drought Stress Management, ICAR-National Institute of Abiotic Stress Management, Baramati shall act as Co-Principal Investigators of this project. The administrative, technical and financial control of the project shall rest with Professor and Head, Department of Biochemistry, MPKV, Rahuri and Assistant Registrar, Post Graduate Institute, MPKV, Rahuri shall be Drawing and Disbursing Officer at Lead Institute MPKV, Rahuri. The Chief Finance and Accounts Officer (CFAO), ICAR-NIASM, Baramati shall be Drawing and Disbursing Officer at collaborating institute ICAR-NIASM, Baramati. The overall control of the project shall rest with Director of Research, MPKV, Rahuri.

The funds received from the RGSTC, Mumbai needs to be disbursed as per the proposal. The installment amount received from the funding agency RGSTC, Mumbai will be credited in the account of Comptroller, MPKV, Rahuri and subsequently the share of the collaborating institute ICAR-NIASM will be disbursed from the account of Comptroller, MPKV, Rahuri to the bank account of collaborating institute ICAR-NIASM, Baramati. The collaborating institute ICAR-NIASM, Baramati bank details are as under:



1. Name of Institute Account	ICAR Unit NIASM
2. Account No.	30862846914
3. Name of the Bank	State Bank of India
4. Name of the Branch	Afzalpurkar Building, Bhigwan Road, Baramati 413102
5. IFSC Code	SBIN0000321
6. MICR Code	413002101


The Hon'ble Vice Chancellor is further pleased to accord permission for filling up temporary post of Young Professional-I (Two) and Skilled Helper (one) on consolidated pay as prescribed under the guidelines of the project and by following due procedure. This university will have no liability whatsoever towards the temporary posts engaged in this project.

This resolution is issued in concurrence of the Comptroller vide his un-official reference No. Cr. 1682 VC, dated : 08/01/2026.

**Sd-/  
Rajendrakumar Patil  
Registrar**

F.W.Cs. for information and necessary action to:-

1. The Chairman, Rajiv Gandhi Science and Technology Commission, Government of Maharashtra, Mumbai-400 020.
2. The Member Secretary, Rajiv Gandhi Science and Technology Commission, Government of Maharashtra, Mumbai-400 020.
3. Dr. K.K. Pal, Head, School of Drought Stress Management, NIASM, Baramati.
4. The Director, ICAR-National Institute of Abiotic Stress Management, Baramati.
5. The Director of Research/Instruction/Extension. Education MPKV Rahuri.
6. The Dean, Faculty of Agriculture, MPKV Rahuri.
7. The Associate Dean (All).
8. The Nodal Officer, MPKV, Rahuri,
9. The Associate Director of Research, NARP (All).
10. The Heads of Departments (All).
11. The Comptroller/ The Planning Officer, MPKV Rahuri.
12. The Deputy Registrar (Admn.), MPKV Rahuri.
13. The Asst. Comptroller (I/II/III/IV) PAO, MPKV Rahuri.
14. The PA to Hon, Vice-Chancellor, MPKY, Rahuri.

  
**Deputy Registrar (Admn.)  
MPKV, Rahuri**

## Annexure-A

Head wise Allocation of funds for “Mitigation of biotic and abiotic stresses in crop plants mediated through potassium metaphosphate dimer, a new nutrient immunity booster”

### A) Year wise combined budget for lead institute MPKV, Rahuri and collaborating institute ICAR-NIASM, Baramati

(In Rupees)

Items	1st Year	2nd Year	3rd Year	Total
<b>A) Recurring</b>				
1) Salary/Wages				
a) Young Professional-I (Rs. 30,000/- per month)	720000	720000	720000	2160000
b) Skilled helper (Rs. 10,000/- per month)	120000	120000	120000	360000
2) Consumables	600000	550000	357000	1507000
3) Outsourcing	45000	45000	45000	135000
4) Travel	20000	20000	20000	60000
5) Other Costs	67000	71000	22000	160000
<b>B) Non-Recurring:</b>				
Permanent equipments				
1) Tissue lyser	300000	0	0	300000
2) Digital Camera	150000	0	0	150000
<b>Total (A+B)</b>	<b>20,22,000</b>	<b>15,26,000</b>	<b>12,84,000</b>	<b>48,32,000</b>

### B) Year wise budget for lead institute, MPKV, Rahuri


(In Rupees)

Items	1st Year	2nd Year	3rd Year	Total
<b>A) Recurring</b>				
1) Salary/Wages				
a) Young Professional-I (Rs. 30,000/- per month)	360000	360000	360000	1080000
b) Skilled helper (Rs. 10,000/- per month)	120000	120000	120000	360000
2) Consumables	300000	300000	216000	816000
3) Outsourcing	25000	25000	25000	75000
4) Travel	10000	10000	10000	30000
5) Other Costs	10000	11000	12000	33000
<b>B) Non-Recurring:</b>				
Permanent equipment- Tissue lyser	300000	0	0	300000
<b>Total (A+B)</b>	<b>11,25,000</b>	<b>8,26,000</b>	<b>7,43,000</b>	<b>26,94,000</b>

### C) Year wise budget for collaborating institute-ICAR-NIASM, Baramati

(In Rupees)

Items	1st Year	2nd Year	3rd Year	Total
<b>A) Recurring</b>				
1) Salary/Wages				
a) Young Professional-I (Rs. 30,000/- per month)	360000	360000	360000	1080000
2) Consumables	300000	250000	141000	691000
3) Outsourcing	20000	20000	20000	60000
4) Travel	10000	10000	10000	30000
5) Other Costs	57000	60000	10000	127000
<b>B) Non-Recurring:</b>				
Permanent equipment- Digital Camera	150000	0	0	150000
<b>Total (A+B)</b>	<b>8,97,000</b>	<b>7,00,000</b>	<b>5,41,000</b>	<b>21,38,000</b>

  
 Deputy Registrar (Admn.)  
 MPKV, Rahuri