ICAR HRD Sponsored
10-Days Training
on
Biochemical Characterization of Seed Components

Training Dates: 9 to 18th March 2026

Organizing institute:
ICAR-Indian Institute of Pulses Research, Kanpur-208 024

Patron
Dr. G P Dixit, The Director, ICAR-IIPR, Kanpur

Course Directors:
Dr. Mohd Akram, Head, Division of Crop Protection
Dr. Senthil Kumar, Head, Division of Basic Sciences

Course Coordinators
Dr. Revanasidda, Dr. Vaibhav Kumar, Dr Kalpana Tewari

Course Co-coordinators
Dr. R Jagadeeswaran, Dr. Sujayanand G. K.
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Contact Details

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Overview

Biochemical characterisation of pulse seed components plays a crucial role in understanding the mechanisms underlying resistance and tolerance to major biotic and abiotic stresses, while simultaneously addressing nutritional quality and human health benefits. Pulse seeds are rich sources of proteins, dietary fibre, micronutrients and a wide array of bioactive compounds. Under biotic and abiotic stress conditions, pulse seeds undergo dynamic biochemical and metabolic changes, including modulation of antioxidant systems, stress-responsive enzymes, osmoprotectants, and secondary metabolites such as phenolics and flavonoids. These biochemical responses not only contribute to stress resilience and seed viability but also affect seed quality and their nutritional value. From a human health and nutrition perspective, pulses are recognized as functional foods due to their high protein content, low glycaemic index, and presence of health-promoting bioactive compounds. Overall, integrating biochemical characterisation with biotic and abiotic stress and nutrition will support the development of climate-resilient, nutritionally superior pulse varieties.

Theme

This training program focuses on the biochemical characterization of seed components that confer resistance/tolerance to various biotic and abiotic stresses in pulse crops. It also explores the nutritional attributes of pulses. The program combines expert-led theoretical lectures with intensive hands-on laboratory training, offering practical exposure to biochemical assays and analytical techniques. These tools can be used to assess both stress-related metabolites and the nutritionally important constituents of seeds.

Objectives

1. To develop a theoretical understanding of the biochemical components of pulse seeds that contribute to mechanisms of stress resistance and nutrition.
2. To provide hands-on training in analytical techniques and assessment of key biochemical parameters in pulses.
3. To enhance the capacity of scientists to integrate seed biochemical traits into breeding and crop protection programs.

Course content

The training programme covers fundamental and applied aspects of biochemical characterization of pulse seed components associated with stress resistance and nutritional quality. It includes theoretical modules on seed proteins, amino acids, phenolics, antioxidant enzymes, minerals, Raffinose family oligosaccharides (RFOs) and Phytic acid and their functional roles. The biochemical mechanisms underlying tolerance to major biotic and abiotic stresses in pulse crops will be elucidated. The nutritional significance of seed constituents of pulses will be emphasized. Practical modules will impart hands-on training on sample preparation, extraction, and quantitative estimation of the key biochemical parameters. Participants will be trained in standard biochemical assays, spectrophotometric and enzymatic methods. Basic exposure to chromatographic and analytical techniques will also be included. The training will also explore data analysis, interpretation, and application of biochemical information in crop improvement and protection programmes.

About the Institute

Indian Institute of Pulses Research (IIPR) was established as national Institute by the Indian Council of Agricultural Research (ICAR) for basic, strategic and applied research on major pulse crops. The Institute is involved in generation of basic information, development of high yielding varieties and appropriate production and protection technologies, production of breeder seeds, demonstration and transfer of technologies, and strategic coordination of pulses research through wide network of testing centres across the country.

The Institute has its origin from the All India Coordinated Pulses Improvement Project (AICPIP) which was established in 1966. Later in 1978, AICPIP was shifted to the Regional Station of IARI at Kanpur under the name of Project Directorate (Pulses). It was further elevated as Directorate of Pulses Research (DPR) in 1984 and became an independent entity under the umbrella of ICAR. In 1993, it was restructured as the Indian Institute of Pulses Research and since then, the institute is playing a pivotal role in strengthening national nutritional security, improving soil health, and promoting sustainable pulse-based cropping systems through a strong national network of coordinated research. The Institute also serves as a national repository of knowledge on pulse production technologies and provides capacity building through training of scientists, extension personnel, and stakeholders.

Location and Climate

ICAR-IIPR is located at Kalyanpur, Kanpur (Uttar Pradesh) on the Grand Trunk Road, about 12 km from Kanpur Central Railway Station. The climate of Kanpur varies from semi-arid to sub-humid, with a mean annual rainfall of 800-1000 mm. During the training period in March, the weather is generally pleasant with day temperatures of 25-30°C and night temperatures of 12-18°C.

Eligibility

Candidates working in the position not below the rank of scientists or assistant professors or equivalent in ICAR institutes/SAUs/CAUs/ other universities recognized by the ICAR, actively engaged in research, teaching or extension activities are eligible. A total of 10 candidates will be selected for the training. The selection of candidates will be made by a screening committee.

How to apply

Interested and eligible candidates are advised to apply for the training programme by filling the prescribed proforma (attached, also available at institute website https://www.icar-iipr.org.in/) duly recommended by the competent authority. The application should be sent to through email to revanasidda@icar.org.in with a copy to hrdicariipr@gmail.com on or before 15th February 2026. The intimation of the selected candidates will be sent through email by 20th February 2026.

Travel, boarding and lodging

The food and accommodation expenses of selected participants will be supported under the training programme budget as per ICAR guidelines. Accommodation will be provided in the Institute's Guest House. However, the participants have to make their own travel arrangements. Participants are requested not to bring family members along for the duration of the programme.

Registration fee: There is no registration fee for the selected participants.

How to reach the IIPR: IIPR is located near Kalyanpur, GT Road, 12th railway crossing about 28 km from Kanpur (Chakeri) airport, 12 km from the Kanpur Central railway Stations (Station code: CNB) and 10 km from Central Bus Stand (Jhakarkati).

APPLICATION FORM FOR PARTICIPATION IN TRAINING PROGRAMME

ICAR HRD Sponsored 10-Days Training on "Biochemical Characterization of Seed Components" at ICAR-Indian Institute of Pulses Research, Kanpur -208 024 (Uttar Pradesh).

1. Full name (in capital letters):____
2. Designation:____
3. Present employer and address:____
4. Postal address:____
5. Email and mobile:____
6. Date of Birth:____
7. Sex (Male /Female):____
8. Marital status. (Married/Unmarried) ----------------------
9. Teaching/ Research/ professional experience (post held during last 5 years and number of publications):
   -
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10. Mention if you have participated in any training during the previous years under ICAR/Other organization:

11. Academic record:

Examination passed	Subject (main/ subsidiary)	Year of passing	Score or OGPA (Class / rank)	University/ institution	Other information
Graduation					
Post graduation					
Ph. D.					
Others					

Place _________________

Date________________ Signature of the applicant.

12. Recommendations of forwarding authority:

The application of Mr./Ms./Dr. ______________________________________is hereby recommended and forwarded for attending training on **"Biochemical Characterization of Seed Components"**, to be organized by ICAR-Indian Institute of Pulses Research, Kanpur-208 024 (Uttar Pradesh) during 9-18 March, 2026.

It is certified that the information furnished by the candidate has been verified and found correct.

Designation:

Address: Signature _________________