Training on

Spectroscopy methods and data analysis for food quality evaluation

1. **Training Site**: Agricultural Structures and Environmental Control Division, Central Institute of Post harvest Engineering and Technology (CIPHET), PO- PAU, Ludhiana

2. **Course Director**: Dr. Pranita Jaiswal, Senior Scientist, AS& EC Division, CIPHET, PO: PAU, Ludhiana

3. **Course Duration**: One week

4. **Tentative Dates**: 26.11.12 to 01.12.12

5. **Course Fee**: Rs. 6,000/- per trainee
   Concessional fee for students: Rs.4,000/- per trainee
   (bonafide certificate from the institute is required)
   The fee **does not include lodging and boarding charges**.

6. **Maximum number of seats available**: 15 (Tentative distribution: 10 working participants + 5 Student participants)

7. **Eligibility**: Under graduate degree in subject areas of Agricultural/ Chemical Process Engineering / Microbiology / Food Science and Technology /Dairy Technology / Biochemistry/Biotechnology and allied sciences.

   Working in the concerned subject under Agricultural University/ICAR Institutes /Industries and anyone interested in the field

8. **Selection:** Selection will be on first comes, first served basis.

9. **The training**

Food safety is an increasingly important public health issue. Governments all over the world are intensifying their efforts to improve food safety. In developing countries like India, the emphasis so far has been more on food adequacy rather than on food quality. Recently, food quality safety has emerged as an important issue as Indian domestic food processing industry, which has been reeling under uncertainties for years, is now facing fierce competition from the developed and some of the developing countries. Conventional techniques for quality assessment are elaborate, laborious, require expertise and may take several days. Spectroscopic methods and biosensors are rapid, cost effective, reliable and non-invasive tool for quality evaluation. These techniques offer a great commercial advantage to food processing

and food manufacturing sector by real time monitoring of products and thus releasing uncontaminated products within hour or minutes rather than several days. This program aims at providing training oriented towards commercial level application of Ultraviolet, Visual and Infra Red spectroscopy methods, and chemometric data analysis for evaluation of foods which will help in monitoring quality, Grading for quality based pricing and quality assurance with following course contents.

10. **Course Content** (highlights of the course):
    i.   Quality perception and its measurability.
    ii.   Methods of correct sampling and sample preparation for solid, semisolid and liquid samples
    iii.   Colour measurement techniques: acquisition of data and analyses
    iv.   Overview of Spectroscopy : Theory and applications
    v.   IR measurement techniques : Acquisition of ultraviolet, visible and NIR/ FTIR spectra of food/biomaterial samples
    vi.   Analysis and interpretation of spectral data in terms of simple quality parameters such as, sweetness, total soluble solids, and dry matter content, firmness etc (Qualitative: Data visualization / Principal Component Analysis (PCA) / Clustering / Outliers
    vii.   Analysis and interpretation of spectral data in terms of simple quality parameters such as, sweetness, total soluble solids, and dry matter content, firmness etc (Quantitative: Multiple Linear Regression (MLR), Principal Component Regression (PCR), Partial Least Squares (PLS)
    viii. Lab practice
    ix.   Introduction to biosensor and applications
    x.   Visits to nearby laboratories/food factories for on the site experiences.

Faculty:
Course Director Name: Dr. Pranita Jaiswal
Designation: Senior Scientist (Microbiology), AS&EC Division
Qualification: Ph.D.
Experience: More than 8 years
Publications: About 35 research papers/articles/book/book chapters in relevant
                  Field
Co-Course Director
Er. Manpreet Kaur Grewal
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CIPHET, PO-PAU, Ludhiana
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Core faculty:
1. Dr. S. N. Jha
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    CIPHET, PO-PAU, Ludhiana
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    Phone : 0161-2313109

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2. Dr. K. Narsaiah
   Sr. Scientist, AS & EC Division
   CIPHET, PO-PAU, Ludhiana
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About CIPHET

The Central Institute of Post-Harvest Engineering and Technology (CIPHET) was established on 29 December 1989 at the PAU Campus, Ludhiana, Punjab, India as a nodal institute to undertake lead researches in the area of the post-harvest engineering and technology appropriate to agricultural production catchment and agro-industries. The institute's second campus was established on 19 March 1993 at Abohar, Punjab, India which is primarily responsible for conducting research and development activities on fruits and vegetables, and commercial horticultural crops. CIPHET is also headquarters for two All India Coordinated Research Projects (AICRPs) viz. AICRP on Post-Harvest Technology (PHT) at 38 Centres and AICRP on Applications of Plastics in Agriculture (APA) at 11 Centre's.

CIPHET envisions higher profitability of agricultural production systems ensuring better income to farmers and increased employment opportunities in rural sector through efficient post-harvest engineering and technological interventions for loss reduction and value addition to agricultural produce and byproducts resulting in high quality and safe food and feed at competitive prices for domestic and export markets.

CLIMATE & THE CITY

Ludhiana, popularly known as Manchester of India is on the bank of river Satluj and is centrally located on the map of Punjab. Geographically, it lies between north latitude 30º-34' and 30º-01' and east longitude 75º-18' and 76º-20'. It covers an area of 3857 km². Being in the centre of Punjab and situated on Grand Trunk Road and the main railway line, it has developed into a main industrial and commercial hub of the state. Ludhiana is famous for its hosiery and textiles, bicycle and sewing machine industry. Punjab being the granary of India, and Ludhiana an industrial city, many food grain stocks and its processing units are located around it.

The winter season starts from middle of November to the early part of March, when it becomes very cold during the night. December & January are the coldest month.

For admission kindly contact:

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3. Dr. Pranita Jaiswal
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For further details, updates on training and other activities of CIPHET, keep visiting www.ciphet.in

Draft should be sent in favour if ICAR unit CIPHET payable at SBI, PAU, Ludhiana, Branch code 01482.

Application form
Training on "Spectroscopy methods and data analysis for food quality evaluation"
(26.11.12 to 01.12.12)

1. Full name (in block letters) :
2. Designation :
3. Present employer/University (for student) :
4. Mailing address (including e-mail id) :
5. Date of birth :
6. Sex :
7. Teaching/research/professional experience :
(Mention posts held during last 5 years and
no of publications) :
8. Mention if you have participated in any
research seminar/summer or winter school
/short course etc. during the previous years
under ICAR/other organization :
9. Academic record (Graduation and above) :

Examination passed	Subjects main/subsidiary	Year of passing	Class, ranks, distinctions etc.	University/Institute

10. Subject matter areas of present work :
Date:
Place: **Signature of Applicant**

It is certified that information furnished by the applicant verified from office record and was found correct.
Date:

Signature and designation of
Sponsoring Authority with Seal

• Advised to carry some warm cloths considering winter season during training