

REPORT

on

2-day Students' Workshop

On

*“Learning Basic Principles of Genetics Using *Drosophila melanogaster*”*

Co-organized by

XV Genetics Congress Trust, New Delhi 110012

&

Division of Genetics,

ICAR-Indian Agricultural Research Institute, New Delhi-110012

In collaboration with

**Department of Biotechnology, Faculty of Engineering, Manav Rachna International
Institute of Research and Studies, Faridabad**

Coordinators from Division of Genetics IARI: Dr. Prachi Yadav

Coordinators from BT, FET, MRIIRS: Dr. Jayant Maini and Dr. Vineeta Sharma

Supported and Endorsed by: Prof. Manu Solanki

Date: 1st – 2nd November, 2022

Mode: Offline

The main objective of this workshop was to pertain hands-on training on Genetics to the undergraduate students of the Department of Biotechnology, Faculty of Engineering and Technology, Manav Rachna International Institute of Research and Studies (BT, FET, MRIIRS), Faridabad, Haryana

Day1

The first day of the workshop started with an inaugural session where Dr. Prachi welcomed the students and guests followed by a discussion on the workings of ICAR-IARI and the XV Genetics Trust. The highlight of the inaugural session was the talk by Prof. Dr. R.P.Sharma (Former Director, ICAR-Indian Institute for Plant Biotechnology, New Delhi, and Chairman, XV Genetics Congress Trust). He enlightened the students with his exceptional talk on genetics and society and his work on Wnt/Wingless signalling in *Drosophila*. Following this the technical session started with discussion on Mendelian Genetics by Dr. Akshay Talukdar and an introduction to *Drosophila melanogaster* as a model organism by Dr. Prachi Yadav. This session was followed by the lunch break. The 2nd technical session of the day involved experimental set-up for introducing phenotypic markers and crossing procedures in *Drosophila*

melanogaster. During this session, each student learnt to distinguish between male and female *Drosophila*, identify various wing, eye color and body color mutants, collection of virgin females and setting up of crosses

Day 2

The third technical session started with a lecture on “Genetics of maize cob” by Dr. Firoz Hossain (Principal Scientist, IARI, New Delhi). This was followed by an experiment of Genetics of PTC tasting where students were classified as tasters and non-tasters on the basis of their ability to taste Phenylthiocarbamide (PTC). The data was collected and ratios were calculated. The 2nd experiment was the preparation of polytene chromosomes by dissecting salivary glands from the third instar larvae of *Drosophila melanogaster*. This was followed by the scoring of F2 population of the crossed setup the previous day and further validation of the results using chi-square test. A field trip was organized by Dr. Muraleedhar Aski where he discussed about different varieties of rice crops and the role of plant biotechnology in the improvement of crop yields. It was a very interactive session. The 2nd day of the workshop ended with the valedictory function where Dr. Prachi Yadav, presented a brief report on the workshop. This was followed by comments from Dr. Jayant Maini and Dr. Vineeta Sharma and distribution of certificates to the students of Department of Biotechnology, Faculty of Engineering and Technology, Manav Rachna International Institute of Research and Studies.



आनुवंशिकी संभाग

GENETICS



Gregor J. Mendel

Erected to
200th Birth Anniversary

July 20, 1907

GPS Map Camera



Google

New Delhi, Delhi, India

3183, Block 7, Ranjeet Nagar, New Delhi, Delhi

110008, India


Lat 28.643681°

Long 77.16577°


02/11/22 09:11 AM GMT +05:30

Workshop on Learning Basic Principles of Genetics Using ProSop...

Irradiation as a food preservative



Group irradiation of whole tomatoes (total dose 400 kGy or 100 kGy x 4 doses) conducted for preservation of bulk seed lot (onions)



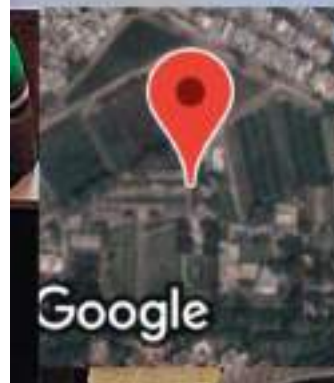
radiated onion

The FDA has approved a variety of foods for irradiation in the United States including:

- Meat, Poultry and Fishery
- Shell Eggs
- Shellfish (oysters, clams, scallops, and mussels)
- Spices (e.g., paprika, cayenne, and chili)
- Leafy Vegetables (e.g., lettuce, spinach, and chard)
- Leafy Vegetables (broccoli and sprouts)
- Some raw berries (e.g., whole lemons)
- Spices and Sweeteners



GPS Map Camera



New Delhi, Delhi, India
J5R9+H67, Pusa, New Delhi, Delhi 110008, India
Lat 28.642392°
Long 77.167423°
01/11/22 10:55 AM GMT +05:30



MODEL ORGANISMS

GPS Map Camera

New Delhi, Delhi, India

J5R8+MGR, Pusa, New Delhi, Delhi 110008, India

Lat 28.642521°

Long 77.167156°

01/11/22 01:38 PM GMT +05:30

Google



GPS Map Camera

New Delhi, Delhi, India

Division of Genetics, IARI, J5R8+VPQ, Pusa,

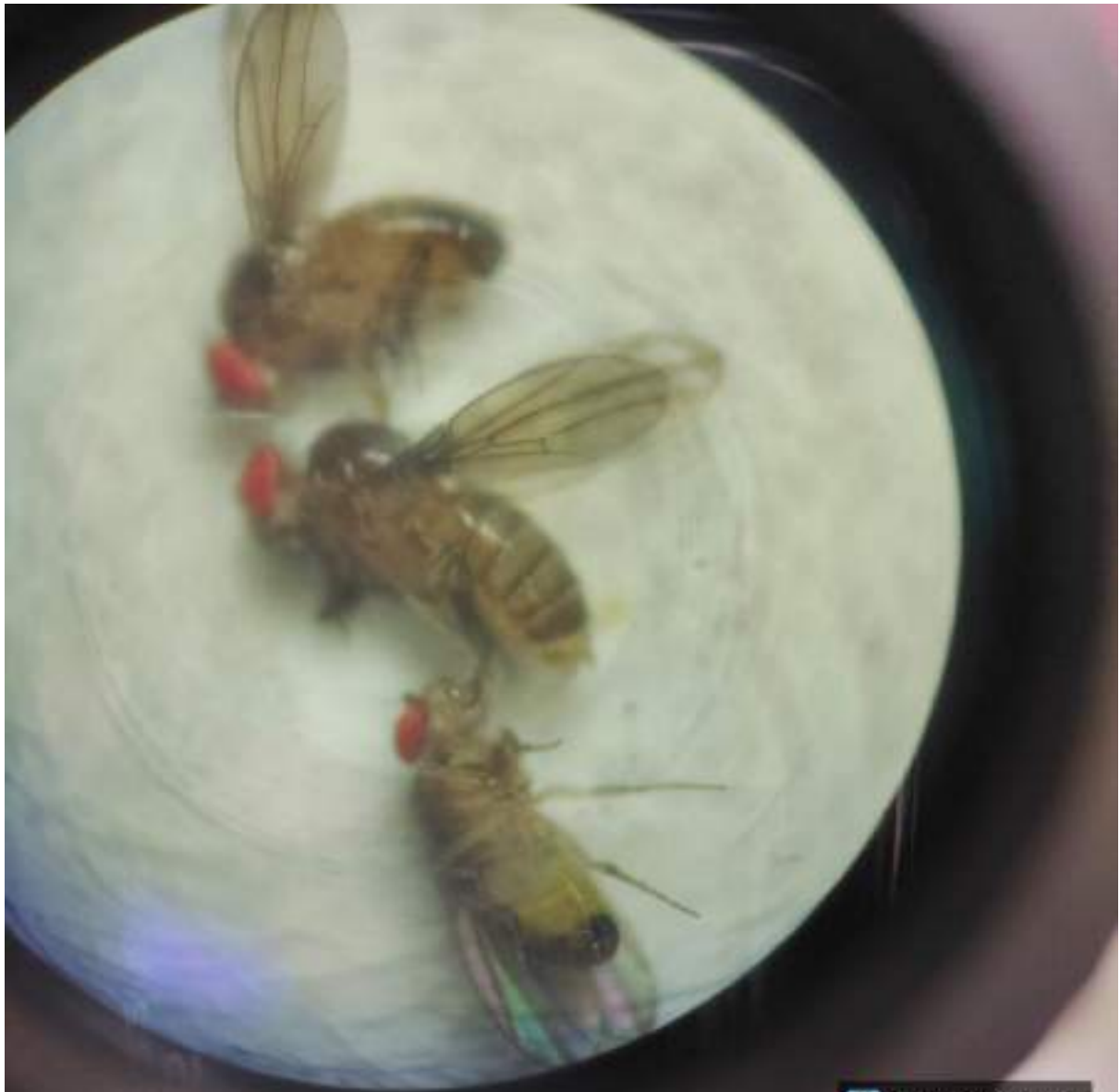
New Delhi, Delhi 110012, India

Lat 28.642219°

Long 77.166883°

01/11/22 04:17 PM GMT +05:30

Google



GPS Map Camera



New Delhi, Delhi, India

J5R8+MGR, Pusa, New Delhi, Delhi 110008,
India

Lat 28.642338°

Long 77.16703°

01/11/22 04:21 PM GMT +05:30



GPS Map Camera

New Delhi, Delhi, India
J5R8+MGR, Pusa, New Delhi, Delhi 110008,
India
Lat 28.64235°
Long 77.166988°
01/11/22 04:18 PM GMT +05:30



Google



GPS Map Camera



Google

New Delhi, Delhi, India
J5R8+MGR, Pusa, New Delhi, Delhi 110008,
India
Lat 28.642315°
Long 77.166993°
01/11/22 04:17 PM GMT +05:30



GPS Map Camera



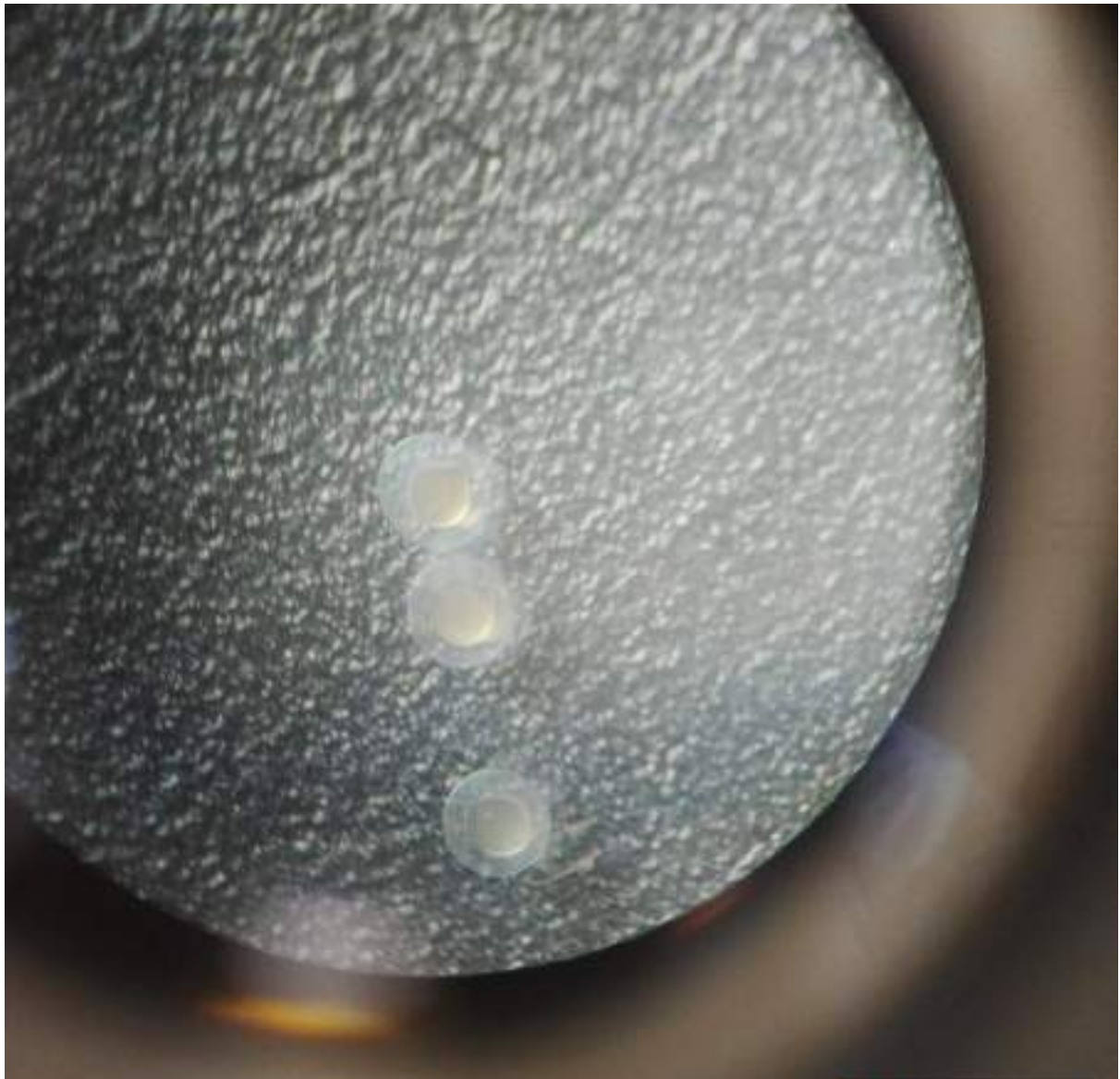
New Delhi, Delhi, India

J5R8+MGR, Pusa, New Delhi, Delhi 110008,
India

Lat 28.642429°

Long 77.166978°

01/11/22 03:38 PM GMT +05:30



GPS Map Camera



New Delhi, Delhi, India

J5R8+MGR, Pusa, New Delhi, Delhi 110008,
India

Lat 28.642294°

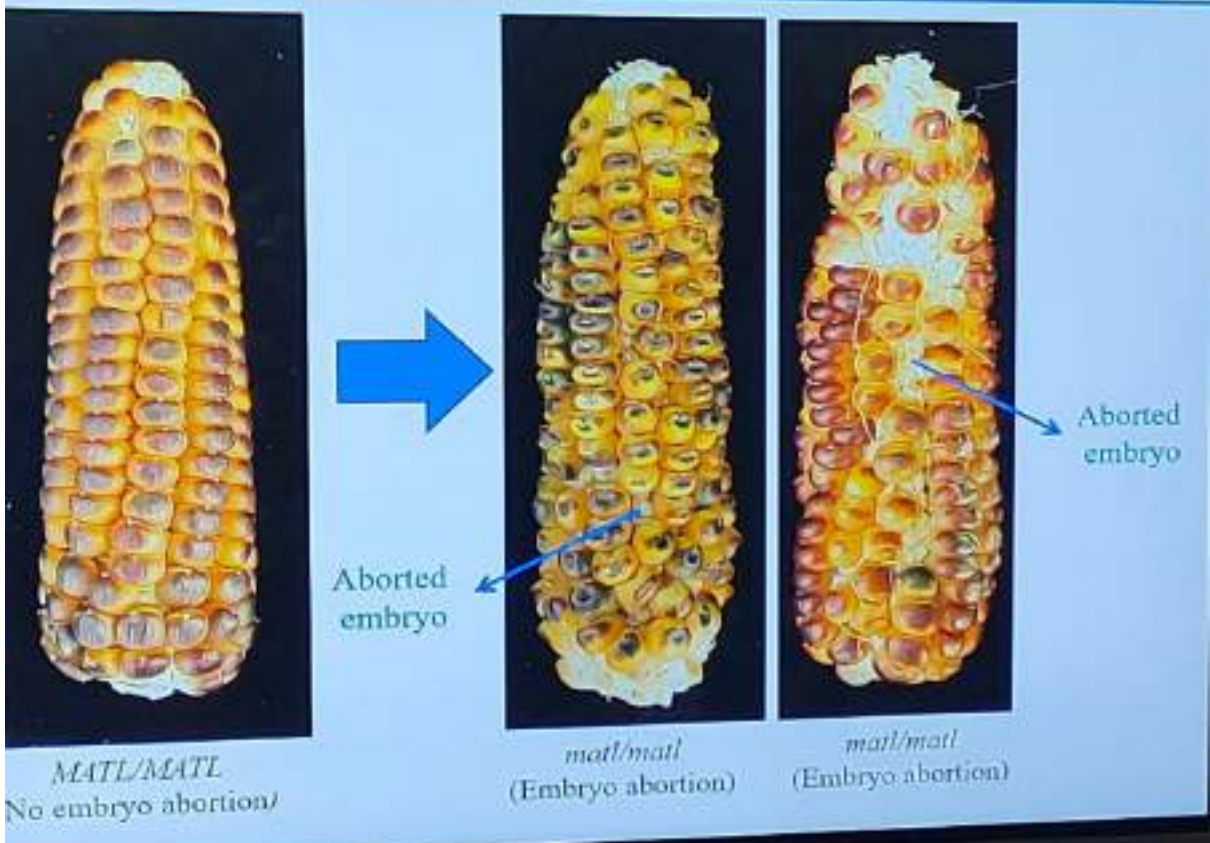
Long 77.166989°

01/11/22 04:01 PM GMT +05:30





Penetrance



GPS Map Camera

New Delhi, Delhi, India
J5R9+H67, Pusa, New Delhi, Delhi 110008, India
Lat 28.642387°
Long 77.167322°
02/11/22 11:13 AM GMT +05:30

Workshop on Understanding Basic Principles of Genetics Using *Drosophila melanogaster*



PTC Receptor

TT

TT has all "tasting" receptors. He can taste PTC.

tt

tt has all "non-tasting" receptors. She cannot taste PTC.

Tt

Tt has both "tasting" and "non-tasting" receptors. She can taste PTC.

TC tasters may be more sensitive than non-tasters to compounds in tobacco and vegetables in the cabbage family.



GPS Map Camera



New Delhi, Delhi, India
J5R9+H67, Pusa, New Delhi, Delhi 110008, India
Lat 28.642348°
Long 77.167442°
02/11/22 12:00 PM GMT +05:30



GPS Map Camera



New Delhi, Delhi, India

J5R8+MGR, Pusa, New Delhi, Delhi 110008,
India

Lat 28.642306°

Long 77.167003°

02/11/22 12:12 PM GMT +05:30



GPS Map Camera

New Delhi, Delhi, India

J5R8+MGR, Pusa, New Delhi, Delhi 110008, India

Lat 28.642306°

Long 77.167003°

02/11/22 12:12 PM GMT +05:30

Google



GPS Map Camera

New Delhi, Delhi, India

J5R8+MGR, Pusa, New Delhi, Delhi 110008, India

Lat 28.642268°

Long 77.166956°

02/11/22 12:12 PM GMT +05:30





GPS Map Camera



New Delhi, Delhi, India
J5R8+MGR, Pusa, New Delhi, Delhi 110008, India
Lat 28.642307°
Long 77.167014°
02/11/22 12:15 PM GMT +05:30



 GPS Map Camera

New Delhi, Delhi, India

2729, Block 7, Ranjeet Nagar, New Delhi, Delhi 110008,
India

Lat 28.643498°

Long 77.164383°

02/11/22 04:13 PM GMT +05:30

Google



GPS Map Camera



New Delhi, Delhi, India

J5V8+296, Pusa, New Delhi, Delhi 110008, India

Lat 28.642379°

Long 77.16608°

02/11/22 04:09 PM GMT +05:30





GPS Map Camera



New Delhi, Delhi, India
Division of Genetics, IARI, J5R8+VPQ, Pusa,
New Delhi, Delhi 110012, India
Lat 28.642297°
Long 77.167038°
02/11/22 02:58 PM GMT +05:30



GPS Map Camera



Google

New Delhi, Delhi, India

J5R9+H67, Pusa, New Delhi, Delhi 110008, India

Lat 28.642322°

Long 77.16731°

02/11/22 10:46 AM GMT +05:30