



CUBE NATIONAL MEET 2022

Cardamine Model System



PC: Abhijeet Singh, Homelab Navi-Mumbai



FAMILY : Brassicaceae(Mustard Family)



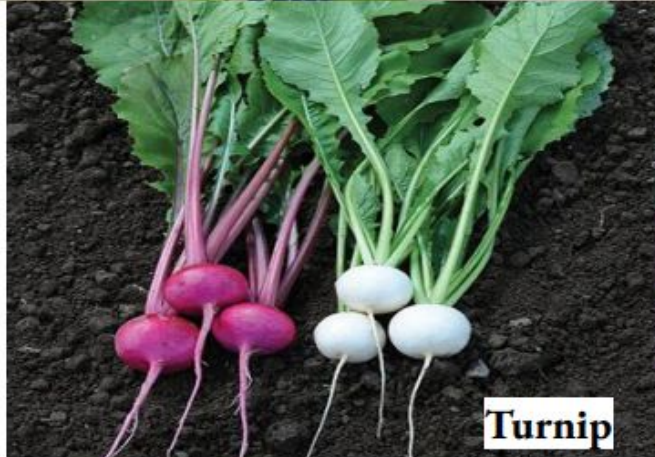
Cardamine



Mustard



Broccoli



Turnip



Arabidopsis



Raddish

Introduction

Kingdom: Plantae

Clade: Angiosperms

Order: Brassicales

Family: Brassicaceae

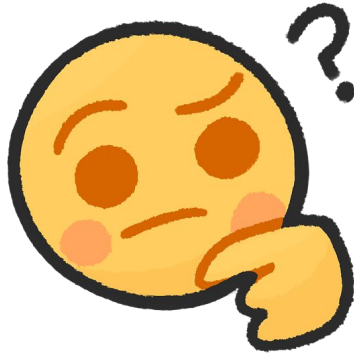
Genus: Cardamine

<https://en.wikipedia.org/wiki/Cardamine>

PC: Rechel Tirkey, Homelab Ranchi



BUT WHY CARDAMINE?!!!



ARABIDOPSIS THALIANA in Controlled Environment



Arabidopsis thaliana



Cardamine hirsuta



Source: *Cardamine hirsuta*: a comparative view Angela Hay and Miltos Tsiantis

Cardamine from Different parts of India



Nainital, Uttar Pradesh



Abhijeet Singh, Ulwe, Navi-Mumbai



Susanta Tanti, Assam



Batul Pipewala, Kolkata



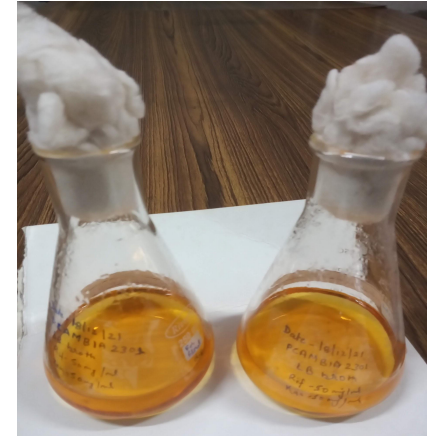
Rechel Tirkey, Ranchi

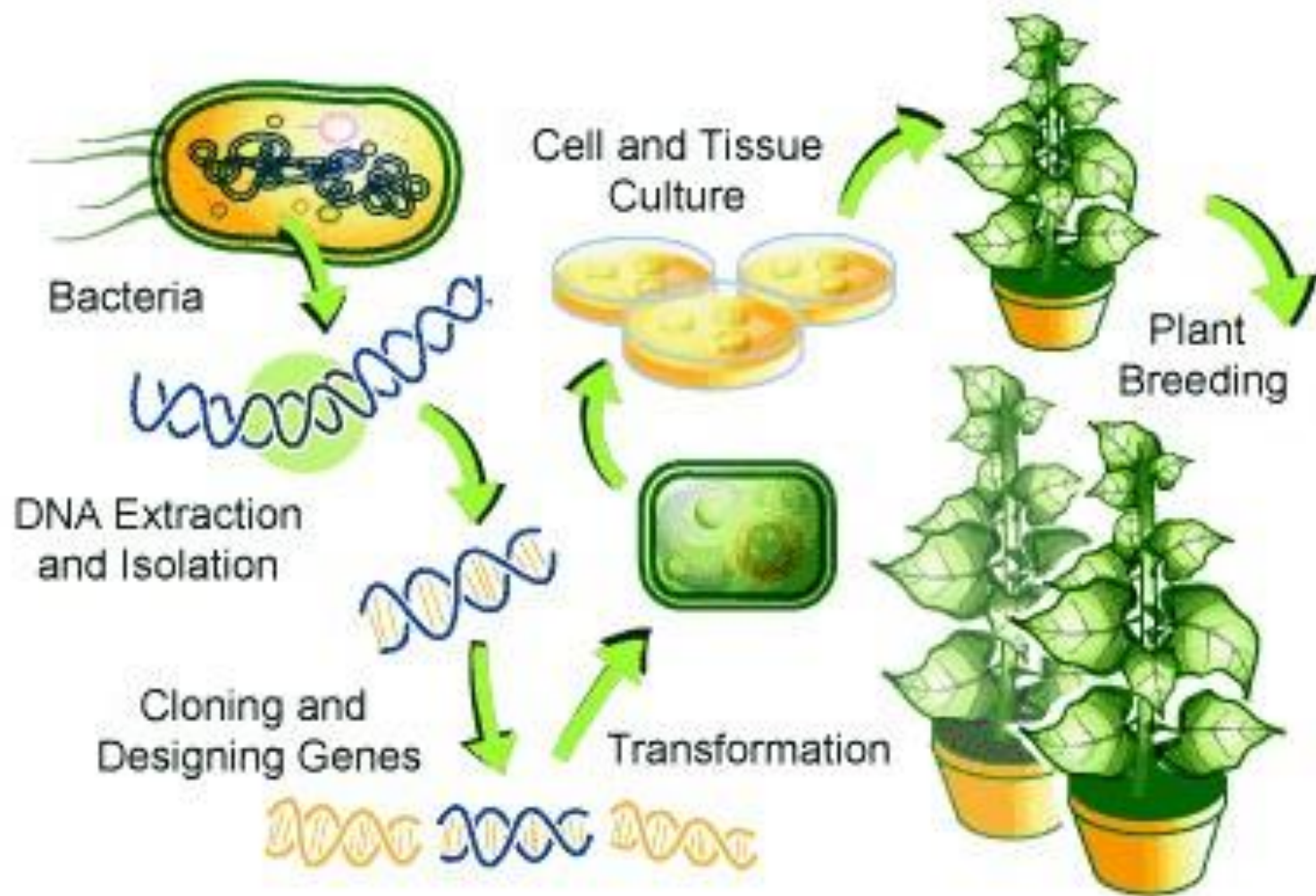
CARDAMINE LIFE CYCLE STUDIES:- ULWE NAVI-MUMBAI- Abhijeet Singh



Floral dip method in cardamine plant

1. Growing cardamine plants
2. Culturing agrobacterium
3. Floral dip method in cardamine
4. Collection of seeds
5. Experiment with kanamycin to check the transformation





00.01

CUBE chatshaala:20/5/21

Cardamine: How easy or difficult is to maintain Cardamine in CUBE Home Lab?

Story of Cardamine

Collaboration of Ranchi Cardamine people and
Mumbai Cardamine Collaborators

Munnar Cardamine

Thrissur Cardamine

Kolkata Cardamine

Mumbai Cardamine

Question ?

FLORAL DIP METHOD

•Aswathy got introduce to
Cardamine in chatShaala

•Arunima found Cardamine plants in
Munnar Kerala

SN College Nattika, Thrissur Kerala

Cardamine & Phyllanthus

Thamburu & Drishya got Cardamine from HBCSE MUMBAI

Arunima got Cardamine from Munnar Kerala

FLORAL DIP METHOD — Transformed seeds

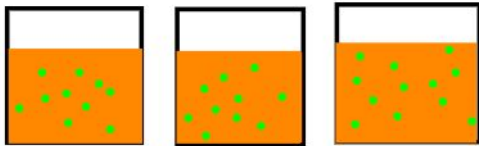
Antibiotic resistance gene

Screening

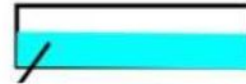
1. Transformed seeds —
2. Non-transformed seeds

EXPECTATION

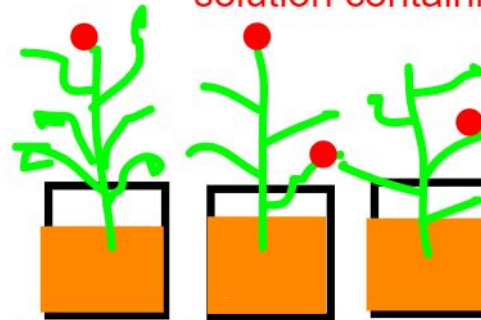
Normal seeds will not grow in antibiotic medium



Dipping of cardamine plant (Floral buds)



solution containing gene



Transformed seed in Antibiotic medium

Floral Dip of Cardamine



By Dr.SHALINI AND MANISHA from **CUBE** RANCHI, JHARKHAND

control seed

10mg/L

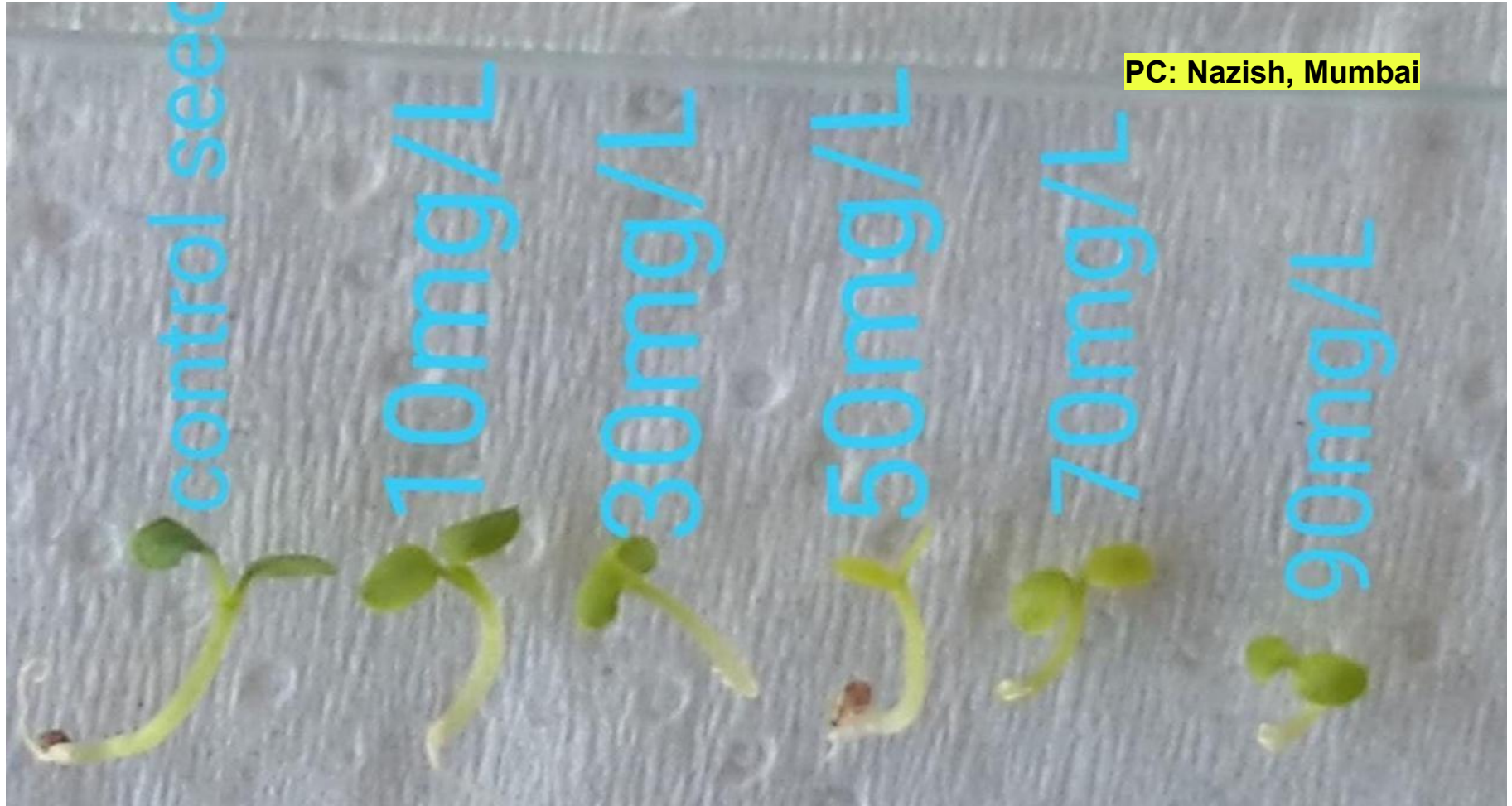
30mg/L

50mg/L

70mg/L

90mg/L

PC: Nazish, Mumbai

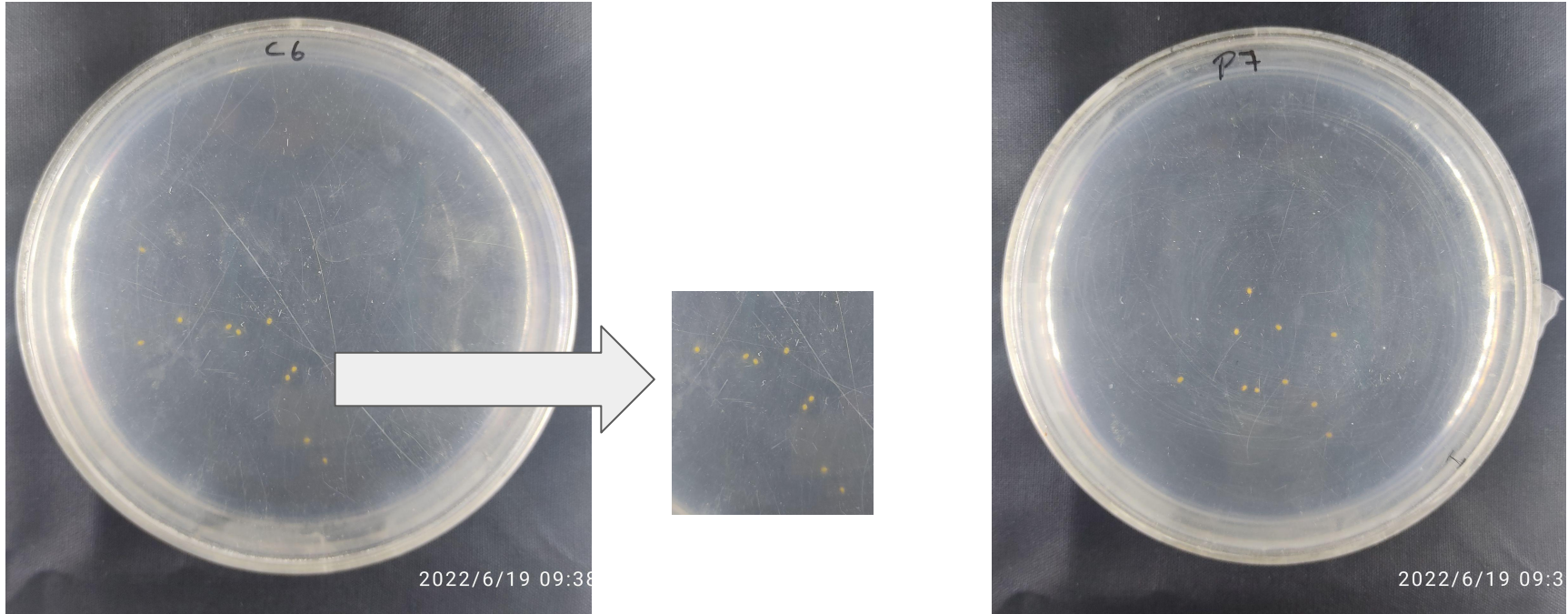


Work done



- Mature Plants(left)
- Floral bud dipped in Agrobacterium suspension(right)

Experiment to verify transformation

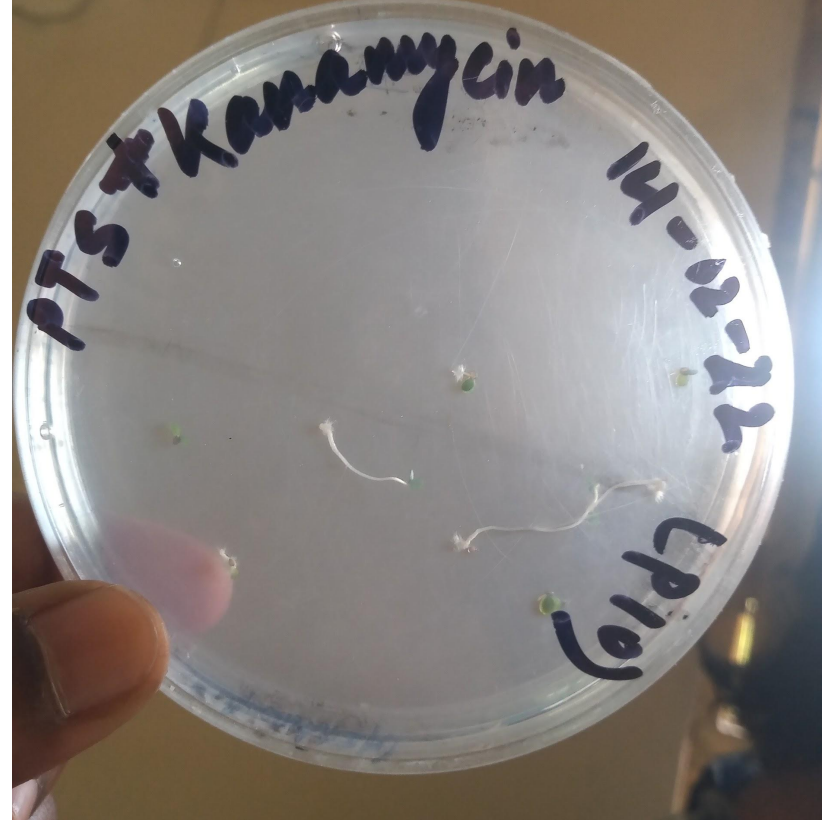
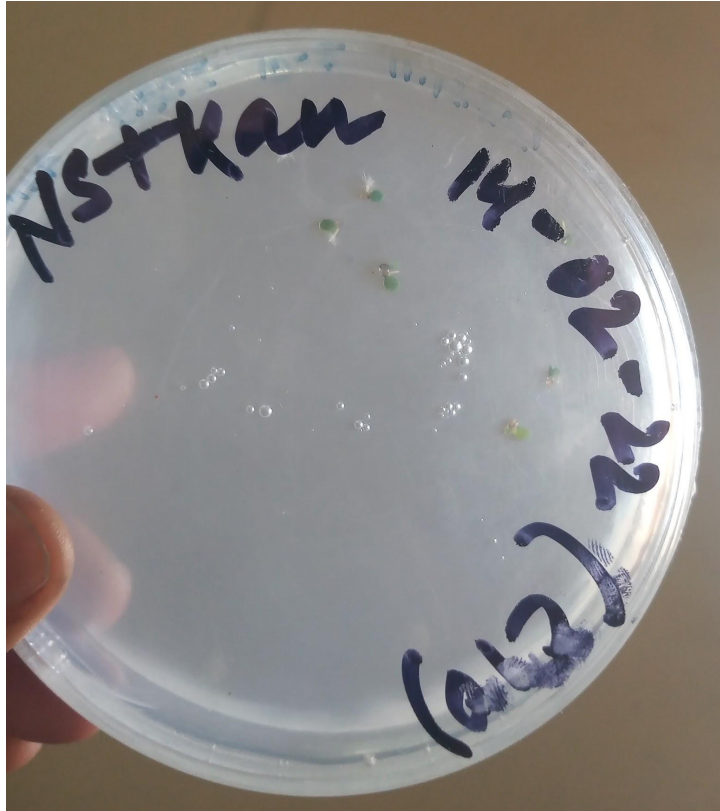


Cardamine seeds transferred on the MS Media surface and kept upright

Left pic: normal seeds taken as control,

Right: putative seeds after floral dip

Results



Cardamine seeds germination on ms media containing 50mg/l kanamycin.
Left: seeds from normal cardamine plant, Right: seeds from the floral dipped plants

Butterfly Interaction

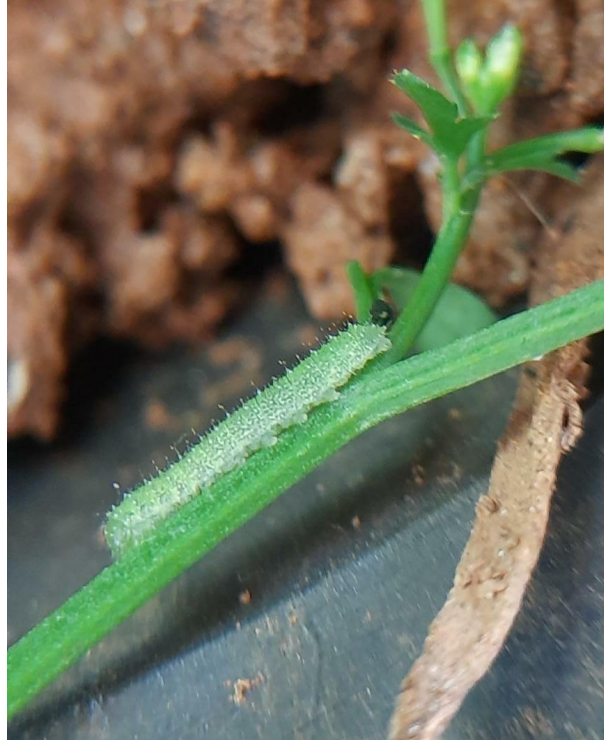
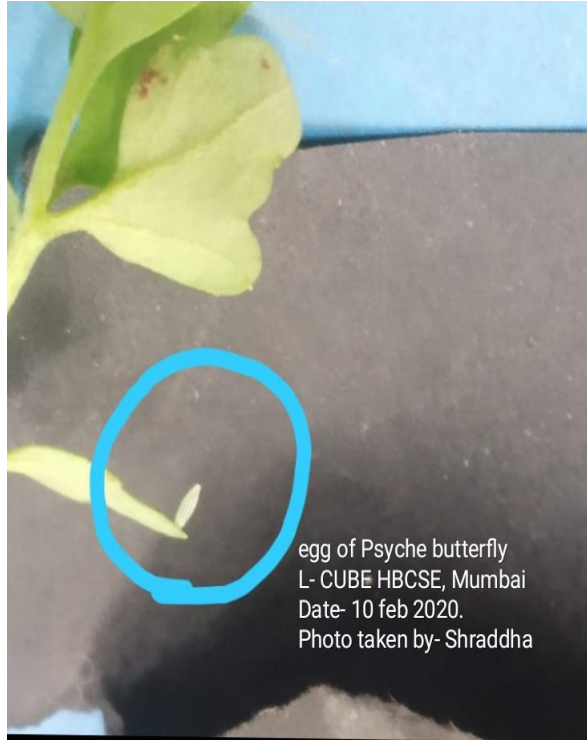
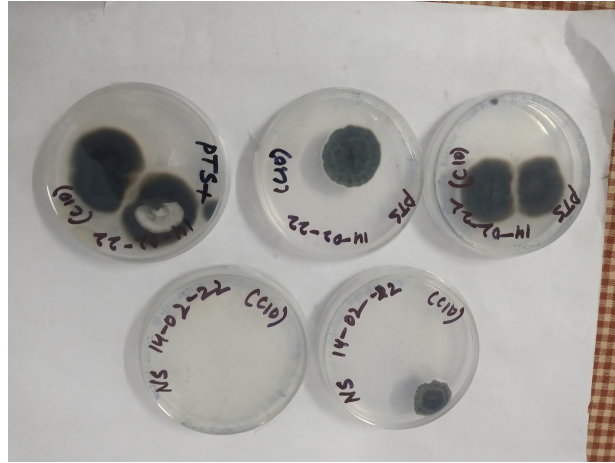


Photo By SHRADDHA from PANVEL, MAHARASHTRA

Goof ups

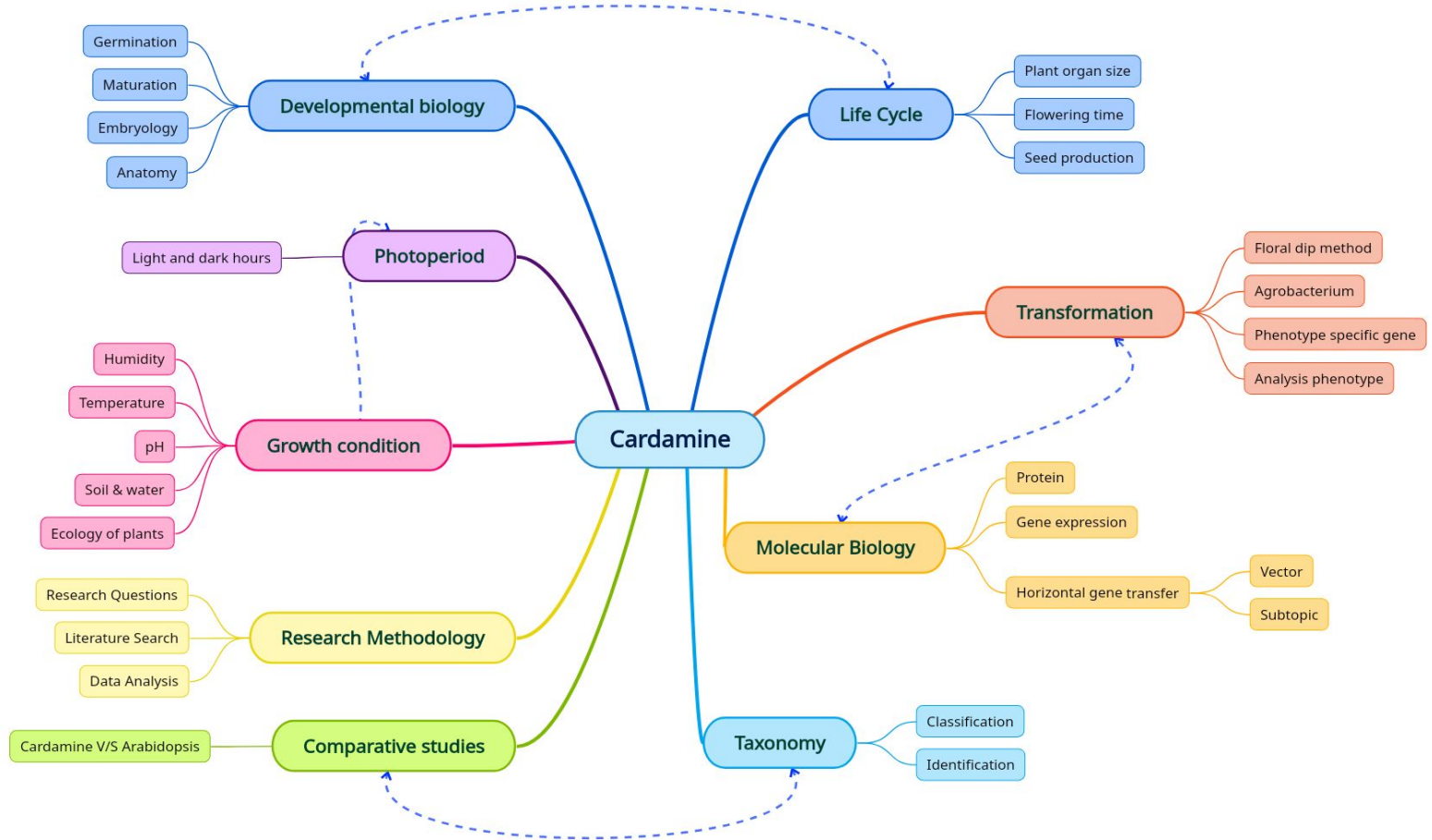
1. Contamination
2. Pest attack: Mealy bug
3. Unplanned experiments



Future perspective

- In Life cycle studies we didn't make a proper design and planned accordingly to analyse the data statistically.
- To study the gene transformation mechanism and expression

Context 2 Curriculum Concept Map



Collaborators' List

1. Abhijeet Singh (Mumbai)
2. Manisha Rani (Ranchi)
3. Man Masih Beck (Ranchi)
4. Rechel Tirkey (Ranchi)
5. Dr Shalini Lal (Ranchi)
6. Sharadha Sonawane (Mumbai)
7. Susanta Tanti(sonari)
8. Batul Pipewala (Kolkata)
9. Kiran Yadav
10. Dr. M. C. Arunan
11. Lakshmy PJ
12. Theertha M. D.
13. Dr P. Chitrlekha(Delhi)
14. Sunita Chahar(Mumbai)

