



M.G.V.C. ARTS, COMMERCE AND SCIENCE COLLEGE
MUDDEBIHAL

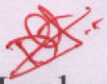
CERTIFICATE

DEPARTMENT OF BOTANY

Examination Seat No:S1827766

Class- B. Sc 6th Sem

This is to certify that **Miss.Sharanabasaveshwari S.Shidaraddi** Has satisfactorily completed the project work on **Agrobacterium The natural genetic enginerr, T-DNA and transposon mediated Gene tagging**. Under my supervision in M.G.V.C. Arts, Commerce and Science College. Muddebihal during the year 2020-21


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DEFINITION:-

Gene tagging involve the insertion of a recognisable DNA fragment with a gene. which a gene such that the function of the gene is disrupted

- Gene tagging strategies are used to isolate those genes that produce a detectable phenotype

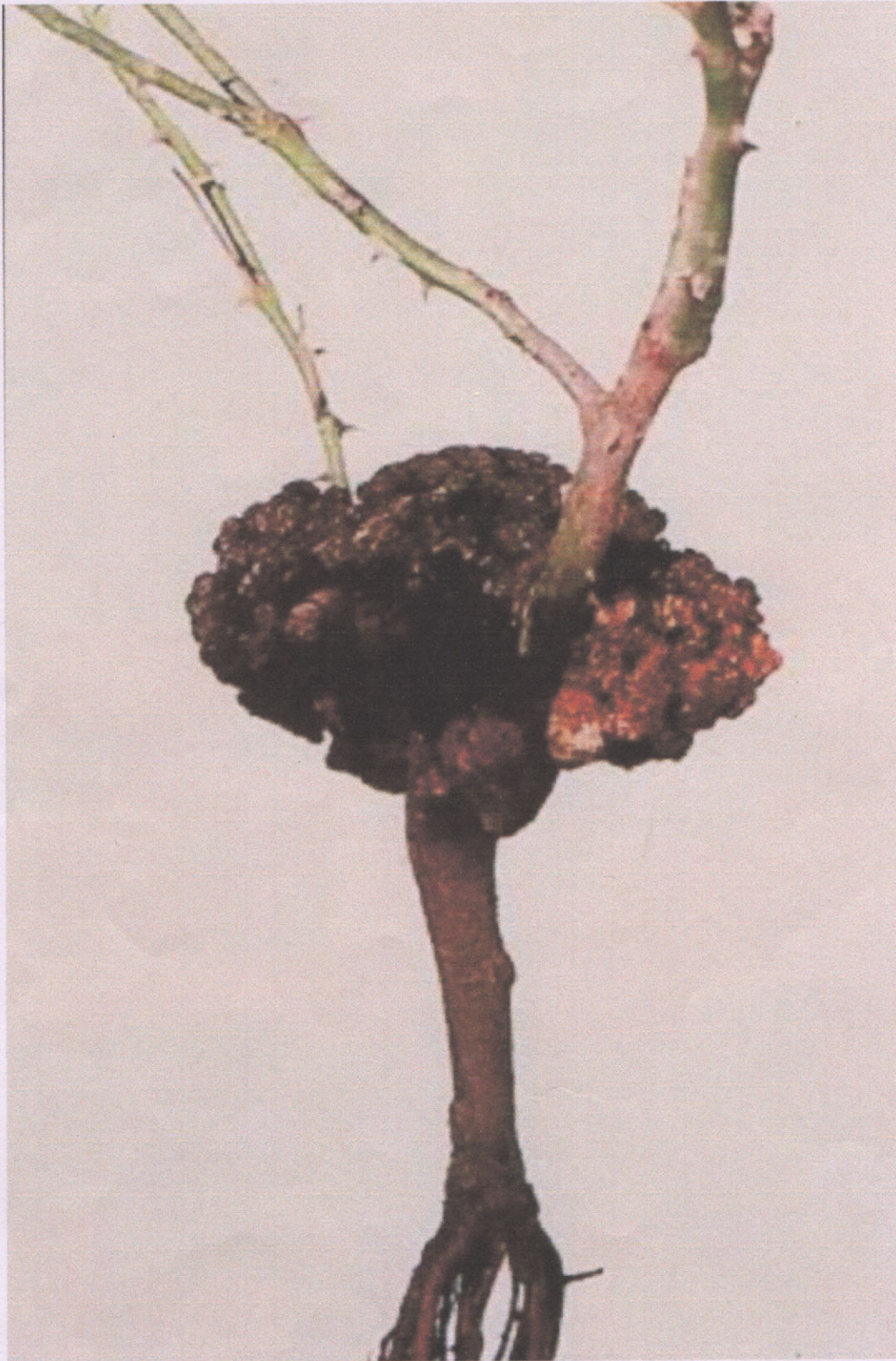
- T-DNA and transposons can be used in gene tagging and gene analysis
 - T-DNA is the part of Ti plasmid , DNA found in the soil bacterium
 - Transposons are mobile genetic element that can move from one place to another place in a DNA molecule

- The tag may be based on
 - T-DNA of *Agrobacterium*
 - A transposable element
 - A retroviral genome

- Transposon tagging has been used to isolate several genes in maize , Tomato (cf-9, Dem) etc

Uses:-

- ❖ In gene expression
- ❖ In gene silencing
- ❖ In knockout gene
- ❖ In site directed mutagenesis



AGROBACTERIUM TUMEFACIENS

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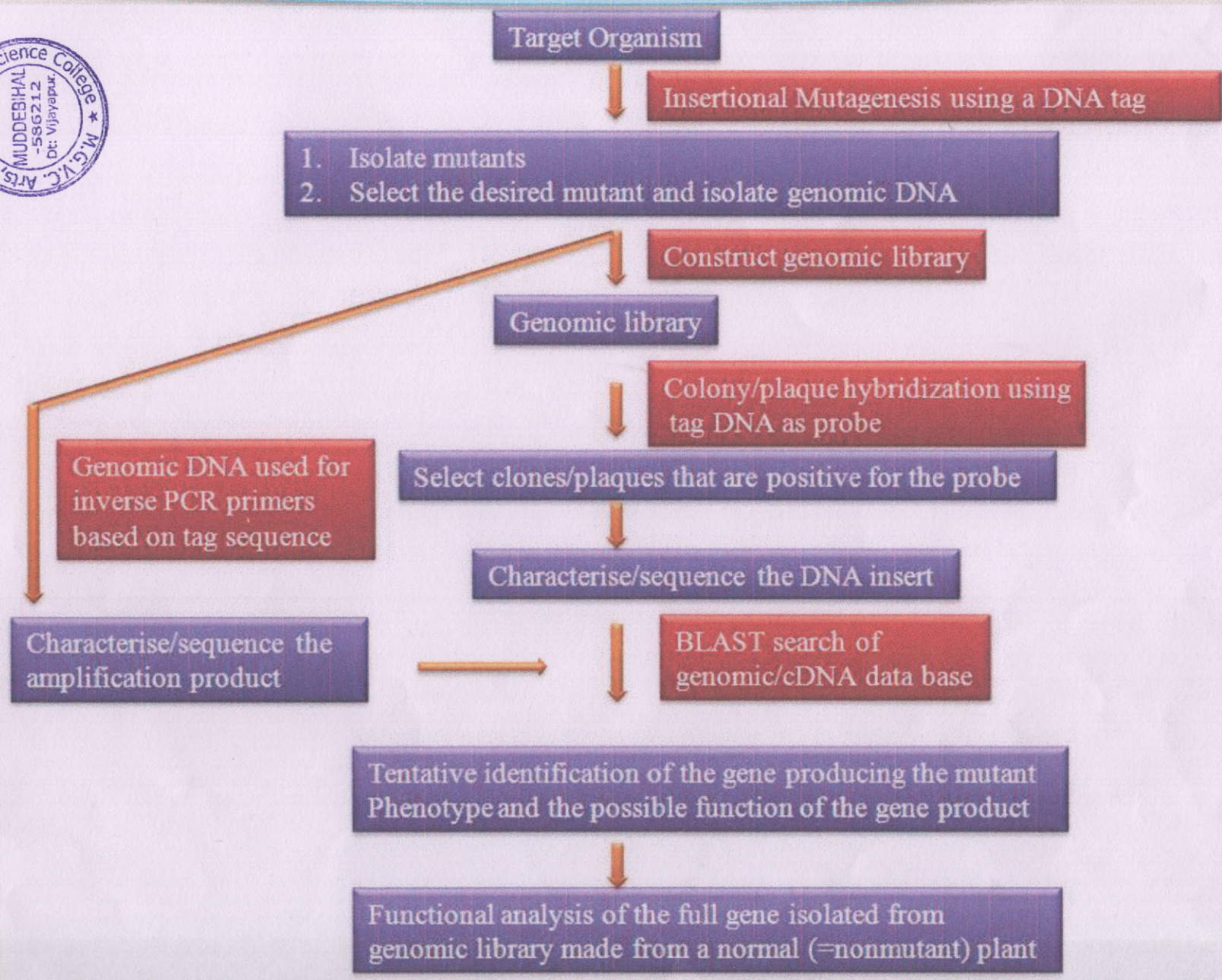


Agrobacterium tumefaciens, a soil bacteria, pathogen of several dicot plants which causes tumours called crown galls is able to deliver a piece of DNA known as 'T-DNA' to transform normal plant cells into a tumour and direct these tumour cells to produce chemicals required by the pathogens. Similarly, retroviruses are used to transform normal cells into cancerous cells in animals. These plasmid in *Agrobacterium tumefaciens* called Ti plasmids (Tumour inducing plasmids) this plasmid has 30kb region called T-DNA. When the cells of *Agrobacterium tumefaciens* carrying genetically engineered Ti plasmids (recombinant plasmids) infect dicot plants, their T-DNA are transferred to plant cells and get Integrated with DNA of the plant cells . T-DNA in the plant cells induce repeated cell division to form tumours, to indicate the transfer of desired gene . Now Ti plasmids of *Agrobacterium tumefaciens* have been modified into cloning vector which is no more pathogenic to the plants, but still they are used to deliver desired genes into variety of plants. Similarly retrovirus are now made non-pathogenic and are used to deliver desired gene into animal cells.

“T-DNA & Transposon Tagging”



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Flow chart 1 - A generalized scheme for gene tagging