

B.Sc. V Semester (w.e.f. 2019 – 20)

Botany Paper - I

Paper-I: Plant Breeding, Tissue Culture and Horticultural Practices.

50

Hrs

Unit I: Plant Breeding: History and objectives. Introduction, Selection (Pure line, Mass Selection), Hybridization- inter specific and inter generic. Mutational & Polyploidy breeding. Germ plasm and its maintenance. Pollen Bank, Quarantine method.

10 Hrs.

Unit II: Plant Tissue Culture: Scope and Significance. Basic Aspects and Cellular totipotency (Shoot tip, Embryo and Haploid culture techniques). Differentiation and morphogenesis.

10 Hrs.

Unit III: Introduction to Horticulture, Nursery management and importance.

Methods of propagation – vegetative – rhizome, bulb, corm and sucker (natural). Artificial- Cutting, layering, grafting and budding. Bonsai – methods and importance. Nursery management: Introduction, types of nurseries and cultural practices. Seed (propagule) collection, storage and treatment. Manures, fertilizers and pesticides. Methods of irrigation – drip, sprinkler and flood

12 Hrs.

Unit IV: Green House Technology – Introduction, advantages and limitations. Types of Green Houses- Green House structure, principle Greenhouse technology as applied to ornamental, vegetable and fruit plants.

08 Hrs.

Unit V: Harvest Technology and Weed Management: Harvest Technology: Flower and fruit plants management. Artificial ripening, maturity indices, methods of picking. Post-harvest technology and management of fruits: grading, processing, storage and packing. Weed Management:

Introduction and significance. Invasive weeds – concept and causes of their dominance. Weed control – physical, chemical and biological methods.

10 Hrs.

Practicals:

1. Study of methods of propagation with help of tubers, bulbs, rhizomes, corms, suckers, runner and offset.
2. Study of propagation by cutting, layering, grafting and budding.
3. Methods of emasculation and bagging for cross-pollination.
4. Morphology and anatomy of dry and wet stigma.
5. Morphology and anatomy of solid and hollow styles.
6. Study of pollination types.
7. Demonstration of tissue culture techniques.
8. Visit to nursery - poly house /Green house and tissue culture lab.
9. Preparation of MS media for culture. 10. Bonsai techniques.


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S.G.V.C V.P TRUST
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MUDDABIHAL 586212



DEPARTMENT OF BOTANY

PROJECT WORK OF THE YEAR 2020-21

Sl. No	Reg. No	Name of the students	Topic
01	S1827617	Akshata Hubballi	Plant Breeding
02	S1827614	Akshata Kumbar	
03	S1827641	Bhagyashree Biradar	
04	S1827630	Asha Lamani	

Sl. No	Reg. No	Name of the students	Topic
01	S1827671	Kavita Tegginamath	Plant Tissue Culture
02	S1827669	Kavita Hiremath	
03	S1827665	Jyoti Hiremath	
04	S1827647	Mahajabeen Bhagwan	

Sl. No	Reg. No	Name of the students	Topic
01	S1827828	Zebamuskan saudagar	Weed Management
02	S1827813	Vidyashri Patil	
03	S1827827	Yashoda Biradar	

Sl. No	Reg. No	Name of the students	Topic
01	S1827766	Sharanabasaveshwari S	Agrobacterium
02	S1827789	Suman Shastri	

Sl. No	Reg. No	Name of the students	Topic
01	S1827827	Yashoda Biradar	Immuno Techniques
02	S1827813	Vidyashri Patil	
03	S1827828	Zebamuskan Saudagar	
04	S1827806	Tejashwini Talikoti	



Sl. No	Reg. No	Name of the students	Topic
01	S1827797	Surekha Badawadagi	Genetic improvement in industrial microbes
02	S1827802	Swati Rathod	
03	S1827792	Sunanda Hokrani	



Sl. No	Reg. No	Name of the students	Topic
01	S1723418	Appaji Malagi	Spices
02	S1723434	Basavaraj Walikar	
03	S1723429	Balu Shivanagi	
04	S1723467	Ijahmad Khaji	

Sl. No	Reg. No	Name of the students	Topic
01	S1723431	Basanti Janjinagaddi	Vegetable Oils
02	S1723428	B.N. Ganti	
03	S1723546	Sahana Talikoti	
04	S1723435	Bhagyashree Chimmalagi	
05	S1723439	Bhagyashree Kumbar	

Sl. No	Reg. No	Name of the students	Topic
01	S1827774	Shrdhar Biradar	Tannines
02	S1827737	Sabatasmiya Shivanagi	
03	S1827715	Pooja Shidaraddi	
04	S1827766	Sharanabashwari Shidaraddi	
05	S1827700	Ninganagouda Biradar	

Sl. No	Reg. No	Name of the students	Topic
01	S1827647	Chaitra Sandimani	Steroids
02	S1827630	Asha Lamani	
03	S1827641	Bhagyashree Biradar	
04	S1827665	Jyoti Hiremath	
05	S1827663	Jyoti Goudra	

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**M.G.V.C ARTS, COMMERCE AND SCIENCE COLLEGE
MUDDEBIHAL-586212**



DEPARTMENT OF BOTANY

CERTIFICATE

Examination Seat No: S1827630

Class: B.sc 5th sem

This is to Certify that, Mr/Mrs. **ASHA LAMANI**

Has satisfactorily completed Project work on " **PLANT BREEDING**

"Under my supervision in M.G.V.C Arts, Commerce
and Science College Muddebihal year 2020-2021

Staff Member in charge

Head Department of Botany
Head of the Department of Botany
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Co-ordinator
Co-ordinator,
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Project work on :

Plant breeding.

Topics:-

***Hybridisation:**

***Interspecific:**

***Intergeneric:**

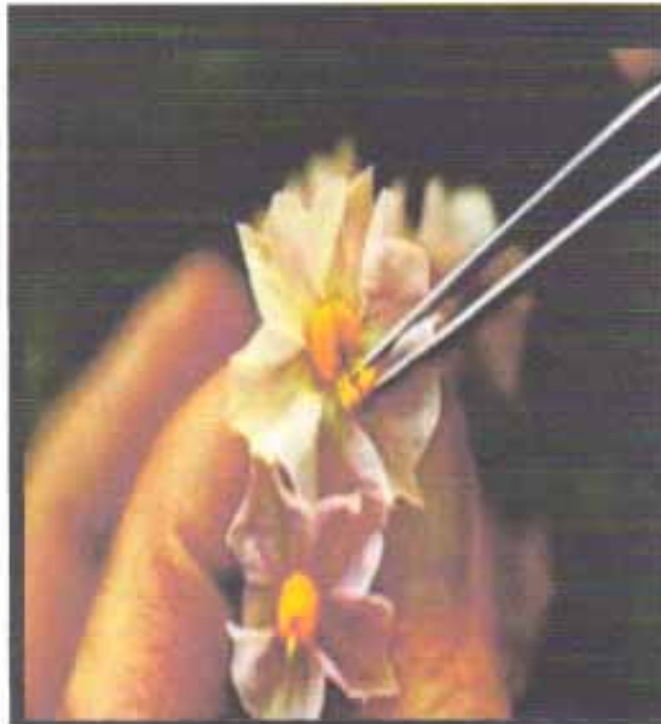
***Mutation:**

***Polyploidy breeding:**



3) Emasculation: This is the 3rd step in the hybridisation technique.

Emasculation is defined as the removal of stamens from the female parents before they burst and shed their pollen.



*The process of emasculation is prevent self fertilization therefore is usually performed a few hours before the anthers ripe and Denise and self-pollinate the stigma. The floral buds which are expected to open on the following day are selected for the process of emasculation



POLYPOIDY BREEDING:

Polyploidy is a condition which the cells of an organisms have more than two paired (homologous) set of chromosomes.

*Most species whose cells have nuclei are diploid meaning they have two set of chromosomes one is inherited from each plants .Some organisms are polyploidy and polyploidy is especially common in plants.

*Polyploidy may occur due to abnormal cell division either during mitosis or commonly during metaphase1 in meiosis.

*In addition it can be induced in plants and cells cultures by some chemicals eg- Colchicine,which can result in chromosome doubling.

*Polyploidy type labelled according to the number of chromosome set in the nucleus.

Classifications :

Autopolyploid: Autopolyploid are polyploidy with multiple chromosomes sets derived from a single taxon. Rarely Autopolyploids arise from spontaneous, somatic genome doubling, which has been observed in apple bud sports. This is also the most common pathway of artificially induced polyploidy, where method such as protoplast fusion or treatment with colohicine,mitotic inhibitors are used to discreept normatic division which results in the production of polyploidy cells

* Application of Autopolyploidy in crop improvement:

*Monoploids are weaker than diploid and are little agricultural value.

*They used for developing homozygous diploid lines.

*Triploid -These are formed by the hybridisation between tetraploids($4n$) and ($2n$) diploid they are generally highly sterile, the triploid do not produce true seeds all most all the seeds are small. This feature is useful in the production of seedless watermelons and some times they may be more vigorous than normal diploid

*Allopolyploidy: Allopolyploidy or amphipolyploids or hetero polyploids are polyploids with chromosomes derived from two or more diverged taxa.

Allopolyploidy: Allopolyploidy or amphipolyploids or heteropolyploids are polyploidy with chromosomes derived from two or more diverged taxa.*Allopolyploidy have genomes from two or more species. Some success has been obtained as is evident from the



PLANT TISSUE CULTURE

VINAY SHARMA
AFROZ ALAM



Co-ordinator,

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CERTIFICATE

Examination Seat No: **S1827665**

Class: **BSc Vth SEM**

This is to Certify that, Mr/Mrs. **JYOTI . Y. HIREMATH**

Has satisfactorily completed Project work on "**PLANT TISSUE CULTURE
SCOPE AND SIGNIFICANCE . BASIC ASPECTS AND
CELLULAR TOTIPOTENCY**" Under my supervision in M.G.V.C Arts, Commerce
and Science College Muddebihal year 2020-2021

Staff Member in charge

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Examiner's Date:
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2. _____



Plant tissue culture

Plant tissue culture is in-vitro cultivation of plant cell or tissue under aseptic and controlled environment conditions in liquid or an semisolid well defined nutrient medium for the production of primary and secondary metabolites or to regenerate plant.

Scope of tissue culture.

- The production of extra copies of plants that produce good flower, fruits or have other desirable traits.
- To quickly produce mature plants.
- The production of multiple of plants in the absence of seed or necessary pollinators to produce seeds.
- The regeneration of whole plant from plant cell that have been genetically modified.
- Production of plant from seeds that otherwise have very low chances of germinating and growing i.e. orchids and nepenthes.
- To clean particular plants of viral and other infection and quickly multiply these plants as cleaned stock for horticulture and agriculture.

Culture systems



- Callus culture

1. Callus is an unspecialized, unorganized growing and dividing mass of cells.
2. Can be maintained indefinitely.
3. No photosynthesis and grow in dark.
4. Can be used to isolate single totipotent cells.
5. Many cultures lose their potential for differentiation during continued subculture due to epigenetic changes.
6. Difficult to follow many cellular events during its growth and development phases.
7. A callus cell culture is usually sustained on gel medium.
8. Plant growth regulators, such as auxins, gibberellins and cytokinins are supplemented into the medium to initiate callus formation or somatic embryogenesis.



S.G.V.C Vidya Prasarak Trust's

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DEPARTMENT OF BOTANY

CERTIFICATE

Examination Seat No: S1827813

Class: B.sc 5th sem

This is to Certify that, Mr/Mrs. **Vidyashri. S. Pati**

Has satisfactorily completed Project work on "Weed management"

"Under my supervision in M.G.V.C Arts, Commerce
and Science College Muddebihal year 2020-2021

Staff Member in charge

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Content

- ✓ **Introduction of weed**
- ✓ **Weed control**
- ✓ **Losses of agriculture**
- ✓ **Problems due to weed**
- ✓ **Principles of weed management**
 - ❖ Prevention
 - ❖ Eradication
 - ❖ Control
- ✓ **Invasive weed concept**
 - ❖ Perception to cause harm
 - ❖ Environmental harm
- ✓ **Methods of weed**
 - ❖ Mechanical method
 - ❖ Cultural method
 - ❖ Chemical method
 - ❖ Biological method
- ✓ **Classifications of weed**
 - ❖ Annual weed.
 - ❖ Perennial weed
 - ❖ Biennial weed

Mechanical method :-



Many specialized machines and attachment are used in Forest vegetation management, including brush rakes, angle blades, shearing blades, rolling brush cutters and shredders. Large offset disk and integral plows and sometime used. In addition, chain saws, axes, brush hooks, powered brush cutters, hatchets and other hand tools can be used in weeding operations. On gentle slopes, mechanical means of site preparation and rehabilitation are generally sufficient to remove debris control weeds, prepare seedbeds, reduce soil compaction caused by logging and carry out minor land levelling operations.

- Tillage :-It remove the weed from the soil it causes injury to root and prunninh to shoot of weeds are buried also at the time of tillage .
- Hoeing :- Hoeing is widely used weeding tool for centuries. It is very useful for annual and biennial weeds. The under ground growth is not much affected.
- Hand weeding :- It is done by pulling out weed from the field pulling out is done with the help of kurpi.
- Digging :- It is practiced especially for the removal of shrubby and stubby nobody perennials.
- Mowing :- The process of moving is done by mower machine and hand blade having long cutting edge about one metre.
- Burning :- It destroyed aerial portion of the weed directly through the fiance of the fire and under ground portion through the heat effect.



Classification of weeds :-

1) Annual weeds :-

These weeds complete their life cycle in one year. They grow vigorously in one year and form seeds. And later these seeds will germinate and grow as an individual plant in the next consecutive year. The annual weeds may be divided into 2 groups.

a) Summer annual weeds -

- 1) Germinate in spring season
- 2) Flower to mid to late summer
- 3) Reach full maturity in summer season
- 4) Seed set
- 5) Die in winter season
- 6) Ex : Lambsquarters, redroot pigweed, large crabgrass

b) Winter annual weeds -

- 1) Germinate in late summer or in beginning of the winter season.
- 2) Reach full maturity in spring season
- 3) Seed set
- 4) Die in summer season
- 5) Ex : Shepherds purse, pepper g

Some exhibit their growth in both summer and winter annual habits.

Ex - common chickweed, speedwell's.

2) Biennial weeds :-

It complete the vegetative growth in the first season, flower and set seeds in the succeeding season and then dies. These are found mainly in non-cropped areas.

Ex - daucus carota, mullion, burdock

3) Perennial weeds :-

Perennials live more than two years and may live almost indefinitely. They adapted to with stand adverse condition. They propagate not only through seeds but also by underground stem, root, rhizomes etc. and then further classified into

- a) **Simple perennial weeds** : spread only by seeds. Vegetative reproduction can occur if the roots are cut into pieces and each piece will grow into a new individual weeds.

Ex - dandelion, plantain

- a) **Bulbous Perennial weeds** : They spread by underground bulbs and also by seeds.

Ex - wild garlic.

c) **Creeping perennial weeds** : Plants that possess modified shoot and fleshy stem and reproduce through corm seeds. Ex - Timothy.



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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 engineerr, 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

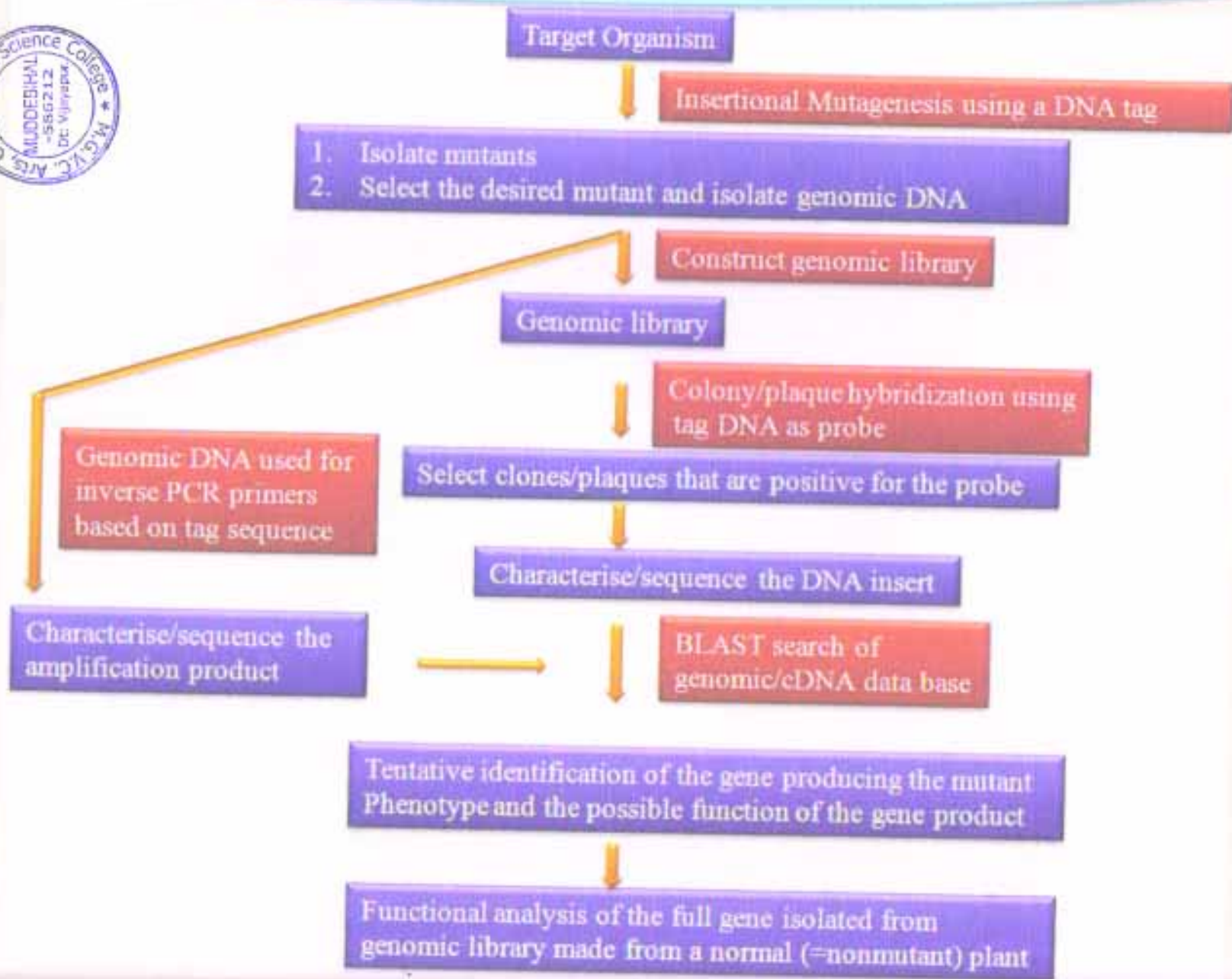
Uses:-

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



AGBACTERIUM TUMEFACIENS

"T-DNA & Transposon Tagging"



M.G.V.C. ARTS, COMMERCE AND SCIENCE COLLEGE
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DEPARTMENT OF BOTANY


Examination Seat No: S1827828


Class- B. Sc Sixth Semester

This is to certify that Mr./Miss Zebamushkan. M. Saudagar.


Has satisfactorily completed the project work on
Immunological Techniques Under my supervision in M.G.V.C. Arts,
Commerce and Science College, Muddebihal during the year
2020-2021

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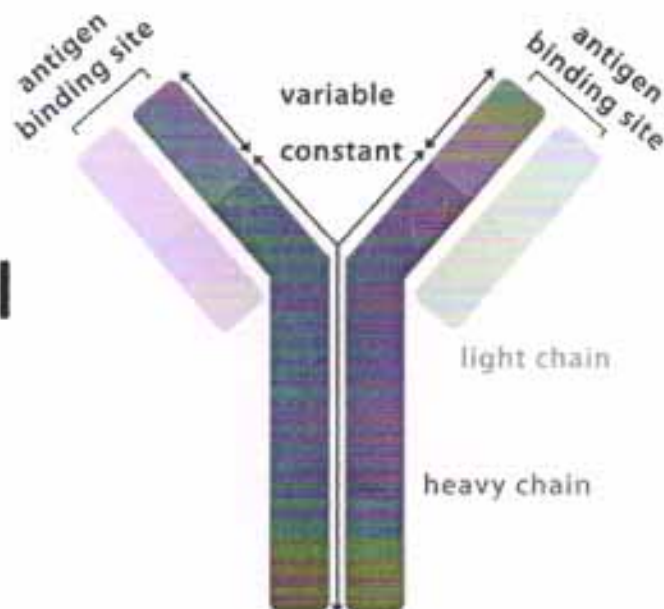
Immunological Techniques

February 25, 2021 by Somak Banerjee

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Immunological Techniques

Most of the immunological techniques are based upon the antigen-antibody reactions. Precipitation reactions are one of the important reactions that occur when antigen and antibody come to contact. When a soluble antigen reacts with its antibody in the presence of NaCl at optimal temperature and pH, the antigen-antibody complex forms an insoluble precipitate. Generally, liquid media and gels such as agar, agarose, polyacrylamide are used for this kind of reaction.



Immunological Techniques

Immunodiffusion tests

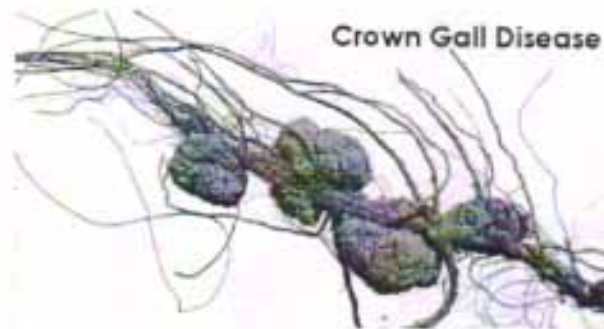
This is an immunological technique used to find out different antigens and antibodies in clinical samples. The tests are performed in 1% agar. There are some advantages of using immunodiffusion tests in a clinical set up such as

1. The band formed after the reaction is easily visible, stable and can be stained for preservation.
2. Different antigens can be used to observe the reaction. As each antigen-antibody reaction gives a specific precipitation line, therefore, it helps to identify specific antigen.
3. Identical, partial identical and non identical antigens can be observed.

Although some microbes are beneficial for human welfare, some of them are used for the production of bio-fertilizer, some are useful for industries, yet there are several microorganisms, which are the cause of plant disease. Such as some viruses, bacteria, mycoplasma, and fungi can cause several types of disease in ... Read more

Crown Gall Disease

January 19, 2021 by Muhammad Faisal Abbasi



Crown Gall Disease It is caused by *Agrobacterium tumefaciens*, which is a common plant disease (bacterial). The disease mostly affects dicotyledon species such as woody & herbaceous plants. Can be identified by the appearance of tumors of various size & shape at lower stem & main roots of the plant. ... Read more

Factors for the establishment of plant diseases

January 19, 2021 by Muhammad Faisal Abbasi



These are the factors for the establishment of plant diseases. Pathogen properties, Properties of the host, Presence/absence of nutritional component, Properties of environment, Image Source: AspenCore, Inc A) Pathogen properties 1. Level of virulence: Pathogen's ability to infect/damage the host or to infect a resistant gene. 2. Adaptability: The ability ... Read more

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



MUDDEBIHAL

DEPARTMENT OF BOTANY
PROJECT WORK ON SPICES



FROM : B.Sc FOURTH SEMESTER
STUDENTS - 2019-20

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Co-ordinator,

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

MUDDEBIHAL 586212

CERTIFICATE

DEPARTMENT OF BOTANY



Examination Seat. No: S1723418

Class- B.Sc Fourth Semester

This is certify that Mr/ Miss... Appaji . P. Malagi

..... Has satisfactorily completed the project work on

"Spices" Under my supervision in M.G.V.C. Arts, Comm and Science college
Muddebihal during the year 2019-2020.

Handwritten signature and date
14/2/19

Staff member Incharge

Handwritten signature
Head/Department of Botany
M.G.V.C. College, MUDDEBIHAL-586212
Dist, Bijapur,

VALUED	
Examination's Certfoc	
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2. _____	<i>Handwritten signature and date</i> 14/2/19



Ginger

Zingiber Officinale

Ginger is Flowering plant whose rhizome widely used as a spice and a folk medicine.

It is a herbaceous perennial which grows annual pseudo stems about a meter tall bearing narrow leaf beads. Ginger is in the family *Zingiberaceae* to which also belong turmeric.

Ginger originated in the tropical rainforests from the Indian Subcontinent to Southern Asia, where ginger plants show considerable genetic.

Nutritional Information

Raw ginger is composed of 79% water, 18% Carbohydrates, 2% Protein and 1% Fat in 100 grams . Raw ginger supplies 80 Calories and contains moderate amounts of vitamin B6 and the dietary minerals.

Regional Uses:

- Ginger also has a role in traditional Ayurvedic Medicine.
- Fresh Ginger is one of the main spices used for making pulse and lentil curries and other vegetables.
- Fresh ginger together with peeled garlic cloves is crushed or ground to form ginger garlic masala.



Cinnamon

Cinnamomum Verum

"*Cinnamomum Verum*" is a spice obtained from the inner bark of *Laurel* tree. Cinnamon is used mainly as an aromatic Condiment and flavouring additive in wide variety of Cuisines.

The genus *Cinnamomum* in the family *Lauraceae*. Cinnamom is native to China. All harvested and sold in the modern era as Cinnamon. Cinnamon are native to Vietnam, Indonesia and other Southeast Asian countries with warm climates.

Cinnamon sticks, powder and dries flowers of the *Cinnamomum Verum* Plant.

Ground Cinnamon is composed of around 11% water, 81% Carbohydrates, 4% Protein, 1% Fat in a 100 gram reference amount, ground Cinnamon is a rich source of Calcium, Iron (64%Dv) and Vitamin K (30% Dv).

M.G.V.C. ARTS, COMMERCE AND SCIENCE COLLEGE
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DEPARTMENT OF BOTANY

Examination Seat No E1827802

Class- B. Sc Sixth Semester


This is to certify that Mr. /Miss Shruti S. Rana

Has satisfactorily completed the project work on Genetic improvement
in industrial microbes Under my supervision in M.G.V.C. Arts,
Commerce and Science College, Muddebihal during the year
2020-2021


Staff Member Incharge


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