



"Education for Knowledge, Science, and Culture"

- Shikshanmaharshi Dr. Bapuji Salunkhe

Shri Swami Vivekanand Shikshan Sanstha's

**Vivekanand College, Kolhapur
(Autonomous)**



KOLHAPUR (AUTONOMOUS)

Department of Botany

Continuous Internal Evaluation

2019-2020

Continuous Internal Evaluation 2019-2020

Department of Botany





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KOLHAPUR (AUTONOMOUS)

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For
Head
Department of Botany
Head
Department of Botany
Vivekanand College
Kolhapur




For
PRINCIPAL
Principal
Vivekanand College
Kolhapur.

"Education for Knowledge, Science, and Culture"
- Shikshanmaharshi Dr. Bapuji Salunkhe



**Shri Swami Vivekanand Shikshan Sanstha's
Vivekanand College, Kolhapur
(Autonomous)**



KOLHAPUR (AUTONOMOUS)

Department of Botany

Home Assignment

2019-2020



Vivekanand College, Kolhapur (Autonomous)

Department of Botany

Home Assignment of B. Sc I

31st October, 2019

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For *Dangat*
Head
Department of Botany
Head
Department of Botany
Vivekanand College
Kolhapur

Education for Knowledge, Science and Culture."
- Shikshanmaharshi Dr. Bapuji Salunkhe

Shri Swami Vivekanand Shikshan Sanstha's

VIVEKANAND COLLEGE (AUTONOMOUS),
KOLHAPUR.

Department of Botany

Date: 25/10/2019

NOTICE

All B.Sc.I Students hereby informed that, you have to submit the given Home Assignment (Paper I, section I and II) on or before 31/10/2019. Write down the Home Assignment on full-scape and submit to the Botany department.

[Handwritten Signature]
Head

Department of Botany

Head
Department of Botany
Vivekanand College
Kolhapur



BSC Part I Botany
Department of Botany

Home Assignment

Q.1 Describe in brief mycelium & sexual reproduction in Mucor.

a) Mycelium

Mycelium is the vegetative part of a fungus or fungus-like bacterial colony, consisting of a mass of branching, thread-like hyphae. The mass of hyphae is sometimes called *shiro*, especially with in the fairy ring fungi. Fungal colonies composed of mycelium are found in & on soil & many other substrates. A typical single spore germinates into a monokaryotic mycelium, which can not reproduce sexually. When two compatible monokaryotic mycelia join & form a dikaryotic mycelium, that mycelium may form fruiting bodies such as mushrooms.

A fruiting bodies such as mushrooms. A mycelium may be minute, forming a colony that is too small to see, or may grow to span thousands of acres as in *Armillaria*.

B) Asexual reproduction in Mucor.

i) By fragmentation:

The vegetative mycelium may break into fragments & each fragment may give rise to new mycelium.



ii) By Chlamydo-spores

Some of hyphae break up by transverse walls into thick walled segments which later on become round & secrete a thick wall to represent chlamydo-spore.

They survive in unfavourable conditions. Under suitable conditions, under suitable conditions

Chlamydo-spore germinates to form new mycelium.

iii) By Sporangiospores

Some of the hyphal branches at their terminal ends form sack like bodies called Sporangia. Each sporangium is developed at the tip of a long, erect, usually unbranched hypha called sporangiophore.

The sporangiophores are produced singly & not in groups. The apex of sporangiophore swells & cytoplasm along with nuclei migrate into the swollen part of the sporangiophore i.e. sporangium.

The swollen part enlarges & develops into a large globose structure. The nuclei in this globose structure divide to form many Sporangiospores.



Q.2 Write short notes

a) General Characters of fungi -

- ① fungi are eukaryotic, non-vascular, non-motile & heterotrophic organisms.
- ② They may be unicellular or filamentous.
- ③ They reproduce by means of spores.
- ④ fungi exhibit the phenomenon of alternation of generation.
- ⑤ fungi lack chlorophyll & hence can not perform photosynthesis.

b) Heterospory -

Heterospory is the production of spores of two different size & sexes by the sporophytes of land plants. The smaller of these the microspore is male & the larger megaspore is female. Heterospory evolved during the Devonian period from isospory independently in several plant groups. The clubmosses the asexual horsetails & progymnosperms

c) Economic Imp of fungi

- ① They can be used as a food in the form of mushrooms & morels.
- ② Used in industry for making bakery product
- ③ Used in production of wine by fermentation process
- ④ Used for the preparation of medicines
- ⑤ Used as a fertility of the soil
- ⑥ Some found to be rich in protein content.

विद्यया ऽ मृतमश्नुते

B.SCI

16

Vivekanand College, Kolhapur
Department of Botany B.Sc. I

2020

Sub: Botany
Time:

Date:
Teacher Signature

Roll No	Sing.	Roll No	Sing.	Roll No	Sing.	Roll No	Sing.
7169	R. Madhul	7211		7253		7345	Tal
7170	D. S. M.	7212	P. D. Kankar	7254	र. ल. गोवि.	7346	
7171	ND	7213	प्र. ल. गोवि.	7255	श. ल. गोवि.	7347	प्र. ल. गोवि.
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						7387	श. ल. गोवि.

Head
Department
Vivekanand



7388 श. ल. गोवि.
7405 श. ल. गोवि.
7393 श. ल. गोवि.
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7389 श. ल. गोवि.
7412 श. ल. गोवि.
7398 श. ल. गोवि.
7422 श. ल. गोवि.
7394 श. ल. गोवि.
7416 श. ल. गोवि.

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Total 410
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Vivekanand College, Kolhapur

Department of Botany B.Sc. I Marks

Sub.: Botany

Time :

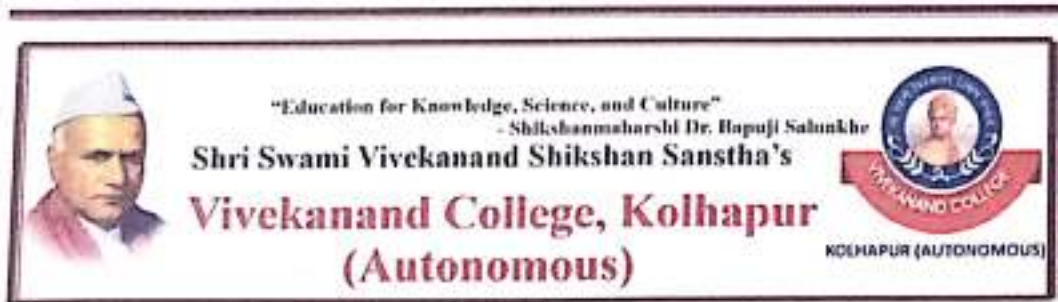
Date :
 Teacher Signature

Assignment

Roll No	Sing.	Roll No.	Sing.	Roll No	Sing.	Roll No.	Sing.
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- 7405 → 17
- 7415 → 16
- 7394 → 20
- 7389 → 20
- 7388 → 20
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- 7398 → 19
- 7412 → 20
- 7406 → 17





Department of Botany

Home Assignment

B. Sc. II

Plant Protection

2019-2020



Vivekanand College, Kolhapur (Autonomous)

Department of Botany

Home Assignment of B. Sc. II (PP)

21st November, 2022

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For
Head
Department of Botany
Head
Department of Botany
Vivekanand College
Kolhapur

Education for Knowledge, Science and Culture."
- Shikshanmaharshi Dr. Bapuji Salunkhe

Shri Swami Vivekanand Shikshan Sanstha's

VIVEKANAND COLLEGE (AUTONOMOUS),
KOLHAPUR.

Department of Botany

Date: 02/03/2020

NOTICE

All B. Sc. II (Plant Protection) Students hereby informed that, you have to submit the given assignment (Paper II section I and II) on or before 14/03/2020. Write down the assignment on full-scape and submit to the Botany department.



[Handwritten Signature]
Head

Department of Botany

Head
Department of Botany
Vivekanand College
Kolhapur

Home Assignment

Vivekanand College, Kolhapur
B.Sc. II P.P.

Sub.: P.P.

Date :

Time :

Teacher Signature

Roll No	Sing.	Roll No.	Sing.	Roll No	Sing.	Roll No.	Sing.
7606	Adhikar	7620	Adhikar	7634	Adhikar	7648	Adhikar
7607	Adhikar	7621	Adhikar	7635	Adhikar	7649	Adhikar
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7616	Adhikar	7630	Present	7644	Adhikar		
7617	Adhikar	7631	Adhikar	7645	Adhikar		
7618	Adhikar	7632	Adhikar	7646	Adhikar		
7619	Adhikar	7633	Adhikar	7647	Adhikar		



For 
Head
Department of Botany
Vivekanand College
Kolhapur

.. ज्ञान, विद्या और सुखका अमोघ सागर - श्री
 Komal Rajkumar Parit



Home-Assignment

Vivekanand College, Kolhapur

B.Sc. II P.P.

Sub.: P.P.

Time :

Date :

Teacher Signature

Roll No.	Sing.	Roll No.	Sing.	Roll No.	Sing.	Roll No.	Sing.
7606	B.P.	7620	P.P.	7634	H.P.	7648	P.P.
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7618	A.P.	7632	A.P.	7646	A.P.		
7619	A.P.	7633	A.P.	7647	A.P.		



Handwritten signature or initials.

Head
 Department of Botany
 Vivekanand College
 Kolhapur

Department of Botany
 Vivekanand College
 Kolhapur

29

Q1 Select correct alternative.

1) Adsali cultivation is practiced in sugar cane crop.

2) A small cultivation around the main is called Trap crop.

3) The process of development of a disease is known as pathogenesis.

4) The infection in which entire plant is affected is called systemic disease.

Q2 ii) Describe in brief principle of plant disease management.

1) Avoidance - Geographical area, selection of proper field, planting time & disease escaping varieties, avoidance of insect vectors & weed hosts.

2) Exclusion - Quarantine, inspection & certification, seed treatment.

3) Eradication - Crop rotation, sanitation, roguing, soil treatment, heat & chemical treatment to diseased plant material use of antagonists.

4) protection - Chemical treatment.

5) Immunization - Resistant varieties.

6) Therapy - Chemotherapy, thermotherapy.



- 31.
- 2) cultivating to keep down weed hosts & deep ploughing to bury diseased plant debris.
 - 3) Relation of susceptible with non-susceptible crops to starve out the pathogen.
 - 4) Disinfection usually by the chemicals & sometime by heat treatment.

4) Protection

- 1) It is the use of some protective barrier between & the susceptible part of the suscept or host & the pathogen.
- 2) In most cases, a protective spray or dust applied to the plant in advance of the arrival of the fungus spores.
- 3) sometimes it is achieved by killing insects or other inoculating agents.
- 4) sometimes it is achieved by erection of a wind break or other mechanical barrier.

5) Immunization

- 1) disease resistant & tolerant varieties are the cheapest, easiest & most efficient way to reduce disease loss.
- 2) varieties should be selected that possess resistance for one or more disease organism.
- 3) for some disease e.g soil borne vascular wilts use of resistant varieties is only means to control the infection.
- 4) Most plant breeding is done for the development of varieties that produce greater yields of better quality.

6) Therapy

- 1) It is used on individual plant & can not be used on a large scale.
- 2) It is achieved by inoculating or treating the plant with something that will inactivate the pathogen.



whereas heat is sometime used to inactivate or inhibit virus development in infected plant tissue so that newly developing tissue may be obtained which is free of pathogen.

4) Thermotherapy involves the exposure of diseased plant or part of them to hot water or high air temperature for different periods of time.

Q3) Of Attempt.

1) organic farming -

It is agricultural practice in which cultivated by using plant waste & animal waste.

It is method of farming system which primarily aimed at cultivating the land & raising crop in such a way. as to keep soil alive & in good health by use of organic waste & other biological materials along with beneficial microbes to release nutrient to crops for increase sustainable production in an ecofriendly pollution free environment.

Types of organic farming-

It is seen, India is a vast country their are different method of organic farming followed across the country & it largely depends on the kind of soil & weather condition prevailing across the length & breadth of country.

1) Integrated way of organic farming.

According to this method farmer stay the crops by integrating all the receive nutrient from natural researches, in such a way that crops maintain the complete nutritive value simultaneously it helps prevent the plant from getting damage from pests in natural way.

2) Pure form of organic farming

Pure form of organic farming is one such farming method



Exam. _____ Roll No. 7606 Class 5Y Div. _____
 Subject Plant protection Paper IV Section II Date 3-2-20

BEING YOUR ANSWER ON THE PAGE ITSELF WRTE BOTH SIDE OF THE PAPER

Question No.	1	2	3	4	5	6	7	8	9	10	Total	Out of
Marks Obtained												

Q 1 Select correct alternative.

① 1. In Jowar stem borer pupation occurs in stem tunnel.

① 2. Malaria is caused by the mosquito species Anopheles.

① 3. Surra disease in domestic animals is transmitted by the flies Glossina & tabanus.

① 4. pyrethroides is a natural insecticide.

Q 2 Attempt any one of following.

1. Describe marks of identification, nature of damage & management of Jowar stem borer.

Classification -

phylum - Arthropoda.

class - Insecta.

order - Lepidoptera

family - Grambidae.

Genus - Chilo

Species - Bartellus



* Marks of identification.

1. Adult moth -

It is straw coloured with yellowish grey colour feet & having minute dots on the margin.

The hind wing are whitish.

2. Larva -

fully grown larva is 12 to 19mm long & 5mm in length. It is whole or creamy white in colour at maturity & having many dark spots on the body. Larval body is segmented.

3. Eggs -

Female moth lays 300 eggs on lower surface of leaf.

The eggs are oval & creamy white in colour.

* Nature of damage -

After hatching from the eggs the larva initially feed on tender leaf whorls causing series of holes in leaf lamina & later bore into stem & feeds on the central conducting tissue. Due to this stem tissue causing injury & stops supply of water & minerals to growing point.

Hence stem shows drying effect so as to reduce crop yield which is commonly called as 'Dead Heart'. Larva also feed on heart of Jowar.

Host range - Main Host are Jowar & some grasses.

* Management -

Removal & destruction of affected shoots along with larva. Collection & destruction of straggles after harvest of the crop to kill the hibernating larva.

3) Crop rotation is also applicable.

4) Use of 0.05% endosulphon or 0.3% carbonate 10 days of interval starting from 30 days after germination of plant.



epidermis & cause death by poisoning.

eg. parquat & diquat dibromide.

Chemical → cuticle → wax → insect body by epidermis → kill.

This non synthetic insecticide acting as nerve or general tissue poison. It is easily absorbed by lipid present in epicuticle of insect exoskeleton means highly lipophilic (dissolved lipids).

3) Systemic poison - (lethal/harmful/toxic)

This insecticide when applied it is observed & translocated to various plant part lethal to insect which is feed on them. The insects having piercing mouth part are suck well sap by proboscis & kill by this insecticide.

This systemic poison effectively penetrate into plant tissue & move through plant vascular system & kill specific pest.

The persistent for few days to few week therefore known as persistent contact poison.

eg. organophosphate, carbamates.

Systemic poison → transfer through vascular tissue → leaf → stomata stem → lenticells fruit → fruit wall soil → root hairs → seed → seed coat.

4) Fumigant -

Fumigant are such pesticides which kill target pest by producing vapour. These pesticide form poisonous gases. where applied.

These pesticide on vapour form enters the body of insect pest via their tracheal system (respiratory) through spiracles & cause death by poisoning. Some of their active ingredients are liquids when packed under high pressure but change gases when they are released other active ingredients are volatile liquids when enclosed in an ordinary container.

Fumigant are used to remove stored products pest from fruit, vegetables, & grains. eg. Nicotine, methyl bromide.

Q34) Classification based on mode of action.

Acetylcholinesterase terminates nerve impulse by catalysing the hydrolysis of neurotransmitter acetyl choline. It is key enzyme in insect nerve system in which the cholinergic system is essential. This property leads to the development of inhibitors of this enzyme as insecticides.

1) Nervous system -

The insecticides inhibit the enzymes of nervous system name acetyl cholinesterase. The enzyme is phosphorylated when it becomes attached to the phosphorus element of insecticide & this binding is irreversible. This inhibition result in the accumulation of acetylcholine at neuron or neuron muscle causing rapid contraction of voluntary muscles & finally paralysis.

2) Respiratory system -

Rotenon is respiratory enzyme inhibitor. it interfere with NAD^+ & co-enzyme respiratory enzyme responsible for carrying electrons in electron transport chain which result in failure of respiratory functions.

E.g 1) pyrethrum - (found in Chrysanthemum flower)

pyrethrum affect both peripheral & central nervous system of the insect pyrethrum initially stimulates nerve cell to produce repetitive discharge & cause paralysis.

2) Neem -

Azadirachtin is structurally similar to insect hormones ecdysones & so blocks the ecdysone by inhibiting biosynthesis of ecdysone.

3) DDT -

It open sodium ion channels in neuron & destroy the balance of sodium & potassium ion in nervous system.



31/1/2020

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7633 - 20	



For *[Signature]*

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Vivekanand College
Kolhapur

Vivekanand College, Kolhapur (Autonomous)

Department of Botany

Home Assignment of B.Sc. II



21st November, 2022

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For
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2019-2020

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KOLHAPUR.

Department of Botany

Date: 2/03/2020

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All B. Sc. II Students hereby informed that, you have to submit the given assignment (Paper IV section I and II) on or before 14/03/2020. Write down the assignment on full-scape and submit to the Botany department.



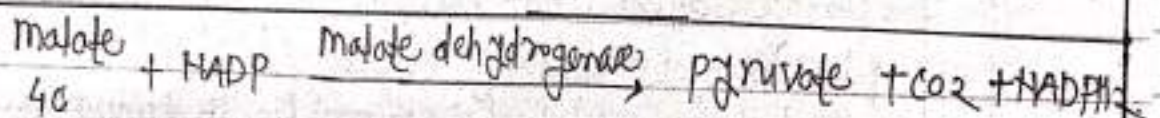

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Q.2.) (17) Part (II) - Reaction in Bundle sheath cells -

Decarboxylation :- Malic acid / aspartic acid is transported. In these agranal chloroplast, malic acid undergoes decarboxylation in the presence of NADP to form pyruvic acid & CO₂ is released.

Hydrogen removed at this step forms NADPH₂.



Second CO₂ fixation :-

The CO₂ released is accepted by second CO₂ acceptor RUBP & is fixed by C₃ pathway (calvin cycle) in the agranal chloroplast of bundle sheath cells. Thus, glucose is formed by calvin cycle & is transported through phloem.

Pyruvic acid produced due to decarboxylation of malic acid is transported back to mesophyll cells and is phosphorylated by ATP to form PEP (Phosphoenol-pyruvate). PEP, the initial acceptor is thus regenerated to continue the pathway.



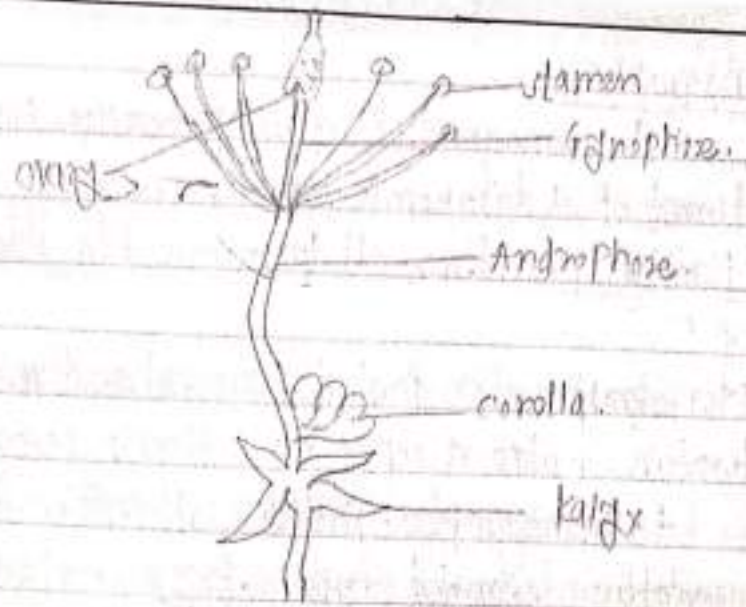
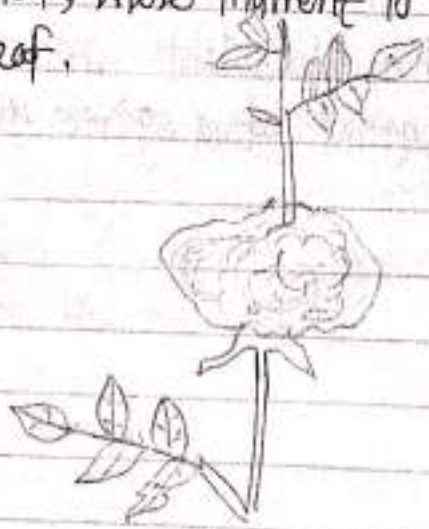


Diagram of a flower showing Androphore and Gynophore.

④ floral appendages :- (a) sepals :- These are generally green, equivalent of vegetative leaves and protective in function, often they are variously modified so that they are green and leafy, simple and reduced or brightly colored like petals. When they are colored and petaloid, show main vein markings like leaf but pigmentation like petals. (b) petals :- petals are modified vegetative leaves can be explained by certain wild roses where petals are green like vegetative leaves. (c) stamens :- The stamens can be easily compared with a leaf, where filament is equivalent to the petiole of the leaf.



Rose - Thalamus Growth.



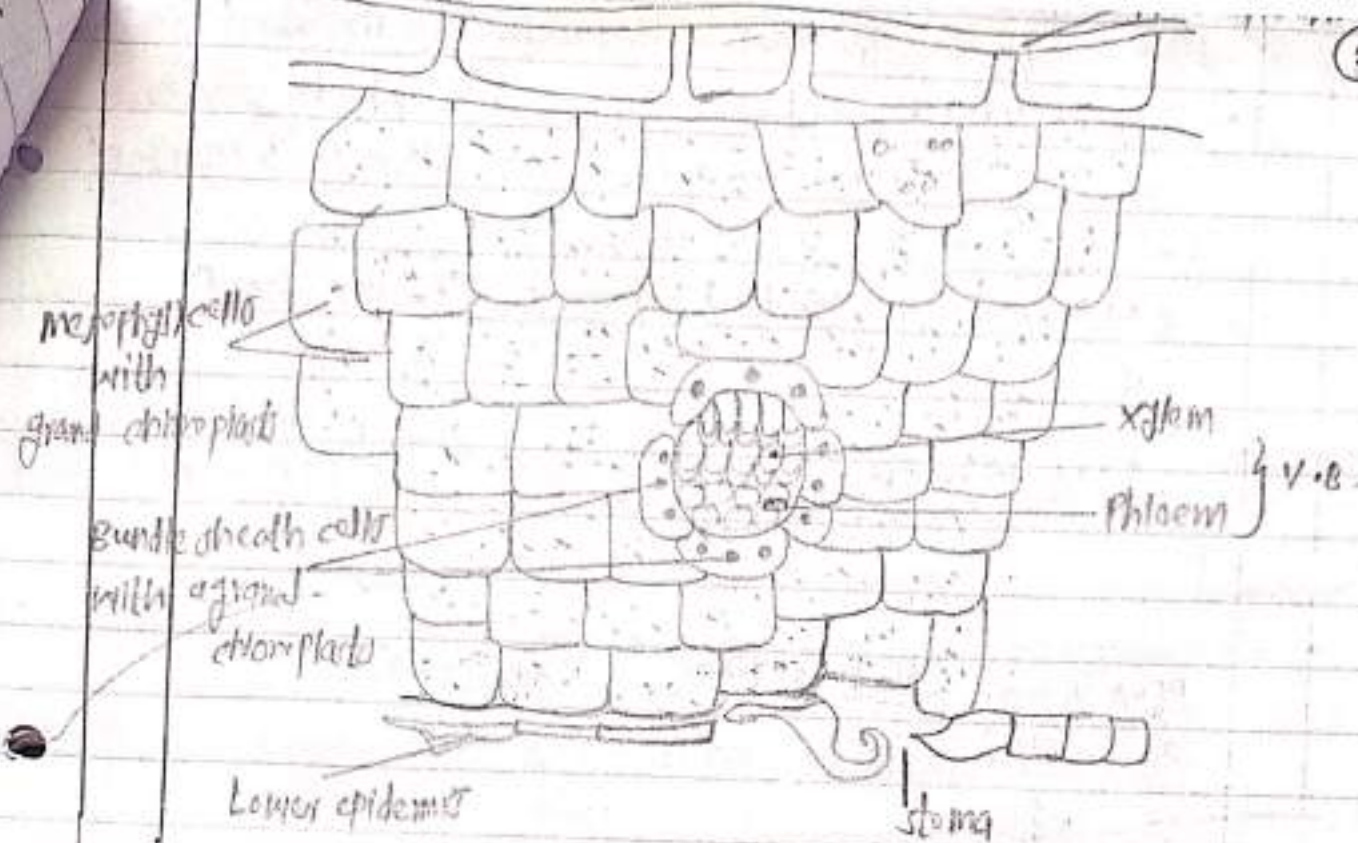


Fig:- T.S. of leaf showing Kranz anatomy.

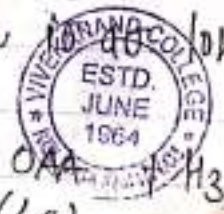
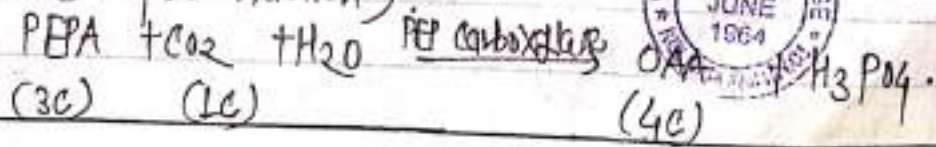
Mechanism of Huk or C_4 pathway:-

The reaction's occurring in this pathway are completed into two parts and at two different sites.

Part - I (Reaction's in mesophyll cells) :-

* Carboxylation (first CO_2 fixation)

Atmospheric CO_2 entering through stomata is accepted by phospho-enol pyruvic acid (PEPA), a 3-carbon compound present in the mesophyll cells. In the presence of water and enzyme PEP carboxylase PEPA gets carboxylated to form oxalo acetic acid (OAA), a four carbon compound. The enzyme PEP carboxylase can function even if the concentration of CO_2 in atmosphere is as low as 2 ppm (parts per million)



* Reduction :-

oxalo-acetic acid is reduced to malic acid in presence of NADPH₂ and enzyme malate dehydrogenase (or changed to aspartic acid by amination in presence of NADPH₂ & an enzyme transaminase).

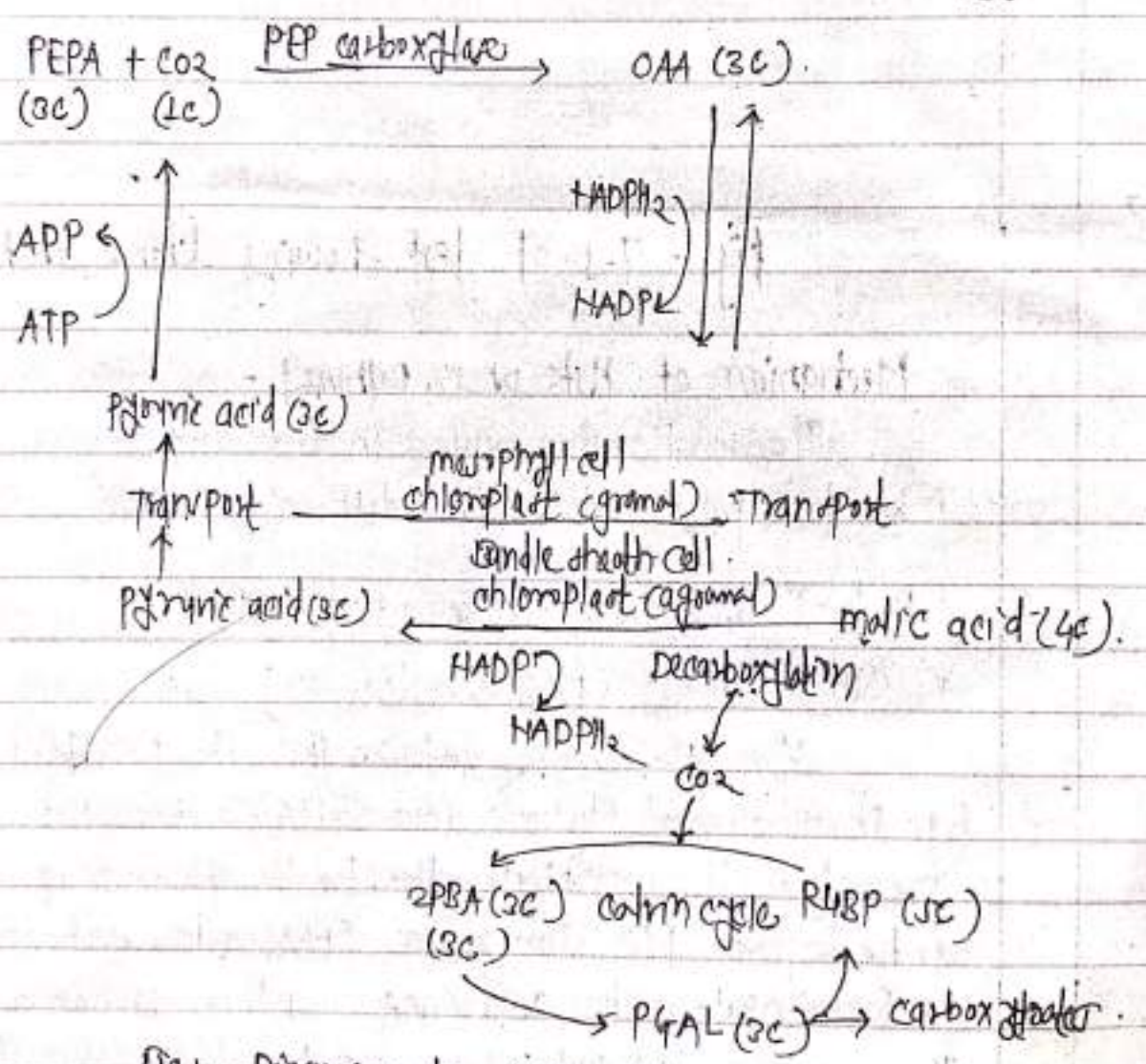
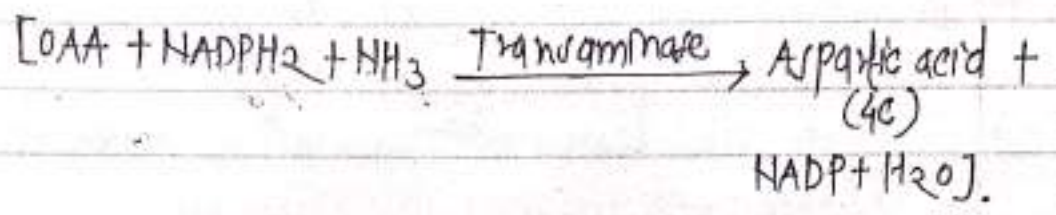
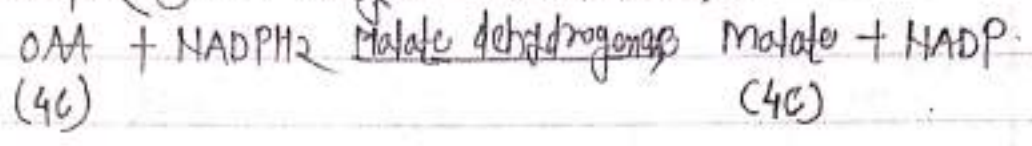


Fig. - Diagrammatic representation of C₄/HoK pathway.



(211)

H.P. Kortschak reported the alternative method of CO_2 fixation for the first time (in 1965) in sugarcane. In 1970 M.D. Hatch & C.R. Slack outlined the entire series of reactions, hence it is called Hatch and Slack pathway or HSK pathway.

In this pathway the first stable compound is oxaloacetic acid which is 4 carbon compound and hence it is called C_4 pathway (or dicarboxylic acid cycle).

The plants like Maize, sugarcane, Johar, Amaranthus etc. have this C_4 pathway hence all such plants are called C_4 plants.

Kranz Anatomy :-

C_4 plants show Kranz anatomy (Kranz - meaning wreath or necklace). In C_4 plant leaves are isobilateral i.e. the mesophyll tissue is not differentiated into palisade and spongy tissue. The C_4 plants show chloroplast dimorphism i.e. two types of chloroplasts. Each vascular bundle is surrounded by a ring or wreath of radially arranged large bundle sheath cells. These cells contain agranal chloroplasts i.e. chloroplasts are without grana. These chloroplasts are bigger in size less in number and are with grana stroma. The chloroplast in mesophyll cells contain granal chloroplasts. They are smaller in size, more in number with abundant grana and very less stroma. Thus show dimorphism of chloroplasts in C_4 plants.

The enzyme PEP carboxylase is present in mesophyll chloroplast and RuBP/RuDP carboxylase (RuBisCo) in bundle sheath chloroplast.



Home Assignment Marks 2019

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Vivekanand College, Kolhapur
Department of Botany B.Sc. II

Sem-III

Sub.: Botany


Date :


Time :

Teacher Signature

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7501	20	7545		7616	20	7661	19
7502	18	7546	20	7617	19	7662	19
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Department of Botany

Home Assignment


B.Sc. III


2019-2020

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Department of Botany

On

24th October 2020

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Department of Botany

Vivekanand College, Kolhapur (Autonomous)

Department of Botany

Home Assignment of B.Sc. III

24th October, 2022

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For
Head
Department of Botany
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Department of Botany

Date: 10 /01/2020

NOTICE

All B. Sc. III Students hereby informed that, you have to submit the given assignment on or before 24/01/2020. Write down the assignment on full-scape and submit to the Botany department.



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Head

Department of Botany
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Vivekanand College
Kolhapur



Answer Paper

Signature of Supervisor

**Shri Swami Vivekanand Shikshan Sanstha's
VIVEKANAND COLLEGE, KOLHAPUR.**

Exam. _____ Roll No. 8122 Class B.3C Div. _____
Subject Botany Paper XVI Section _____ Date 24-1-2020

BEING YOUR ANSWER ON THE PAGE ITSELF WRTE BOTH SIDE OF THE PAPER

Question No.	1	2	3	4	5	6	7	8	9	10	Total	Out of
Marks Obtained												

Q.1]

1. During the process of DNA replication, Okazaki fragments are synthesized on b) RNA primer

2] a) Restriction endonucleasenzyme are called molecular scissors.

3] d) Electroporation gene transfer technique is used for protoplast transformation.

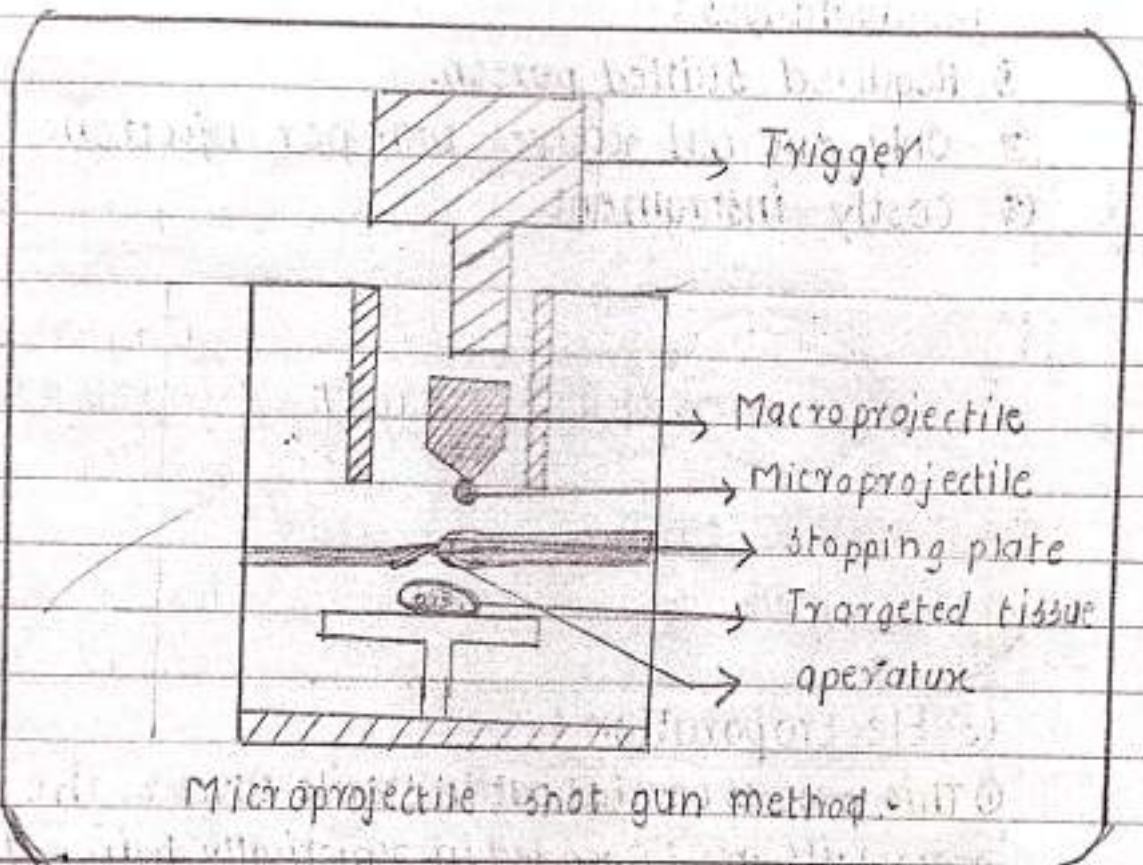
4] Golden rice is rich source of vitamin a) A



- ③ The DNA or RNA of interest is precipitated with CaCl_2 and then coated on heavy micrometals like tungsten or gold particles of size 1-3 μm . This is called as microprojectile
- ④ The macroprojectile is stopped and the microprojectile particles passed through aperture and strikes on targeted cell

Advantages :-

- ① Efficient gene transfer
- ② Walled intact cells can be penetrated.



② Microinjection :-

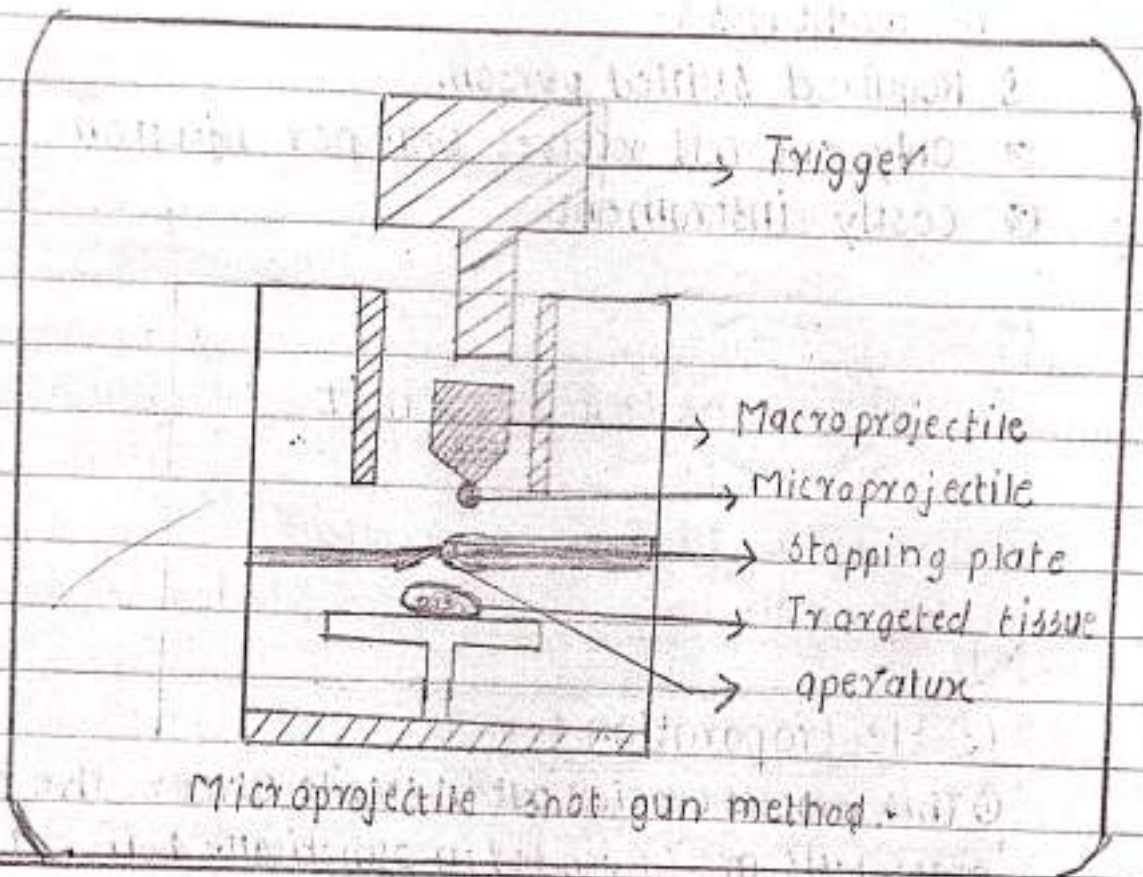
- ① T. P in (1966) described the technique of microinjection for 1st time.
- ② It is a novel and efficient technique in which DNA is delivered inside the living cell. for the gene delivery very fine needles or glass micropipettes with 0.5-10 μm diameter are used.



- ② The DNA or RNA of interest is precipitated with $CaCl_2$ and then coated on heavy micrometals like tungsten or gold particles of size 1-3 μm . This is called as microprojectile
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Microprojectile shot gun method

- ② Microinjection :-
- ① T.P in (1966) described the technique of microinjection for 1st time.
- ② It is a novel and efficient technique in which DNA is delivered inside the living cell. for the gene delivery very fine needles or glass micropipetes with 0.5-10 μm diameter are used.



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16

70

Assignment

Vivekanand College, Kolhapur Paper - XVI
B.Sc. III Botany

Sub.: Botany
Time :

Date : 24-1-20
Teacher Signature

Roll No	Sing.	Roll No.	Sing.	Roll No	Sing.	Roll No.	Sing.
8122	Bangar	8127		8132		8137	Bhamburda
8123	Deshmukh	8128	Shamburda	8133	Bhamburda	8138	ABHAR
8124	Murda	8129	Zacharuk	8134	ABHAR	8139	Bhamburda
8125	Murikwad	8130	Murikwad	8135	Bhamburda	Mali	Bhamburda
8126		8131	Torande	8136	Bhamburda	More	

8364

Vivekanand College, Kolhapur B.Sc. III Botany

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Time :

Date :
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8122	19	8127		8132		8137	20
8123	20	8128		8133	20	8138	20
8124	19	8129	19	8134	20	8139	20
8125	20	8130	20	8135	20	Mali	
8126	20	8131	20	8136	19	More	

