2.2.1 The Institution Assesses the Learning Levels of the Students and Organises Special Programmes to Cater to Differential Learning Needs of the Student

SIMPLIFIED NOTES

Simplified Notes

BOOK REVIEW

"Ponniyin Selvan: A Riveting Tale of Intrigue and Honor"

Ponniyin Selvan by Kalki Krishnamurthy is a captivating historical novel that transports readers to the majestic world of the Chola dynasty in 10th century South India. At its heart, the story revolves around the journey of Arulmozhivarman, affectionately known as Ponniyin Selvan, as he navigates the intricate politics of the Chola court.

With a rich tapestry of characters and a plot brimming with twists and turns, Krishnamurthy brings to life the vibrant culture and tumultuous times of medieval South India. From the charismatic Arulmozhivarman to the enigmatic Vandiyathevan, each character adds depth and intrigue to the narrative, making it a compelling read for history enthusiasts and fiction lovers alike.

Set against a backdrop of palace intrigue and dynastic rivalries, Ponniyin Selvan explores themes of love, loyalty, and sacrifice. As Arulmozhivarman grapples with his duties to his country and his heart, readers are drawn into a world of passion and ambition, where honor is tested and alliances are forged in the crucible of power.

With its vivid descriptions and engaging storytelling, Ponniyin Selvan is a timeless classic that continues to captivate readers across generations. Whether you're drawn to its historical authenticity or swept away by its romantic allure, this novel is sure to leave a lasting impression on anyone who embarks on its journey through the corridors of medieval India.

Familiale

Jacques Prévert est un poète et un scénariste français. Il est considéré comme un des plus grands poètes du XXème siècle. Ce poème est dénonciateur de la guerre et en particulier de la seconde guerre mondiale.

Dans une famille française, il y avait la mère, le père et le fils. Le fils était jeune. Il était jeune mais il est parti à la guerre. En France, il est normal que tous les jeunes hommes français partent à la guerre, le service obligatoire.

La mère du fils était à la maison. Elle faisait du tricot. « Elle trouve ça tout naturel la mère.» Le père du fils faisait des affaires. « Il trouve ça tout naturel le père. » Le fils était à la guerre. « Il ne trouve rien absolument rien le fils. » Il espère bientôt retourner à la maison et faire des affaires avec son père.

Mais le fils est tué et « il ne continue plus ». Le père et la mère sont allés au cimetière pour enterrer leur fils. Ils ont continué de faire du tricot et des affaires.

« La guerre continue la mère continue elle tricote
Le père continue il fait des affaires
Le fils est tué il ne continue plus. »

Ce poème est vrai car quand une personne meurt à la guerre son entourage est en deuil pendant un petit moment mais la vie continue ainsi que la guerre et tout le reste du monde.

Ce poème est écrit en vers libres, sans ponctuation. Il évoque avec une monotonie répétitive la situation de trois personnes constituant une famille : le père, la mère et le fils. C'est la monotonie d'une scène familiale d'une structure répétitive, des temps, des verbes et des sonorités.

Les quatre derniers vers montrent la réalité et la banalité de la vie :
« La vie continue la vie avec le tricot la guerre les affaires (…)
La vie avec le cimetière. »

Nous remarquons aussi l'absence des sentiments. Tout est vu comme normal et naturel, la vie, la guerre et la mort. A l'aide des mots simples et répétés, Prévert réussit à nous montrer la monotonie de la vie et de la cruauté de la guerre.

'Le coq et le Renard'

'Le coq et le Renard' est la quinzième fable de Jean de la Fontaine. Le thème de cette fable est comment tromper le trompeur.

La fable commence avec la rencontre entre deux animaux. Le renard essaie de manipuler la situation dans le but de dévorer le coq. Dès le premier vers on comprend que le coq est un animal attentif. Il est « sur une branche d'arbre » donc il est en hauteur et en plus sentinelle. Il voit alors le renard arriver. Le coq fait croire au renard qu'il est tombé dans son piège en lui répondant comme « un ami ».

Le renard dit au coq qu'il veut faire la paix. Il lui demande de descendre pour l'embrasser. Mais son intention est de le dévorer.

Le coq devient la ruse. Il dit au renard qu'il y a deux chiens de chasse qui arrivent pour cet événement. Le renard sait que ces chiens courent plus vite que lui et donc ils peuvent le manger.

Il a peur et il veut se sauver de ces chiens. Le renard répond au coq « Adieu, ma traite est longue à faire. » Il dit qu'il doit partir immédiatement, parce qu'il doit aller très loin.. Pour sauver son honneur, il fait croire au coq qu'il a autre chose à faire.

Dans cette fable, on peut aussi voir que la sagesse du coq a pris le dessus sur la ruse du renard.

Cette fable est l'une des plus connues de la Fontaine. La Fontaine critique ainsi la vanité humaine car c'est double plaisir de tromper le trompeur. Cette fable reflète les défauts de la société humaine.

Type method

A type is a specimen in the herbarium sheet which was used by the author to provide its authentic description.

It is a device to give the correct name for a taxon.

Types

1. Holotype
2. Lectotype
3. Isotype
4. Neotype
5. Syntype
6. Paratype or co-types
7. Topotype

Holotype

It is the specimen used by the author in the original publication as the nomenclatural type.

Isotype

' It is a duplicate specimen of the holotype. It has got the same date and number as the holotype' .

Lectotype

" When the holotype has been lost, another competent scholar selects a specimen from the original material studied by the author" .

Neotype

It is a substitute specimen for the holotype when all the material of the particular taxon was missing.

Syntype

When no holotype is designated it is anyone of the 2 or more specimens originally designated as types.

Paratype or Co-types

If two or more specimens have been cited as types, other than the holotype and isotype are called paratypes.

Topotype

It is a specimen collected from the same locality from where the holotype was collected.

The air entering the work area is filtered by a high efficiency particulate air supply filter. The contaminated air in the working area passes through door. The work area is fitted with an UV lamp to sterilize the work area before starting inoculation works. Laminar flow hoods in which air filters are kept in vertical position, are called vertical laminar flow hoods. If air filters are placed in horizontal position, then they are known as horizontal laminar flow hood.

Glasswares and other instruments

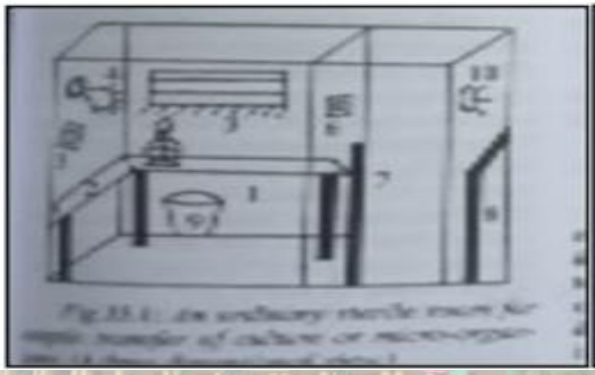
- A large flask to hold a large amount of nutrient medium.
- Conical flasks, boiling tubes, beakers and culture bottles for the distribution of medium, Measuring cylinders, test tubes, pipettes of different contents and petri plates. They are useful in the preparation of the medium and the culture of tissues.
- Scissors, forceps and scalpels for the preparation of explants and aseptic transfer of explants and callus.
- A pH meter for adjusting the pH of the medium.
- A spirit lamp for the aseptic transfer of explant and callus near its flame.
- A balance with appropriate weights to weigh nutrients for the preparation of media.
- An autoclave to sterilize all the glasswares, scissors, forceps and scalpels.

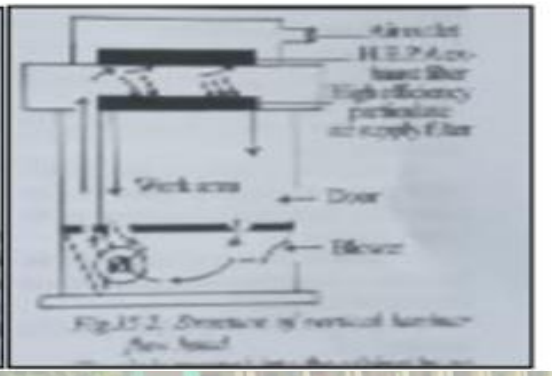
A constant temperature room

A constant temperature room is essential for the culture of all types of explants and callus and its maintenance. It provides a constant temperature of 25°C for cell growth. Further, it supplies enough light to the growing plant cells or tissues.

A shaker system

A good shaker system is essential for maintaining individual cells in suspension cultures. Due to the agitations given by the shaker system, callus breaks into many small pieces or individual cells. It provides good aeration to the cells.





TISSUE CULTURE LABORATORY – ORGANISTION AND REQUIREMENTS

INTRODUCTION

A tissue culture laboratory is very essential for the *in vitro* culture of plant tissues and cells. It provides controlled conditions for the division and growth of tissues. An ideal tissue culture laboratory must be equipped with the following important items.

1. Area for medium preparation

A separate area is necessary for the preparation of the culture media. It must be situated just away from the working room to avoid interference.

2. A sterile room

A sterile room and Laminar flow hood is required for the laboratory. It is used for distribution of medium into boiling tubes, petri plates, culture bottles or flasks. Aseptic transfer of medium and cultures.

The sterile room is a small chamber that has facilities to create sterile environment.

It should have the following items:

1. A bench for holding the laboratory equipments.
2. An ultraviolet lamp to sterilize the work room.
3. An ordinary lamp for giving proper light during functioning.
4. Another switch to on or off the UV lamp.
5. A door to enter the work room.
6. Another door for entering the sterile room.
7. A waste box to hold wastes.
8. A warning lamp to indicate the functioning of the sterile room.

Laminar Flow Hoods

Laminar flow hoods are sterile air cabinets designed in such a way that sterile air passes across the working area continuously. The air is pumped into the cabinet by an electric blower.

The air entering the work area is filtered by a high efficiency particulate air supply filter. The contaminated air in the working area passes through door. The work area is fitted with an UV lamp to sterilize the work area before starting inoculation works. Laminar flow hoods in which air filters are kept in vertical position, are called vertical laminar flow hoods. If air filters are placed in horizontal position, then they are known as horizontal laminar flow hood.

Glasswares and other instruments

- A large flask to hold a large amount of nutrient medium.
- Conical flasks, boiling tubes, beakers and culture bottles for the distribution of medium, Measuring cylinders, test tubes, pipettes of

MICROBIOLOGY

General account of food spoilage through microbes

Introduction

- Food spoilage through microbes is a common and natural process that occurs when microorganisms, such as bacteria, yeast, and molds, grow and multiply on food, leading to its deterioration and degradation.
- These microorganisms are present everywhere, including the air, soil, water, and even on the surface of the food itself.
- When conditions are favorable, they can quickly multiply and cause food spoilage.
- Several factors contribute to microbial food spoilage, including:

Temperature:

- Microbes thrive in specific temperature ranges.
- Most bacteria grow rapidly in temperature between 4° C and 60° C.
- Refrigeration and freezing slow down their growth, while cooking can kill them.

Moisture:

- High moisture content in food provides an ideal environment for microbial growth.
- Dry foods are generally less susceptible to spoilage than moist ones.

pH level

- Different microorganisms have varying pH requirements for growth.
- Some prefer acidic conditions (pH < 7), while others thrive in alkaline environments (pH > 7).

Oxygen:

- Aerobic bacteria require oxygen for growth, while anaerobic bacteria can grow in the absence of oxygen.
- The type of packaging and storage can influence the presence of oxygen around the food.

MS[Murashige and Skoog] MEDIUM- COMPOSITION AND PREPARATION

Nutrient medium

Nutrient medium is a liquid or semi-solid formulation that contains all nutrients and growth factors required for the growth of cells.

It provides all nutrients in required proportions to the growing tissues.

Separate culture media are required for the culture of different plant specimens.

The media must contain the following components.

A carbon source - Sucrose
Macronutrients - Nitrogen, phosphorous, potassium, magnesium, calcium and sulphur.
Micronutrients - iron, manganese, zinc; boron, copper, molybdenum and chlorine.
Organic supplements - Coconut milk, tomato juice, potato extract or yeast extract.
Vitamins.
Hormones - IAA, NAA, 2,4-D, BAP and kinetin.
The pH between 5.5 and 5.8 is suitable for cell growth.

Liquid media are useful to grow isolated cells and protoplast cultures.

Solid media have been used for callus cultures, explant cultures, embryo culture, endosperm culture, somatic embryo production, meristem culture and plant regeneration from calli.

Generally 5% agar is used to prepare solid media for plant tissue cultures.

REQUIREMENTS

Chemical: Stock solutions, distilled water, sucrose, myo-inositol, agar-agar and plant growth hormones.

Glassware: Culture vessels/tubes, funnel, beaker, glass rod, filter paper, pipette, measuring cylinder.

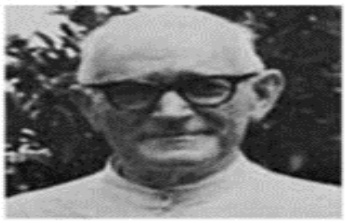
Instrument: Autoclave, PH meter

PROCEDURE

1. Take water in a large flask.
2. Pipette out the required volume of the stock solution.
3. Weigh all the ingredients and add one by one effectively and dissolve.
4. Add sterilized growth hormone in desired concentration.
5. Adjust the pH 5.5-5.8 with the help of 0.1 N HCl or 0.1 N NaOH.
6. Lastly agar is added to the solution and boil up to the clear solution formation.
7. The medium is allowed to cool for some time until it reaches around 45 0C to 500C and then dispense it into heat sterilized culture tubes around 15-20 ml/tube and cover it with cotton plug and wrap with paper.
8. The above culture tubes with media are autoclaved at 15 lbs pressure, 121 0C for 20 minutes.

Contribution to Systematic Botany by the Indian Taxonomist

Hermenegild Santapau



Introduction

Hermenegild Santapau (1903-1970) was a Spanish born naturalized Indian Jesuit priest and botanist, known for his taxonomical research on Indian flora.

He had a great knowledge and concern for, the plant wealth.

Rev. Fr Hermenegild Santapau obtained Ph.D (1927) from Gregorian University and another Ph.D from University of London.

He worked as Staff Member, Royal Botanic Gardens (Kew), St Xavier' s College, Mumbai (1940); also as Chief Botanist (1955) and Director (1961-68), of Botanical Survey of India.

Academic and Research Achievements:

Santapau carried out botanical explorations in the Central Cevennes, France (1926), Eastern Pyrenees (1934), the Italian Alps (1936), Baluchistan (1946), Kathiawar (1946-54) and the Dangs Forest (1950-55).

In India, he explored the Western Ghats from Kaiyat and Khandala down to Goa and the Eastern Ghats from Waltair to Vijayawada, the Pulneys and the Nilgiris.

He also explored the north-east and northern regions - the Khasia and Jaintia Hills in Assam, Darjeeling and Kalimpong and Dehra Dun and Mussoorrie.

He collected nearly 100,000 botanical specimens, which are preserved in Bombay, Kew (London), Arnold Arboretum of Harvard University, Missouri Botanical Garden and other national and international herbaria.

Publications

He was a prolific writer with 216 scientific papers and publications. Some of his notable publications are:

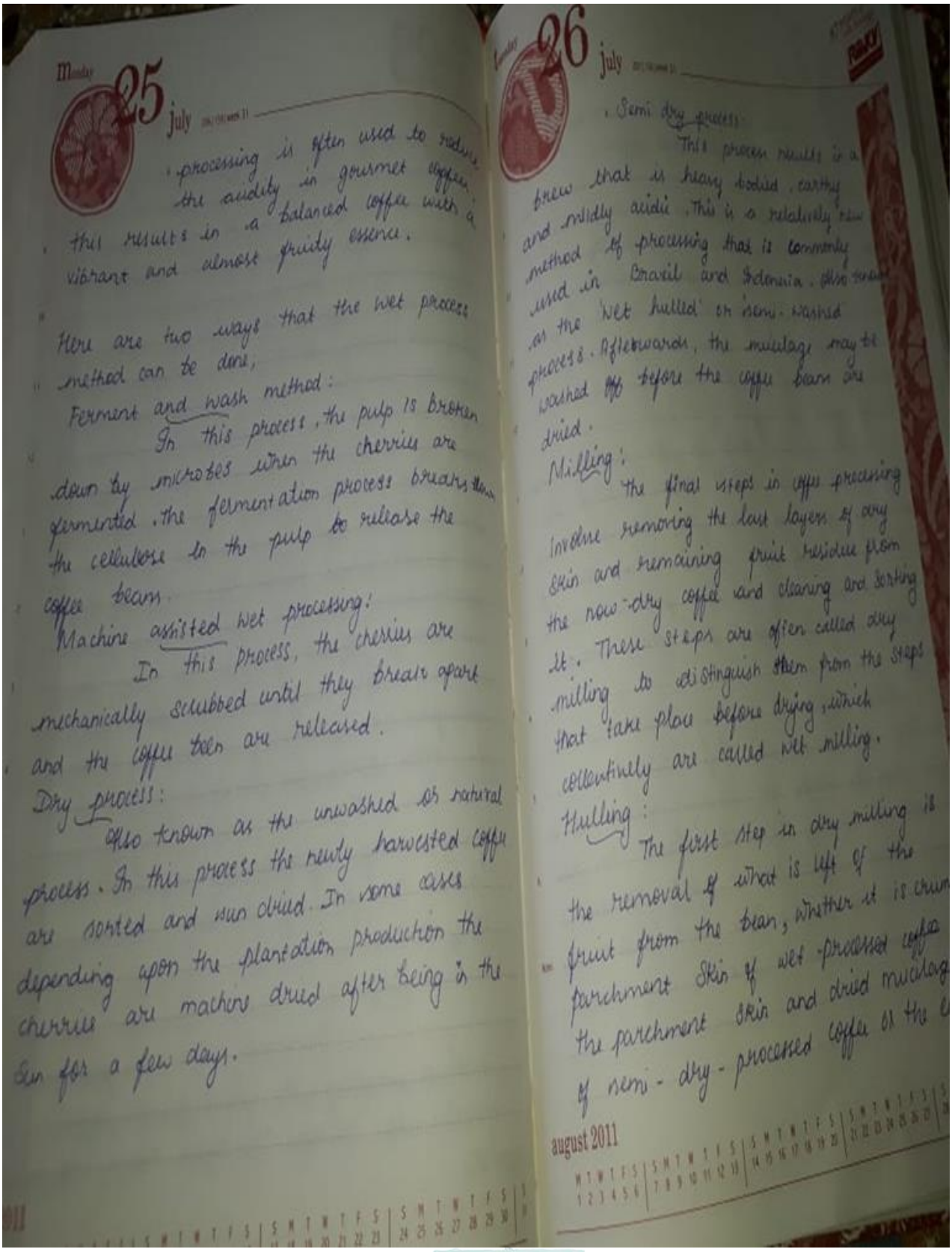
The Flora of Khandala in the Western Ghats of India, (1953),
The flora of Saurashtra (1962),
The Orchids of Bombay (1966), and Common Trees (1966).
The Flora of Purandhar.
The Flora of Saurashtra.
The Acanthaceae of Bombay.
The Asclepiadaceae and Periplocaceae of Bombay.

Other Contributions:

Santapau served on several committees of CSIR and its constituents and ICMR.

He served as Editor of Bombay Natural History Society' s publications.

He was a member of the Asiatic Society, Botanical Society of Bengal (sometime



Monday 25 July

processing is often used to reduce the acidity in gourmet coffee. This results in a balanced coffee with a vibrant and almost fruity essence.

Here are two ways that the wet process method can be done,

Ferment and wash method:

In this process, the pulp is broken down by microbes when the cherries are fermented. The fermentation process breaks the cellulose in the pulp to release the coffee beans.

Machine assisted wet processing:

In this process, the cherries are mechanically scrubbed until they break apart and the coffee bean are released.

Dry process:

Also known as the unwashed or natural process. In this process the ready harvested coffee are sorted and sun dried. In some cases depending upon the plantation production the cherries are machine dried after being in the sun for a few days.

Tuesday 26 July

Semi dry process:

This process results in a brew that is heavy bodied, earthy and mildly acidic. This is a relatively new method of processing that is commonly used in Brazil and Indonesia. Also known as the 'wet hulled' or semi-washed process. Afterwards, the mucilage may be washed off before the coffee bean are dried.

Milling:

The final steps in coffee processing involve removing the last layers of any skin and remaining fruit residue from the now-dry coffee and cleaning and sorting it. These steps are often called dry milling to distinguish them from the steps that take place before drying, which collectively are called wet milling.

Hulling:

The first step in dry milling is the removal of what is left of the fruit from the bean, whether it is crum parchment skin of wet-processed coffe the parchment skin and dried mucilag of semi-dry-processed coffee or the

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Simple notes - Genetics: Sex-linked inheritance

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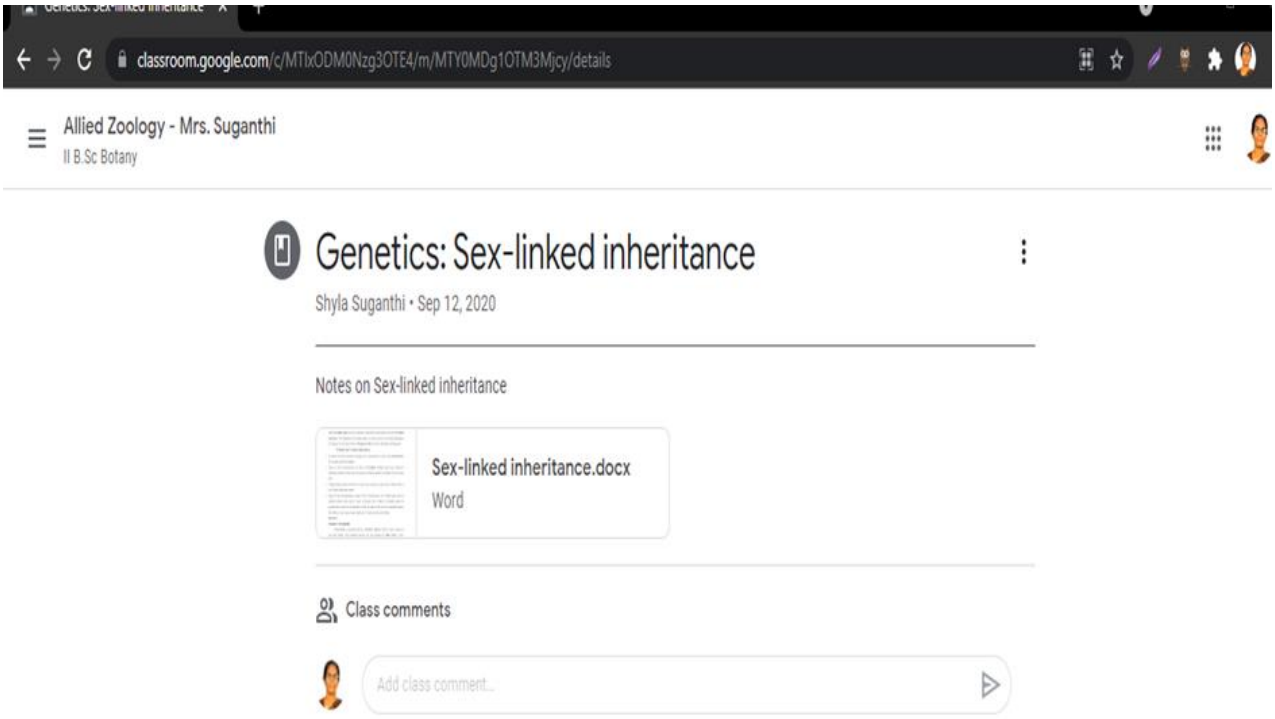

Simple notes - Structure of prokaryotic and eukaryotic cells

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