Medical Microbiology. Dental 4th semester.

Mid-term assignment paper.

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Q 1 … Explain Structure of bacteria in detail ? also Explain some cell organelles of bacterial cell and its function

* Ans .. the bacteria, descendants of the earliest from of life , are unicellular prokaryote or simple association of similar cells. They are smaller then fungi, protozoa or algae. Most of them are enclosed with in a cell wall m on the basis of latest research, bacteria are divide into tow major groups, the bacteria.
* Morphology. The general appearance of an individual cell as seen under bright field compound microscope is known as cellular morphology . Although many bacteria are similar in morphology
* Size bacteria are so small in size that they are invisible to the human eye . They are measured in micrometers , 1)1000m.m.
* Shape and arrangement

Majority of bacteria have one of the three shapes. Spherical ( coccus,PL.cocci), rod like or cylinder ( bacillus . Pl, bacilli) or (spirillum. Pl. Spirilla). Not so commonly bacteria can occur in filaments or hypha

E.g acidometers.

* The bacterial cells that divide in one plane and remain attached in pairs are referred to as diplococci .
* Eg Neisseria gonorrhea
* In some species, like streptococcus pigeons, division in one plane results in formation of a chain of cell. These bacteria are called streptococci.
* When cells of micrococcus letups divide in tow planes, they from group of four in the shape of a square. They are called tetra cocci.
* Further division of tetrad in the third plane can resulting cubical packets of eight cells known as sarcinae.
* Organelles .
* Nucleoid. Bacteria being prokaryotes do not contain a well defined true nucleus. All the genetic information of cell are housed in a single circular dna molecule also known as nucleoid or bacterial chromosome. The DNA is double stranded helical structure found in a super collide state .
* Ribosome. **The cytoplasmic matrix is densely packed with granular structures known as ribosomes . There can be more than 10000 ribosome per cell. These are the site of protein synthesis. In prokaryotes .**

Q2 What is Bacterial culture media ? write down some types of bacterial culture media in detail.?

Ans. A culture media a special medium used in microbiological laboratories to grow different kinds of microorganism. Culture media contain nutrient and physical growth parameters necessary and microbial growth

* Culture media is a source of nutrients and microorganism.

Composition of culture media .

* Water, energy source , carbon source, nitrogen source , mineral salts and special growth factor.
* Uses of culture media.
* To identify cause of infection from the clinical simple , so that proper treatment can be given.
* To study the characteristic or property of microorganism.
* To prepare biological products a like of vaccine, toxoid etc.

Classification of culture media .

* Solid media
* Sime-solid media
* Liquide .

1. Define media . which contain define known chemical and its formulation the number and ratio of chemical are known .
2. Complex media . in which the chemical structure of the media is not known but contain natural component with complex nature and unknown ratio.

Types of culture media.

1. Simple media / basal media.

* Us simple media contain all the basic nutritional requirement growth. Such media chemically composed of minimum component which support the growth of an organism same basic/ simple media include nutrient agar, lb agar e.t.c

2 selective media .

. it type of media which enhance the growth of an specific group while inhibiting the growth of an other group of bacteria. The media is made selective by adding some chemicals like antibiotics .

e.g. Low temperature for psychrophilic organism .

3. Differential media .

. differentiate between tow close group of organism these media a used for the characterization in adintication of organism example of macconkeya which differentiate between lactose fermenter and non lf some indicators a used which differentiate by turning the color ph of media slash colony

5.Enriched media .

. some bacteria required need additional growth requirements called fastidious bacteria.

Eg. Blood agar which prprovid Additional requirement to sept the growth of some organism blood agar is also differential media.

Q3. What is the difference between Sterilization and disinfection ? write down some methods used for sterilization ?

Ans. Difference between sterilization and disinfection.

1. Sterilization.

* It is a process which involve killing of all microorganisms including spores.
  1. It kill all microbes whether harmful or not.
  2. Sterilization can be carried through heat, chemicals .irradiation high pressure and filtration methods .
  3. Sterilization is used for food, medicine, and surgical instruments.
  4. Sterilization is carried. For critical items .
  5. Sterilization is less partial to use in daily life them disinfection.

1. Disinfection .

* It is a process which elimination or reducing harmful microorganisms from inanimate objects.
  1. It can eliminate most harmful microorganisms.
  2. Not effect on spores.
  3. Disinfection can be carried through alcohol H²O (hydrogen peroxide), detergents, heating and pasteurization .
  4. It can decontaminate mostly surface and air.
  5. It issue for senicritical items.
  6. It is more particle in everyday life then sterilization.

Methods of sterilization

1 physical sterilization.

* Heat
* Radiation
* Filtration

2 chemical sterilization.

* Alcohol
* Aldehyde
* Phenolies
* Oxidizing agent
* Quaternary ammonium Compounds
* Ethyleme oxide

Q 4 . Write a note on Structure of fungi in detail ?

Ans. Fungi structure:

* Fungi are eukaryotes and complex structure .it consist of membrane bounded nucleus where DNA is wrapped by histone protein. There few types of fungi which have structure comparable to bacterial plasmids (loop of DNA) fungal cells also consist of mitochondria and a complex system of internal membrane,

Including the Golgi apparatus and endoplasmic reticulum fungi cell wall are associated with pigments which plus protective role against uv radiation and can be toxic.

The rigid layer of fungal cell wall contain complex polysavmccharides called chitin .it gives structural strength to the cell wall of fungi. Which protect the cell from desiccation and predators. Fungi have cell membrane similar to other eukarytes.except that the structure is stabilized by erogosterol. Most members of kingdom fungi are non motile.

Is made up of fine , branching colorless threads called hyphae. Fungus will have many number of hyphae , which make a tangled web called mycelium or masa of hyphae.

Q 5.What are few Hospital based infections that can be transfer to others due to un hygienic condition ? Explain with an example ?

Ans. Unhygienic define .

* Not heaving or showing good hygienic.
* Epidemiology of nosocomial infection .
* Also called as hospital acquired infection, hospital associated infection , this hospital infection that infection are not present in the patient this time of admission to hospital they improve during the course of stay in hospital. Where are tow from.
* 1 endogenous infection.
* The patient admitted in there are no sign of infection .
* 2 cross contamination followed by cross infection
* Patient during stay in the hospital contact with new infective agents. Are subsequently devolpe an this infection .
* Hospital hygiene and infection control.
* An the inner membrane they from of normal flora. None of these tissue, in infected microorganisms that penetrate the skin or mucosa membrane fault reach substance organ, muscles, bone and the *body*  cavity.

Eg. (Peritoneal cavity, pleural cavity , balladeer) which are the

Normally (i.e contain no detectable organism). If a general and other local reaction to this communication improve, which clinical symptoms, there is in infection.