Scope of microbiology assignment

I Microbiology is the study of microorganisms Microorganisms, roughly, are living things that are too small to be seen with the naked eye Microorganisms cannot be distinguished apologetically from microorganisms (see variety of microorganisms, below)+ Microbiology is more a collection of techniques: aseptic technique, pure culture technique, microscopic observation of whole organisms, etc . Microbiologists isolate specific, culturally microorganisms from wild populations, then study them (or, alternatively, study them in shouting culturing them) I [Microbiology is the study f organisms too small to be seen with the naked eye. Originally, emphasis was placed on harmful microorganisms which cause disease or spoilage of beverages and food, but it is now recognized that many microbes have essential roles in our ecosystem or can be used to accomplish beneficial tasks.

Human history is full of examples of major devastations caused by bacteria and viruses. Some of these historically important diseases still occur, such tuberculosis and yellow fever. Microorganisms are evolving to cause new infectious disease problems such as Lame disease and AIDS, which capture public attention. Control and eradication of infectious diseases remain important goals of many microbiologists.

The recognition that microorganisms were responsible for what was earlier thought to be " spontaneous generation” opened the door to industrial (pharmaceutical, chemical, energy) and food microbiology, technologies which contribute substantially to today’s way of life. Microorganisms in soil and water are essential in the transformation of carbon, nitrogen, oxygen, sulfur and iron to products needed by plants and animals. In various ways,

microbes participate in environmental cycling and degradation and lobar change.

In the last few decades, microorganisms have been recognized as ideal model systems for the study of basic biological processes. More recently, microbiologists have brought an exciting dimension to the study of biology through the use of genetic engineering techniques and highly specific protein (antibody) molecules. Accomplishments in these areas already have led to enormous benefits for the human race, but there are many more challenges to be conquered through these kinds of studies. In the future, studies in space microbiology may help to reveal f there is life on other planets and the role of microorganisms in closed systems.

Today, one can truly say that the potential for microbiology to benefit human and animal health and life has never been better. (3) The variety of kinds of microbes (microbes, microorganisms) Microbes are typically (but certainly not always) either unicellular organism (e. G. , bacteria) or cellular " organisms” (e. G. , viruses) Typically a microbiologist will differentiate microbes into the following categories: (I) Algae Bacteria Fungi Viruses Protozoa Helmets Supplemental Material Types of Microorganisms ; their General

Properties I organism: I types: I description: I Nutrition type(-troths): durable state: I some diseases: I algae: I brown, red, green, diatoms, tintinnabulations, solenoids I photosynthetic aquatic eukaryote, cell walls, unicellular and multicultural I Photostat- I I bacteria: I bacteria, architecture, Gram-negative, Gram-positive, acid fast, contractible I protectorates,

absorbers, wet conditions, animal decomposer, cell walls, unicellular I competitor-photometer- checkmate- Photostat- I endoscopes (some) I tetanus, botulism, generator, Chlamydia, tuberculosis, etc. Etc. , etc. I cyan-bacteria: I blue- green algae I photosynthetic aquatic protectorates, green lake scum, cell walls I Photostat- I I fungi: I yeasts (unicellular fungi), molds (filamentous fungi) I eukaryote, absorbers, dry conditions, plant decomposer, cell walls, ?? 100 human pathogens I competitor- I spores I incomes: Candida, ringworm, athlete's foot, Sock itch, etc. I helmets: I Flatworms (philatelists), roundworms (nematodes) I metazoan (multicultural animal) parasites, engulfs and absorbers I competitor- I I tape worm, trichinosis, hook worm, etc.

I rotator: I Unicellular and slime molds, flagellates, ciliates I eukaryote, parasites, engulfs and absorbers, wet conditions, no cell wall, ?? 30 human pathogens I competitor- I cysts (some) I malaria, guardians, amoebic dysentery, I viruses: I Enveloped, non-enveloped I cellular, obligate intracellular parasites I not applicable I virgin particles, encased in durable state of host I common cold, flu, HIVE, herpes, chicken pox, etc. I Micro organisms are useful to us in many ways.

For example, * Bacterium Lasciviously convert milk into curd. * Bacteria are also involved in the making of cheese. Accoutered acetic is used for production of acetic acid from alcohol. * Yeast is used for commercial production of alcohol and wine. * Antibiotics are manufactured by growing specific microorganisms. * Some bacteria fix atmospheric nitrogen and increase the soil fertility. * Bacteria are used in the preparation of medicines. * Bacteria are used in the formation of pickles and many other food items.

Yeast is also used in baking industry for making breads, pastries and cakes. A few harmful microbes, for example less than 1 % of bacteria, can invade our body (the host) and make us ill. Microbes cause infectious diseases such as flu and measles. There is also strong evidence that microbes may contribute to many non- infectious chronic diseases such as some forms of cancer and coronary heart disease. Different diseases are caused by different types of micro-organisms. Microbes that cause disease are called pathogens.

Infectious disease I Microbe that causes the disease I Type of microbe Chickenpox I Variable sister I Virus I German measles I Rubella I Virus I cold Rhinoceros Whooping cough I Affordable persists I Bacterium I Bubonic plague I Hernia pest’s I Bacterium I TUB (Tuberculosis) I Mycobacterium tuberculosis I Bacterium Plasmid follicular I Protozoan I Ringworm I Thyrotrophic rubber I Fungus Athletes’ foot I Thyrotrophic metamorphoses I Fungus It is important to remember that: Virus I Malaria * A pathogen is a micro-organism that has the potential to cause disease.

An infection is the invasion and multiplication of pathogenic microbes in an individual or population. * Disease is when the infection causes damage to the individual’s vital functions or systems. * An infection does not always result in disease! To cause an infection, microbes must enter our bodies. The site at which they enter is known as the portal of entry. Microbes can enter the body through the four sites listed below: * Respiratory tract (mouth and nose) e. G. Influenza virus which causes the flu * Gastrointestinal tract (mouth oral cavity) e. G.

Brio cholera which causes cholera * Argental tract e. G. Escherichia coli which causes cystitis * Breaks in the skin surface e. G. Colostomies tenant which causes tetanus To make us ill microbes have to: * reach their target site in the body * attach to the target site they are trying to infect so that they are not dislodged * ultimately rapidly * obtain their nutrients from the host * avoid and survive attack by the host’s immune system Some bacteria are pathogenic – not useful to us and they cause disease. Any time a bacteria get into a place they don’t belong, they can become a problem.

Like those E. Coli that are helpful in the intestine. When they get in a bladder, they can cause a painful bladder infection. Soil Microbiology: Soil microbiology is the study of organisms in soil, their functions, and how they affect soil properties. It is believed that between two and four billion ears ago, the first ancient bacteria and microorganisms came about in Earth’s primitive seas. These bacteria could fix nitrogen, in time multiplied and as a result released oxygen into the atmosphere. This release of oxygen led to more advanced microorganisms.

Microorganisms in soil are important because they affect the structure and fertility of different soils. Soil microorganisms can be classified as bacteria, stationmasters, fungi, algae, and protozoa. Each of these groups has different characteristics that define the organisms and different functions in the soil it lives in *Nitrogen fixation[edit] Bacteria are responsible for the process of nitrogen fixation, which is the conversion of atmospheric nitrogen into nitrogen-containing compounds (like ammonia) which can be used by plants to uptake.

Atrophic bacteria, or bacteria that derives its energy making its own f by oxidation, like the Entertainers species, rather than feeding on plants or other organisms. The bacteria that are atrophic are responsible for nitrogen fixation, and the amount of atrophic bacteria is small compared to heterocyclic bacteria (the opposite of atrophic bacteria, heterocyclic bacteria acquires energy by consuming plants or other agrarianism), but are very important because almost every plant and organism require nitrogen in some way, and would have no way of obtaining it if not for nitrogen-fixing bacteria.