Bacteria

Science, Biology

Bacteria The significant difference in structure between the gram positive and the gram negative bacteria is that the gram-positive has a peptidoglycan cell wall, while the gram-negative has a protein coat covering the peptidoglycan layer.

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a. Anthrax is a human disease caused by a prokaryotic organism known as Bacillus anthracis. This is a Gram-positive, rod-shaped, facultatively anaerobic, bacteria (http://phil.cdc.gov/phil/details.asp (ID).

b) The organism has various features of its life cycle that makes it successful as a disease-causing organism. These include: the ability to undergo mutation, very fast reproduction, and resistant parts called endospores for surviving extreme climatic conditions.

Bacteria have the ability to develop resistance to antibiotics making the use of such drugs ineffective. Antibiotics resistance is a situation whereby an antimicrobial drug ceases to have effect in stopping or killing such microorganisms. Refereeing to antimicrobial, they are substance, both natural and synthetic as well as disinfectants that have the ability to kill or hindering the reproduction of microorganisms.

Before the antibiotic drugs were discovered in the 1940s, there were many deaths arising from sexually transmitted diseases and infections such as tuberculosis. The new drugs enabled the fighting of the diseases possible, however, over time; some of the germs have developed resistance to the drugs.

Causes of antibiotic resistance

The most common causes are the inappropriate use or overuse of drugs such

as antibiotics in the treatment of people and animals. The germs continuously adapt to their environments and have the ability to develop the characteristics that are similar to those of others. In using antibiotics, only the weak bacteria are killed while the stronger and more resistant ones survive and continue to multiply. Any germ that successfully develops resistance to a particular drug has the potential of developing resistance to other antibiotics as well, referred to as cross-resistance.

There has also been developed a link between the administering of drugs to animals the development of resistance in humans. Often, the food producing animals are administered some drugs so as to prevent infections and boost food production in the agri-food industry. Even the products of plants also get into contact with the chemicals when sprayed to help in the control of or preventing diseases. Through this, the resistance problem is transferred to the products such as milk and fruits. The most common example is Salmonella that can be transferred from the animals to humans via the food chain.

The other causative agent of resistance is inappropriate diagnosis that leads to inappropriate prescription or failing to take the drugs as prescribed, for instance, failing to complete a dosage. The other challenge and possibility of the drug-resistant germs getting into the country is through the imported foodstuffs or international travel.

3. Antibiotics are used in the killing of bacteria that have managed to make it past our immune system. However, the antibiotics are selective poison; only kills the desired bacteria and never the cells in the body. An example is the ear infection whereby inflammation occurs as a result of the action of the

natural immune system. Due to the pain, an antibiotic is taken to eliminate the inflammation. The other example is the ability of an antibiotic to inhibit the ability of a bacterium to turn glucose into energy or to construct its cell wall. Due to this, instead of reproducing, the bacterium dies.

Works Cited

Bacillus anthracis.