

Microbiology



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Microbiology Microbiology is the science that studies microorganism. They can be pathogenic or non-pathogenic; they can be beneficial for human environment or be hazardous for human health. This research comprises similarities and differences between Variola viruses or Poxvirus and Staphylococcus epidermis. Moreover, benefits of non-pathogenic microorganisms in human environment are discussed further on. Variola virus and Staphylococcus epidermis: comparing and contrasting Variola virus infects human beings. It can be transmitted to other humans via face-to-face contact or contact with other objects, or through the air. Nevertheless, not all the ways of the virus transmission have been fully defined and studied by the scientists. This virus is dangerous for human health and it causes much more deaths in comparison with other infectious diseases. The uniqueness of this virus and its main difference from Staphylococcus epidermis is the following: the cytoplasmic site of virus transmission and extension leads to enzymes encoding, especially those for macromolecular precursor pool regulation or for biosynthetic processes (Knipe, 2007). A morphogenesis of this virus is too complex and genomes of this virus encode the majority of proteins that interact with host processes at different levels (e. g. the cellular and systemic levels). Unlike Variola virus, Staphylococcus epidermidis is a “gram-positive, coagulase-negative cocci that is a part of our normal flora” (Knipe, 2007). Within nosocomial environment, this pathogen has an ability to spread quickly among other non-infected humans. Nevertheless, unlike Variola virus, it is transmitted by means of foreign body infections.

Staphylococcus epidermis is a facultative anaerobe and humans and warm-blooded animals are hosts for this infection. It should be also note that in spite of a non-pathogenic nature of S. epidermis, those patients who are at

risk or have a compromised immune system can be subjected to further infection development. Patients are subjected to this infection acquiring in case they use antibiotics or disinfectants. The following similarities and differences between Variola virus and Staphylococcus epidermis can be listed as follows: Staphylococcus epidermis is bacteria; it is a nonrespiratory airborne; endogenous and is spread among humans; 0.95 DIA microns (Classification of Agents). Variola virus or Poxvirus is a virus; it is a smallpox extinct; contagious; spread among humans; 0.23 DIA microns. Moreover, Staphylococcus epidermis is a part of human skin flora, while Variola virus is an acquired disease (Classification of Agents). Benefits of non-pathogenic microorganisms in human environment Non-pathogenic microorganisms grow in throat or nose of a human. These are not intimidating for a human health. Concerning benefits of non-pathogenic microorganisms in the human environment, it can be claimed that biotechnology uses these organisms in order to produce metabolites or enzymes (Knipe, 2007). Another beneficial property of non-pathogenic organisms is their disease protection function. For example, in agriculture, these microorganisms are used as biofertilizers and they are also wide-spread as probiotics. Another function is the restoration of contaminated sites (in other words, bioremediation) or as a part of fermentation in food processes. Works cited 1. Classification of Agents. Retrieved from: 2. Knipe, D. M., 2007. Fields virology. Lippincott Williams & Wilkins.