

## Microbiology/Beneficial Microbes

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In 20<sup>th</sup> century, Microbiology (specific study of microorganisms) has advanced the knowledge of all living things. Microorganisms are the simple vehicle to understand the complex processes of life hence become a powerful tool for the studies of genomics and proteomics. It is not unworthy to say that "Microbes run today's world". Microbes are the unseen universe of the planet that play a diverse role on earth. Scientists believe that billions of tonnes of microbes are unstudied and people are unaware of their benefits in the survival of the mankind.

Unfortunately, the world highlighting the worst about the microbes and creating an environment of microbe phobia. However, no one can deny the positive associations among microbes, plants, animals and humans. There are various behaviors of microorganisms that depict the dependency of earth on microbes. They are microbes that drive the biogeochemical cycles on earth by making essential elements of oxygen, carbon, sulfur and nitrogen accessible for other life on earth. Moreover, microbes are also responsible for half of the photosynthesis on the earth by regulating the levels of oxygen and carbon. The life on earth is not as simple as it seems without the decomposer communities of microbes. Microbial decomposers have higher decomposition rate due to their specialized effect on specific litter.

The billions of microorganisms that evolved with us not only boost our immune system but also protect us from various diseases. Another group of beneficial microorganisms are probiotics that line our gut. Probiotics provide a lot of benefits to our body and play a vital role in digestion and improving physical and mental health by flourishing the gut microbiota. The use of antibiotics, exposure to radiations and pathogenic microorganisms usually disrupt the normal microbial balance of the body. Therefore, it is necessary to maintain the microbial load of the body by taking probiotic foods and of course the prebiotics.

Humans have been intentionally inoculated microbes to enhance the flavor, aroma, texture and shelf life of many foods. Microbes are the reason that our food such as yogurt, bread, cheese, barley, pickle, wine and so on taste more delicious. Still the microbiology is the most studied field of science to understand the hidden secrets of the earth and unrestrained issues of our planet.

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