

## Editorial Note on Uses of Biotechnology **Yakubu OE\***

**Received:** August 19, 2021; **Accepted:** August 24, 2021; **Published:** August 29, 2021

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### Editorial

Biotechnology deals with life science and develops useful products for the agricultural, medical and food industries. Biomedical Engineering deals with human health or clinical industry. Biotechnology covers the study of microorganisms such as bacteria, but not the medical aspects. Biomedical Engineering student can study the science behind cancer and utilize the same in improving research and treatment for disease.

In field of Biotechnology, a strong grasp of Biology is needed whereas in Biomedical Engineering, a good hold of Mathematics is required. Biotechnology covers subjects such as Genetic Engineering, Molecular Biology, Biochemistry, Animal Cell and Tissue Culture, Immunology, Microbiology etc. Biomedical Engineering covers subjects such as Biomedical Instrumentation, Biomaterials, Biomedical Nanotechnology, etc.

Biotechnology is the use of living systems and organisms to develop or make useful products, or "any technological application that uses biological systems, living organisms or derivatives thereof, to make or modify products or processes for specific use". Biomedical broadly refers to the application of engineering and technology principles to the domain of living or biological systems.

Biotechnology is technology that utilizes biological systems, living organisms or parts of this to develop or create different products. Brewing and baking bread are examples of processes that fall within the concept of biotechnology to produce the desired product. Modern biotechnology provides breakthrough products and technologies to combat debilitating and rare diseases, reduce our environmental footprint, feed the hungry, and use less and cleaner energy, and have safer, cleaner and more efficient industrial manufacturing processes.

Biotechnology is the research and development in the laboratory using bioinformatics for exploration, extraction, exploitation and production from any living organisms and any source of biomass by means of biochemical engineering where high value-added products could be forecasted, formulated, developed, manufactured, and marketed for the purpose of sustainable operations and gaining durable patents rights for exclusives rights for sales, and prior to this to receive national and international

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**Citation:** Yakubu OE (2021) Editorial Note on Uses of Biotechnology. Insights Biomed Vol.6 No.8:37

approval from the results on animal experiment and human experiment, especially on the pharmaceutical branch of biotechnology to prevent any undetected side-effects or safety concerns by using the products. The utilization of biological processes, organisms or systems to produce products that are anticipated to improve human lives is termed biotechnology.

Biotechnology has contributed to the discovery and manufacturing of traditional small molecule pharmaceutical drugs as well as drugs that are the product of biotechnology. Modern biotechnology can be used to manufacture existing medicines relatively easily and cheaply. The first genetically engineered products were medicines designed to treat human diseases. The genetically engineered bacteria are able to produce large quantities of synthetic human insulin at relatively low cost. Biotechnology has also enabled emerging therapeutics like gene therapy. The application of biotechnology to basic science has also dramatically improved our understanding of biology and as our scientific knowledge of normal and disease biology has increased, our ability to develop new medicines to treat previously untreatable diseases has increased as well.

The environment can be affected by biotechnologies, both positively and adversely. The difference between beneficial biotechnology (e.g., bioremediation is to clean up an oil spill or hazard chemical leak) versus the adverse effects stemming from biotechnological enterprises (e.g., flow of genetic material from transgenic organisms into wild strains) can be seen as applications and implications, respectively.