

## HOW CAN MICROBIOLOGY IMPROVE LIVES AND LIVELIHOOD IN NIGERIA

Microbiology can be defined as a discipline that studies microorganisms as well as their relationship with man and the environment. It is an interdisciplinary field which encompasses biochemistry, cell biology, bacteriology and other associated cognate fields of study. Hence its knowledge and applications are crucial to the growth, development and survival of man. Microbiology has practical influence on the day-to-day living in all departments of life and livelihood in Nigeria. Given the wide application of Microbiology in human affairs and the economy of space demanded by this essay, I will highlight and illustrate various ways in which Microbiology can and do, improve lives and livelihood in Nigeria, with particular reference to health and wellbeing, control of environmental degradation, clean energy, climate change, food production and industrialization.

On healthcare, Microbiologists by the virtue of their practice have demonstrated that microbes are culpable in disease causation. They have also shown that microbes are beneficial to human health, providing remedies and solutions to fight diseases and ill-health. Microbiologists over time have discovered how some of these microbes operate and use the knowledge to: develop new strategies or therapies to treat, prevent and control the spread of diseases and hence improve the quality of health and general well-being of the population. This was quite evident in Nigeria during the Ebola epidemic of 2014 as it is today with the Corona Virus (Covid-19) pandemic. Although a collective effort and a multidisciplinary approach, the knowledge and information about the virus is sourced through Microbiology and is also a key factor in winning the fight. Certainly, this would not have been possible without the theory and practice of Microbiology.

It is a common knowledge that global warming is a slow ticking time bomb in our society today. Global warming in part, results from vast quantities of methane being produced by microorganisms which eventually gets into the atmosphere. This can be remedied by the use of methane as a biofuel, as an alternate source of energy. Not only will this help in the fight against climate change, but it will also solve Nigeria's ailing energy crises and at the same time improve the quality of life of the average Nigerian. Microbiologists can also harness microorganisms for the bioremediation of environmentally polluted sites. This is true especially in the Niger Delta (Ogoni clean up), where efforts are being made to bio-remediate environmentally polluted sites which have affected the communities, and rendered the inhabitants incapable of farming or engaging in fishing activities due to oil spillage caused mainly by multinational companies.

The importance of microorganisms in the agro-based industries in Nigeria, especially in the food sector and in confectioneries cannot be over emphasized. According to The Association of Fast Food and Confectioners of Nigeria, (AFFCON) in 2013, this sector contributed about Two Hundred Billion Naira annually to the economy of the country. Microorganisms are essential for the industrial production of majority of these foods such as bread, yoghurt, cheese and even chocolates. Generally, microorganisms can be used to improve crop yield by reducing pests and diseases. An example is *Bacteria thuringensis* in Bt corn which is a novel treatment against the stem borer that attacks the corn plant. In this way adequate supply of local raw materials, for agro-based industries will be assured.

In the light of the above, one can draw a conclusion that microbiology has a direct impact on the lives and by extension, the livelihood of Nigerians. Therefore one can infer that an improvement or knowledge of microbiology directly improves the quality of life in Nigeria.