Global Climate Change and Microbial Interaction in Agri-Aquaculture: Current Research and Future Trends

Understanding of microbial interaction in the different ecosystems on Earth, such as soil, marine, freshwater, is essential for our ability to assess the importance of biogeochemical cycles and their response to climate change. Functions of microbial communities on the carbon and nitrogen cycles are predominantly important for producing greenhouse gases and sustainable agri-aquaculture. Their functions improve water quality and enhance immune system of cultured aquatic animals and produce bioactive compounds such as vitamins, hormones and enzymes. Some beneficial microbes also have a key role in reducing anthropogenic gases and increasing agri-aquaculture productions. Here, the structure and function of microbial communities and their contribution to agriculture and aquaculture productions at present and future trends, and how they respond to environmental change will be discussed.