OPEN ACCESS Freely available online

ISSN: 2157-7110
Journal of Food Processing & Technology

Commentary

The Role of Biotechnology in Climatic Changes in Food Security

Khandpur Neha*

Department of Food Technology, West Virginia University, Morgantown, USA

DESCRIPTION

Rising temperatures and an increase in the frequency of extreme weather events including storms, flooding, and drought are two effects of climate change. It is inevitable that negative effects will be had on the production of forestry, fisheries, livestock, food crops, and aquaculture. Although it is more accurate to refer to climate change as "global warming" it also encompasses the escalating frequency of extreme weather events and unique variances in weather patterns. Pre- and postharvest losses, the spectrum of diseases that can be effectively used, and where and how specific types of food may be produced are all impacted by climate change. Foods' nutritional qualities, such as their mineral and vitamin content, are likely to be impacted as well. The yields of world commodities like rice, wheat, maize, and soy will be significantly impacted by a 4°C rise in mean global temperatures by 2060, according to quantitative projections of climate change's consequences. The capacity of everyone, at all times, to have physical and financial access to enough, safe, and nutritious food to suit their dietary needs and food choices for an active and healthy life is referred to as food security. Food security has been broken down into four different categories. By 2020, there will be 925 million people who are undernourished, with 16% of them living in emerging nations. Given this astonishing requirement and the fact that 40% of the world's population depends on agriculture for most or all of their income, climate change is perhaps the biggest threat to the world's food supply. As chemical fertilisers are increasingly used to support food production, gradual temperature increases and harsh weather patterns will cause decreased yields, greater soil degradation, and pollution through nitrogen runoff. Global wheat yields have already started to fall, and estimates for sub-Saharan Africa show that by 2050, those regions' yields will have decreased by 22% for wheat, 14% for rice, and 5% for maize. This scale of threat to food security from climate change is evident.

Enhancing adaptability to climate change's progressive effects, managing agricultural risks associated to global warming better, switching to other crops in different areas, intensifying agriculture, and halting deforestation for agriculture are all examples of opportunities for mitigation. Despite appearing contradictory, cutting deforestation by 10% can prevent 500 million tonnes of CO equivalent emissions over the course of five years while also protecting more forest land that can be used to grow food Agricultural Security and Green Biotechnology Any biological systems, live creatures, or their derivatives are used in biotechnology to create or alter goods or procedures for particular needs. This is referred to as green biotechnology when it is used in agricultural activities. Sustainable intensification and climate smart agriculture are two strategies being utilised to address climate change and assure food security on a global scale. Through increased intensification and enhanced extensification of land used for agriculture, sustainable intensification aims to boost food production from a smaller land area. This will require commercial, genetic, and ecological intensification. In order to boost the sustainability and resilience of food production systems, reduce greenhouse gas emissions, and better accomplish national food security, climate smart agriculture aspires to implement breeding, technological, and policy principles for growth and security. The fight against global warming is significantly impacted by green biotechnology.

The use of technology in this contribution spans traditional breeding, marker-assisted selection, genetic modification, and the use of genomics in agriculture. In marker-aided selection, an intriguing trait is indirectly selected for or determined using morphological, biochemical, or DNA/RNA variation markers. Such characteristics could include yield, grain size, disease resistance, stress tolerance, or a particular component of quality. Genome structure and function are studied using nucleic acids (DNA or RNA), recombinant DNA sequencing, or other bioinformatics techniques. Recent developments in agricultural genomics include the International Barley Sequencing Consortium's sequencing of 65% of the intricate and gene-dense barley genome.

Correspondence to: Khandpur Neha, Department of Food Technology, West Virginia University, Morgantown, USA, E-mail: khandpurneha345@gmail.com

Received: 03-Oct-2022, Manuscript No. JFPT-22-18670; **Editor assigned:** 06-Oct-2022, PreQC No. JFPT-22-18670 (PQ); **Reviewed:** 20-Oct-2022, QC No. JFPT-22-18670; **Revised:** 27-Oct-2022, Manuscript No. JFPT-22-18670 (R); **Published:** 04-Nov-2022, DOI: 10.35248/2157-7110.22.13.957

Citation: Neha K (2022) The Role of Biotechnology in Climatic Changes in Food Security. J Food Process Technol.13:957