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Climate Change and Plant Disease

Z. Banihashemi[1]

Global climate has changed since pre-industrial time. Atmospheric CO_2 a major greenhouse gas has increased by nearly 30% and temperature has risen by 0.3-0.6°C. It is predicted that with current emission scenario, global mean temperature would rise between 0.9 and 3.5°C by the year 2100. The impact of climate change would be felt in three areas: in losses from plant diseases, efficacy of disease management strategies and in the geographical distribution of plant diseases. Climate change would have positive, negative or no impact on individual plant diseases. Doubling CO_2 has been shown to increase crop yield by 30% but whether these benefits would still be realized in the presence of pests and disease is unknown. Climate change has great effect on overwintering and over summering of the pathogen, pest and vectors. This will affect on survival, movement and reproduction. In many cases temperature increases are predicted to lead to the geographic expansion of pathogen and vector distribution bringing pathogen into contact with more potential hosts and providing new opportunities for pathogen hybridization. The effect of climate change on plant diseases has not been studied much and most of the information is from recent years. In this review attempts were made to collect recent information on pathogen-host -interaction due to climate change. New strategies will be required for disease management under climate change. If consumption of fossil fuel continues and results in CO_2 accumulation and also land use by deforestation, we expect more detrimental effects on climate change in the future.

Keywords: Fossil Fuel, Greenhouse Gases, Pathogen Management, Temperature.

1. Corresponding author, Email: zia1937@gmail.com.

2. Professors, Shiraz University and Associate Member of Academy of Sciences, I.R. Iran.