



Plant Disease Management

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Editorial

Plant disease results from abnormal physiological function by pathogenic living organisms or some environmental factors [1]. The plants initially react to the disease causal agents in the site of infection. The reaction later becomes more widespread and histological changes take place. Such changes are expressed as different types of symptoms which can be visualized macroscopically. As a result, plant growth is reduced, deformed or the plant even dies. The plant disease causes severe loss to human, which occurs from the time of seed sowing in the field to harvesting and storage. Important historical evidences of plant disease epidemics are Irish Famine [2], Bengal famine [3] and Coffee rust [4]. Such epidemics had left their effect on the economy of the affected countries.

The plant diseases are managed to reduce economic and aesthetic damages caused by plant pathogens while principles of the disease management are hinged on the prevention of plants from disease, resistance, therapy, exclusion, eradication, protection and application of integrated disease management. Protection of plants with the use of chemicals has been an age long practice; however the development of resistance by the pathogens, disruption of the ecological niche and contamination of the environment due to excessive and inadequate use of chemicals had discouraged its continuous use. Thus, giving rise to the buildup on other principles with prospective and safe results, such as development of resistant varieties, breeding for desired traits of interest and adoption of biological control of measures which is an environmentally safe and sustainable measure of plant disease control.

Biological control of plant diseases involves the introduction of exotic species or harnessing the biological agents that exists naturally in the ecosystem and induction of plant resistance using non-pathogenic or incompatible microorganisms [5]. Fungal plant diseases are considered the most important microbial agent causing serious losses in the agriculture annually. Several fungal pathogens have successfully been controlled using biological agents against pathogens of soil, diseases of leaves and flowers, fruits and vegetables, cereal and leguminous plants. It is one of the management option used in

controlling *Fusarium* infection in cereal especially maize and rice, in which various biocontrol strategies had been used to reduce the effect [6,7].

Arbuscular Mycorrhizal Fungi (AMF) is one of the biocontrol strategies that have been used against *Fusarium* infection in cereal. AMF forms symbiotic association with the roots of plants and are particularly important in improving the uptake of phosphorus because of the very short transmission distance of phosphate ions in the soil as well as enhancing the uptake of micronutrients including calcium, zinc and copper. They are the major components of rhizosphere of most plants and play an important role in decreasing disease incidence. The ability to improve the nutrients uptake of plants especially phosphorus has been suggested to be responsible for the improved performances of mycorrhizal. The influence of a mycorrhizal fungus on disease has been attributed to increase in mineral nutrients absorption rather than to a direct influence of the mycorrhizal fungus itself.

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