

INTRODUCTION

Micro - organisms are considered as the first biological forms appeared on this planet as evidenced by scientific data. The other organisms like plants, animals and man appeared on the earth several million years later. Micro - organisms multiplied in number, diversity and spread universally. Their association with other organisms resulted in certain special features and adaptations. The association between plants and micro - organisms is as old as the planet. Later, in the course of evolution those that are virulent enough compete with others and those that were more virulent survived. Such changes are occurring day after day, year after year. The relationship between plants and micro - organisms became more complex.

Man influences his surroundings and is also under the influence of several biological systems. His intelligence and power to thinking helped him to cultivate crop plants to meet his requirements of food. While sowing seeds the microbes interact with them and will continue to interact during various stages of growth. For example, micorrhiza - pine root relationship, legume - root nodule bacteria and various types of pathogen and host relationship. Micro - organism's role may be harmful or beneficial on crop plants.

The advancement of our knowledge on micro - organisms have helped the betterment of mankind in recent years. For example, the antibiotics helped to cure many deadly diseases. The population increase necessitates increase in agricultural production. The loss caused by plant pathogens are considerable and hence we should minimize such losses arises. For this, there is a need for better understanding of the pathogens, the disease caused by them and host-pathogen relationships, so that suitable control measures can be developed (Bennet, 1973).

In India, the climate, soil, topography and vegetation within the country varies widely. Taking advantage of this, large number of crop plants are cultivated throughout the country. The agricultural contribution is about 40% of nation's income and about 73% of the population is engaged in it. Indian farming mainly depends on two monsoons (nearly 60%) – the south - west and north - east. The rainfall received in different parts of the country varies from less than 10 cm to over 700 cm and

distributed unevenly throughout the year, so also the diversity in plant diseases (Raychaudhuri *et al*, 1972).

About 5000 crop plant diseases are known in India and each crop is infected by at least one pathogen and some are attacked by scores of them. Losses caused by plant diseases are not estimated in India. A large quantity of fruits and vegetables are also infected by fungi in the pre and post harvest state in the field, as well as in transit and storage. There is therefore an urgent need to study these problems and develop suitable technique to meet the challenge. An awakening in the minds of farmers as well as agricultural and plant scientists towards plant disease problems is urgently required.

There are about two million kinds of living organisms on the earth of which fungi constitute approximately a hundred thousand species, and many more await discovery. Whittaker (1969) proposed a five-kingdom system and placed fungi in a separate kingdom, co-ordinate with plants and animals, in which nutrition is absorptive. Fungi are highly diverse and versatile organism adapted to all kinds of environments. They are present universally in living as well as non-living objects. The activities of fungi have been reviewed by Christensen (1965), Smith and Berry (1975).

To give a precise definition of a fungus is difficult. Alexopoulos and Mims (1979) defined fungi as eukaryotic, spore - bearing, achlorophyllous organisms that may reproduce sexually and asexually and whose filamentous, branched somatic structures are typically surrounded by cell walls containing chitin, cellulose or both of these substances with many other complex carbohydrates. Ainsworth *et al* (1973) has outlined their main characteristics in the Fungi Vol. IV A and IV B.

India is the native place of several economically important plant species which have spread to various parts of the country. Moreover the increasing demand for food will continue in the coming decades, thus imposing the need for dramatic gains in farm productivity. The high yielding crop varieties have revolutionized the minds of many farmers who are adopting intensive farming practices. Adequate attention is not given to the protection of crops against pests and diseases. Since scientific farming implies the growing of healthy crops and farming practices must also include plant protection measures.

In order to place our research on Plant Pathology on strong footing, a certain amount of fundamental research is essential. Without fundamental research there cannot be sound programme in applied research and without these two we cannot solve our field problems. The fundamental research on various aspects of plant pathology will have to be carried out under a long-range programme. In India, particularly in Kerala not many long-range programmes of this type have been undertaken so far and hence there is an urgent need to organize such a programme.

Out of 5000 plant diseases nearly 800 are of fungal origin and of these 800 vast majority are air-borne causing not only leaf and stem infection but also of fruits which many are used as vegetables.

Present investigation envisages the study of various fungal pathogens responsible for the post harvest decay and deterioration of economically important fruits and vegetables. Post harvest deterioration of fruits and vegetables cause considerable revenue loss in our country. Thus, for many reasons there is a clear need to investigate the post harvest losses. Of the fruits and vegetables investigated many of them are cultivated extensively in Kerala and some are brought from the nearby states like Tamil Nadu, Karnataka, Andhra Pradesh and Maharashtra. Extensive study of these fruits and vegetables in markets affected by fungi in the state of Kerala has been made from 1996-2001, an account of this is presented here.

Total area of vegetables & fruit crop in Kerala 1999 –2000

Vegetable crop	Popular name	Area (ha)	Production tones
Pulses	<i>Payar</i>	16259	11761
Chilli	<i>Mulaku</i>	609	617
Ginger	<i>Inchi</i>	14569	49946

Fruit crop	Popular name	Area (ha)	Production tones
Banana	<i>Vazha</i>	29120	415156
Other plantains	<i>Vazha</i>	48325	232732
Cashew nut	<i>Kasuvandi</i>	85125	56554

Tuber crop	Popular name	Area (ha)	Production tones
Tapioca	<i>Maracheeni</i>	129910	2810928
Sweet potato	<i>Cheenikizhangu</i>	1684	18815

Source: Farm guide 2001 Published by the Farm Information Bureau, Govt. of Kerala.