

INTRODUCTION

Fruits and vegetables are important sources of food and they provide nutrition to man kind. Most of the fruits and vegetables are injured to greater or lesser degree by microbial deterioration during transit and storage. Diseases of fruits and vegetables occurring in transit and storage constitute an important phase of Plant Pathology now recognized as Market Pathology (Mehrotra, 1995). These diseased plant products are brought again back to the field from market through seeds and other plant products. Thus they cause large economic loss. Because of these reasons, now a days, there is a great importance of market pathology in plant pathology.

Now a days, there is great need to give scientific protection to crops and plant products such as fruits, vegetables from disease during harvest and transport.

Post harvest diseases are responsible for economic loss to fruits, vegetables, cereals. According to Smith et al. (1964), there are more than 250 known parasitic, diseases of 'Fruits and Vegetables' which are responsible for causing decays during marketing. Hence, post harvest diseases have great importance for both to the 'Cultivators and Fruit Industries' (Mehrotra, 1995)

Due to post harvest diseases, there is great economic loss of Cultivators, Consumers and Fruit Canning Industries. According to U.S. Department Research Survey in 1965, the annual loss of fresh fruits and vegetables from deterioration during shipment and retail marketing in the U.S.A. is approximately 200 million dollars and losses due to disease caused by microorganisms. The data collected from some studies carried out in India on post harvest of fruits and vegetables, put the average loss at 20 – 30% (Mehta, 1975). In 1991, only 12 retailers in Udiapur (Raj.) suffered a loss Rs. 1,17,301 due to Rhizopus and Botrydiplodia rots out of total value of mangoes of 32,39,901 [Pathak, Khatri, Pathak, (1996)].

According to various workers, 7°C or more temperature is mostly injurious to many fruits. Such fruits are infected by fungi and bacteria which causes post harvest rots, at intermediate temperatures which grows rapidly during marketing. During growing period of fruits, relatively high ambient temperature, frequent rainfall and extended period of high humidity increases the potential for disease infection. According to Pathak, Khatri and Pathak (1996), harvested fruits and vegetables become vulnerable to attack by microorganisms because of high moisture content, high nutrient, infected fruits; harvesting, packing and transportation facilitate entry of certain pathogens. Such infections may remain dormant until the fruit is harvested

and begin the post harvest ripening or degradation process. Since, post harvest decay often originates in the field. It becomes problem or a cause of wastage during marketing (Ryall and Pentzer, 1982).

Fruits continue to carry most of the life processes after harvest also. Changes in cell wall composition and structure, results in the softening of the fruits. Green colour changes to yellow due to the destruction of chlorophyll, it causes increase in the yellow pigment content of the skin and flesh. After harvest, anthocyanin pigment that gives typical red and blue colour of some fruits may increases, starchy content of most fruits decreases such as apple and pears (Ryall and Pentzer 1982).

The disease producing pathogens are saprophytic pathogen. All these pathogen shows same way infection. They produce an enzyme because of which there is degradation of host tissue and the fungal hyphae or bacteria advances into host. All these pathogens are saprophytic and they grow on dead and decaying cells. This is shown by Simmond (1963), in case of banana, fruits are easily infected and green fruits shows rather resistance to pathogen (Mehrotra, 1995).

When the fruits and vegetables are stored, they are attacked by number of fungi causing storage diseases to them. *Rhizopus* spp. cause considerable loss to peaches, grapes, strawberries, sweet potatoes, crucifers, tomatoes and egg plant. Soft rot is caused by *Rhizopus* spp. on fleshy parts which proceeds rapidly at high temperature. Because of infection of pathogen to fleshy fruits and vegetables, there is a leakage of juices from affected parts. Under humid conditions, the typical cottony, coarse and stringly mycelium of *Rhizopus* with characteristic black sporangia. Small fruits like berries affected by *Rhizopus* rot caused by *Rhizopus nigricans*. Grapes are affected by *Alternaria* Rot caused by *Alternaria* spp. and *Stemphylium* spp., black rot caused by *Guignardia bidwelli*. Blue Mould Rot caused by *Penicillium* spp.,. In subtropical fruits by rot pathogen caused by *Alternaria citri*, *Anthracoise* spp., *Colletotrichum gloeosporioides*, *Phytophthora* spp.

Fusarium spp. and *Penicillium* spp. causes considerable damage to citrus fruits in storage and transit (Rose et al.). The diseases of citrus is caused by *Penicillium italicum* and *Penicillium digitatum* are blue mould rots and green mould rots respectively.

Apples are affected by *Sclerotinia fructigena* which produces disease Brown rot. Fruit Rot of is Tomato caused by *Alternaria solani*. Fruit Rot of Chilli caused by *Botryodiplodia theobromae*, *Cladosporium oxysporium*, *Phoma capsici*.,

Phytophthora nicotianae var. *nicotianae*. Fruit Rot of Brinjal caused by *Chrysosporium pruinatum*, *Phomopsis vexans*, *Trichothecium roseum*. Banana in storage and transit as subjected to various fungal rots. The injury created on the fruit from the plant is a frequent point of initiation of post harvest diseases by wound pathogen. There are some examples caused by crown rot of Banana, pedicel rot of pineapple, rot of papaya (Ryall and Pentzer, 1982).

Infection of pathogen may remain dormant until the fruit is harvested. It begins with post harvest ripening or degradation process. Thus post harvest decay often originates in the field. It becomes a control problem of wastage during marketing for eg., spores of *Colletotrichum gloeosporoides* germinate in moisture of the surface of banana, citrus, mango and papaya fruit on the plant.

Entry of pathogens like *Rhizopus*, *Penicillium* through injuries or natural opening causes rots of plants products like fruits, vegetables. According to Jarves (1962), Baker 1938), Roth (1967), propagules of pathogenic fungi and bacteria are abundant in the atmosphere and on the surface of fruits and vegetables as they approach maturity in fields. And these fungi are entered in the plant products through wounds which may also be caused by insects. According to Mehrotra (1980), Rotting of citrus fruits by *Penicillium digitatum* and *Penicillium italicum* is closely associated with the punctures made during transit and storage, disease development by pathogen is determined by temperature, humidity.

Taking into consideration, the investigation is carried out on the "Study of mycoflora associated with fruits around the Satara" Fruits which are available in Satara market were Apple (*Pyrus malus* L.), Sour lime (*Citrus aurantiolia* Swingle), Mandarin Orange (*Citrus reticulata* Blanco), Sweet Orange (*Citrus sinensis* Osback), Banana (*Musa paradisiaca* L.), Pea Pod (*Pisum sativum* L.), Cluster bean (*Cyamopsis tetragonolobus* L.), Lablab (*Dolichos purpureus* L.), French bean (*Phaseolus vulgaris* L.), Tomato (*Lycopersicon esculentum* L.), Brinjal (*Solanum melanogena* L.), Okra (*Abelmoschus esculentus* L. Moench.), Coconut (*Cocos nucifera* L.) So these were selected for present study.