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ISOLATION OF FUNGI FROM FRUITS AVAILABLE IN LOCAL MARKET

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ABSTRACT

The loss of fruits after harvest is a major problem of fruit growing countries of the world. There are reports of losses of millions of rupees annually due to post-harvest diseases caused by different types of mycoflora during transportation and storage periods. In order to make plan for the disease control, it is very essential to have knowledge of pathogenic organism associated with fruits during storage periods. The aim of study of fruit diseases of market is to develop perfect disease management strategies that are economically significant. The diseases causes change in color, shape and biochemical alteration of the fruit due to interaction of the pathogen and the fruit becomes unfit for consumption. The Fruits selected for study were, Mango, apple, strawberry and strawberry. The mycoflora from the isolate by food poisoning technique on P.D.A. (Potato Dextrose Agar) medium. The pathogenicity was tested according to Koch's postulates. There was variation in the mycoflora according to the type of fruit. The common fungi were Colletotrichum capsici,

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Fusarium semitectum, Alternaria alternata, Aspergillus flavus, Aspergillus niger, Cladosporium oxysporum and Curvularia lunata

KEYWORDS: Fruits, mycoflora.

INTRODUCTION

In India, 2.95 million hectors area occupied by the fruit crop (Choudhury, 1950).Fruits are the best sources of many vitamins, minerals and dietary fibers. Fruits improve overall health of human beings. Fruits provide all types of minerals that are required to our body. The nutritionists placed fruits and green vegetables on the top because; fruits contain all types of essential ingredients which are required for healthy living being. Fruits contain 50-90% moisture.

Different types of fungal forms are found to be associated and responsible for post-harvest diseases of fungi. A citrus fruit and sweet orange infected by *Penicillium italicum* (Narayanasamy, 2005). The fungus *Aspergillus niger* was found to be associated with rot of orange; Sumia, et. al, (2006) reported white rot of papaya by caused by *Sclerotium rolfsii*. Major loss of harvested fruits is caused due to fungi. The diseases caused before harvest of fruits also responsible for degradation of quality and cost of fruits in market. Post – harvest loss of fruits may be due to susceptibly of fruits to the fungal growth.

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Material and Method

The fruits were selected collected from different fruit markets of India. The selected fruits for investigation for study were Sweet orange (*Citrus sinensis Linn*.), Mango (*Mangifera indica Linn*.), Strawberry (*Fragaria indica* Linn.), and Apple (*Malus domestica* Borkh).A separate polyethylene bag was used for each type of infected fruit in all cases. The pathogenic fungus responsible for storage rots of fruit was isolated on PDA (Potato Dextrose Agar) medium. Initially the fruit were surface sterilized with the solution of 0.1% HgCl2. To remove the traces of HgCl2 the fruits were washed with distilled water for 3-4 times. Then a small piece of infected region of fruit was removed with the help of sterile needle and the piece was inoculated on PDA (Potato Dextrose Agar) medium amended petriplate in sterile condition. The petriplate were incubated at room temperature 25+-^{O} C(Ali, 2010) The fungus growing from the infected piece was removed and re inoculated on PDA medium for several times to get pure culture. The pathogenicity of the each type of fungus was studied according to Koch's postulates. A 4mm disc of growing fungal colony was removed by sterile borer in sterile condition and inoculated on healthy fruit at the region of superficial puncture made artificially with sterile needle. . A set of 3 fruits were used to confirm pathogenicity. The fungi were identified on the basis of morphological, reproductive spore's features, type of colony growth, and colour of colony and shape of spores (Rojas-Graü , et. al,2007b).

Table: List of fungi isolated from infected fruits.

Sr. No.	Fruits	Mycoflora isolated from fruits
1.	**Sweet orange (*Citrus sinensis Linn*.)**	*Penicillium crustosum; ;Penicillium ; Cladosporium sphareospermum; Penicillium expansum ; Diploidia natalensis;Trichothecium roseum ; Aspergillus niger; Ceratocystis fimbria and Aspergillus flavus.*
2.	**Mango (*Mangifera indica Linn*.)**	*Alternaria tenuissima ;Pestalotia mangifera; Colletotrichum gloreosporioides;Boothiella tetraspora;Rhizopus arrihizus; Pstalotiopsis glandicola;; Phoma multirostrata ; Botryodiploidia theobromae; Colletotrichum acutatum; Sclerotium rolfsii; Aspergillus niger.*
3.	**Strawberry (*Fragaria indica* Linn.)**	*Fusarium oxysporum; Botrytis cineria; Rhizopus stolonifer; Aspergillus niger; Cladosporium; Mucor piriformis and Penicillium expansum*

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4.	**Apple (*Malus domestica* Borkh) :**	*Fusarium dendritrichum; Pythium vexans ; Alternaria mali; Rhizopus nigricans ; Aspergillus fumigatus ; Alternaria alternata ;Fusarium avenaceum; Nigrospora oryzae; Phytopthora colocasiae; Fusarium moniliforme ; Fusarium solani; Botryodiploidia ananassa;Trichothecium roseum; Phomopsis mali; Penicillium expansum ;Alternaria tennuis; Botrytis cinerea.*

RESULTS

There were about 98 fungal isolates were isolated from 5 types of fruits. The genera of fungi like *Aspergillus, Alternaria, Fusarium, Rhizopus,* was common to all five types of fruits. To find out correct control measure strategies it very essential to know the type of post-harvest fungi associated with fruits. Careful handling of fruits can avoid post-harvest losses at maximum extent. Shazia Iram Hamd Meer and Iftikhar Ahmad (2013) studied major Post-Harvest Diseases of Mango and their Management International Journal of Agronomy and Plant Production.

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The fruits infected by fungal pathogens

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