Short Communication

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UNRECORDED FUNGAL DISEASES OF SOME FRESH FRUITS FROM INDIA

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So far unrecorded diseases of some fruits from India are reported from Jammu. Regular observations of fruits viz. apple, crab apple, plum, loquat, grape, sweet orange, mandrin orange, lemon, were made to study various pathogens attacking them.

Key Words : New record, fungal diseases, fruits.

During the survey of fruit shops of Jammu fruit market, diseased samples of apple, carb-apple, plum, loquat, grapes, sweet orange, mandarin orange and lemon were collected at regular intervals and the disease symptoms were carefully recorded. Isolations from the diseased fruits were made within 24 hours of collection on Potato Dextrose Agar (PDA) medium. Fungi, thus, isolated were purified and the cultures were maintained on slants at 10°C. Pathogenecity was established and the fungus was claimed as pathogen only after fulfilling the Koch's postulates; applying pin prick method (Tomkins & Trout 1931).

Apple (*Pyrus malus* (L.) Mill) : Found to be spoiled by *Fusarium acuminatum, Ceratocystis adiposa, Ceratocystis paradoxa, Aspergillus flavus* and *Asperfillus ustus. Fusarium acuminatum* Ellis and Everhart, rot was characterized by the production of dark-brown lesions on the surface of the fruits, small in the early stages but eventually became distinctive.

Both the species of *Cerzatocystis, C. adiposa* (E. Butler), *C. moreau* (I.M.I. 327342) and *C. paradoxa* (Dade), *C. moreau* (M.I. 327339) incited quite similar symptoms. Lesions occurred on the outer surface of the fruit, inconspicuous in early stages, and finally black crust of the fungus.

Aspergillus ustus (Bainer) Thom and Church and *flavus* Link responsible for extensive rot produced almost similar symptoms except the different colours of the conidial heads. Initially, the infected fruits showed sunken light areas which enlarged within 2-3 days, became wrinkled and got covered with tufts of dirty grey mass of spores in case of *A. ustus* or a yellowish green mass of spores *(A. flavus).*

Crab-apple *(Docynia indica)* Dcne : *Pink rot:* made its appearance as pinkish bloom on the lesions caused by the scab fungus and remained somewhat firm, dry and shallow. Isolations yielded *Trichothecium roseum* (Pers.) Link ex Fr.

Blue mold rot : Water soaked circular spots with a definite outline appeared on the fruit surface. As the decay progressed, white tufts of the fungus appeared which soon became loaded with bluish green spores. Isolations yielded *Penicillium expansum* Link ex S.F. Gray.

Plum (*Prunus domestica* L.) : In case of soft rot of plum caused by *Rhizous stolonifer* Lindl, water soaked lesions appeared on the fruit which increased in size and penetrated deep into the tissues, covered by cottony mycelium bearing immature white and mature black sporangil heads.

Loquat (*Eriobotrya japonica* Thunb. Lindl) :

Blue mold rot : Circular spots, slightly depressed, light brown on the surface of the fruit. Within a few days after decay large number of bluish green spores were produced. *Penicillium italicum* Wehmer was isolated.

Soft rot : The disease was characterized by light to dark brown depressions on the fruit surface which got covered by white fluffy growth having white and black sporangial heads. Within 2-3 days the entire fruit rotted and became shrivelled. It was caused by *Rhizopus arrhizus* Fischer.

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Sour rot : Sour rot caused by *Geotrichum candidum* Link ex Fr. made its appearance as depressed and dark brown areas covered by dense white mass of spores.

Grape (*Vitis vinifera* L.) : Post harvested grape fruit was found to be deteriorated by *Penicillium expansum* Link ex. S.F. Gray, *Fusarium equiseti* (Corda) Sacc. *Alternaria alternata* (Fr. Kaisslar, *Curvularia lunata* (Wakker) Boedijn. In case of *P. expansum* initial symptoms were small, brown, water soaked spots. Later these spots increased in size, to form bluish green spore mass.

Fusarium equiseti infected fruits showed brown and irregular lesions which subsequently got covered with pinkish white mycelium.

Alternaria rot started from the stem end portion as a tan discoloured spot which later on enlarged and turned dark brown to black in colour. After 4-5 days of infection, the spots got covered with dark olive green to black coloured mycelium and conidia.

Curvularia rot occurred frequently on those fruits which were bruised and weakened by prolonged storage. Initially the rot appeared firm but as the decay progressed it formed a cone of soft tissue covered with dark olive green mycelium.

Sweet orange (*Citrus sinensis* (L.) Osbeck) : *Fusarium rot:* This disease often started at the stem end in the form of a soft, dark brown and water soaked spot. Under humid conditions white mycelium appeared on the diseased surface and internally whole fruit rotted completely. The pathogen was identified as *F. semitectum* Berk. and Rav.

Cladosporium rot : The disease was noticed on the rind of roughly handled sweet oranges. The affected tissue remained markedly firm, attained a dark brown colouration and covered by dark olive green conidial mass of *C. oxysporum* Berk. and Curt.

Aspergillus rot : The rot developed as depressed dark brown area which eventually involved the whole fruit and got covered by dirty grey mass of spores. Isolations yielded *A. ustus* (Bainer) Thom and Church.

Mandarin orange (*Citrus reticulata Blanco*) : The rot was characterized by a circular water-soaked tan area. After few days, the whole fruit became soft, dark-brown, moist and developed under moist conditions a dirty white fungal growth followed by the formation of few acervuli. The rot was caused by a species of *Pestalotiopsis* Stey.

Lemon (*Citrus aurantifolia* (Christm) Swingle: *Fusarium rot :* Caused by *F. concoler* started as a soft, slightly depressed, brown spot. Under high humidity conditions, the spots enlarged in size, became dark brown in colour and got covered by a white mycelium.

Blue mold rot: Caused by *Penicillium chrysogenum* appeared as colourless, soft, water-soaked lesions which later got loaded with white mycelium and blue spore masses. The rot penetrated deep and completely spoiled the fruit.

Aspergillus rot : Caused by *A. flavus* occurred at any point on the outer surface of the fruit, spots increased gradually causing browning of the affected tissue. At the centre of the spot white growth of the mold appeared which turned yellowish green due to abundant sporulation. The tissue beneath the affected area was soft and watery.

Botryodiplodia rot : Caused by *B. theobromae* showed ight brown, water soaked, slightly depressed spots appeared on the surface of the fruit.

Alternaria rot : A alternata was found to cause disease of injured lemons. The rot was confined to the surface and got enveloped by dark olive green spores of the fungus.

Pink mold rot : Caused by *Trichothecium roseum* showed discolouration of the fruit at the stem end. Pink masses of conidia were found on the surface of the rind.

All the pathogens reported above are new.

REFERENCES

Tomkins R G & S A Trout 1931 The use of ammonium salts for the prevention of green mould in Citrus *J Pomol Hort Sci* **9** 247-264.