First report of soft rot, a post harvest disease of sweet orange from India

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ABSTRACT

Sweet orange (*Citrus sinensis*) fruits infected with soft rot disease were collected during a market survey. This rot develops as a light brown coloured soft spot that can be punctured easily. As the rot develops further, the decayed area sinks and mycelium and fruiting bodies of the fungus appear. On isolations, the diseased tissues yielded a pure fungal culture, which was identified as *Aspergilus niger* gr. The fungus produced the original symptoms in pathogenicity tests.

Key Words: *Citrus sinensis,* soft rot, pathogenicity.

INTRODUCTION

The citrus fruits are a rich source of vitamin 'C' and a good source of vitamin 'P'. The citrus production is facing the main threat of post harvest losses. These losses are due to many factors, among which post harvest fungal diseases are considered as a principal cause. Sweet orange at retail are more vulnerable to post harvest diseases. It was observed that in India, the extent of damage varied from 29.9 to 43.8% in sweet orange and 25.5 to 36.8% in acid lime (Reddy *et al.* 2008). The improper handling, packaging, storage and transportation may result in decay and growth of microorganisms, which become activated because of the changing physiological state of the fruits and vegetables (Wilson *et al*. 1991). Fruit, due to their low pH, higher moisture content and nutrient composition are very susceptible to attack by pathogenic fungi, which in addition to causing rots, may also make them unfit for consumption by producing mycotoxins (Moss 2002).

MATERIAL AND METHODS

During regular visits to Lal Kothi fruits and vegetable market of Jaipur, sweet orange (*Citrus sinensis*) fruits infected with soft rot disease were collected. This rot develops as a light brown coloured soft spot that can be punctured easily (Fig.1).

As the rot develops further, the decayed area sinks and mycelium and fruiting bodies of the fungus appear. This forms a black, powdery layer over the affected surface. Isolation from infected fruits on potato dextrose agar yielded a fungus which was purified by single sporing. The pathogenicity of the isolated fungus was tested on orange fruits following Koch's postulates.

RESULTS AND DISCUSSION

The isolated fungus was keyed out based on specialized taxonomic literature as shown by Samson *et aI.,* (1981) and was identified as *Aspergillus niger* gr. National Fungal Culture Collection of India (NFCCI), Agharkar Research Institute, Pune, India confirmed the identity. The culture was deposited at Agharkar Research Institute, Pune, India (NFCCI 2129).

A perusal of the literature reveals that this is the first report of the incidence of *A. niger* gr. on orange fruits in India and elsewhere. The disease was prevalent at retail marketing that may cause a heavy loss of the fruits both qualitatively and quantiatively.

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Figure 1. Light brown soft rot on sweet orange

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