

Studies on the identification of tomato rot fungi and physiological changes of tomato fruits infected with post-harvest fungi

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ABSTRACT:

Objectives: To detect post-harvest fungal attack on rotted tomato fruits and to determine different physiological changes in the contents of infected tomatoes.

Material and methods: This study was carried out on various rotted tomato fruits collected from the different markets of Sajer City. All specimens collected were transported immediately to the microbiological laboratory for identification of fungi and then to physiological laboratory to detect different physiological parameters for the contents of infected tomatoes.

Results: *A. flavus* and *A. fumigatus* were the most dominant fungi prevalent in the rotten tomato samples. These species were respectively recovered from 66.66% and 71.66% of the samples matching 21.17% and 23.14% of the total count of fungi. *F. moniliforme*, *F. solani*, *M. hiemalis*, *P. notatum* were moderately encountered (20%- 26.66% of samples) whereas *P. chrysogenum*, *P. corylophilum* and *P. citrinum* were of low incidence (8.3% for each). *A. alternata* and *A. tenuissima* both of which appeared in low incidence (13.3% of sample for each). Physiological parameters like changes in (dry weight, protein content, pectin content, total sugar, reducing sugar and non reducing sugar content, ash, calcium content, phosphorus content and ascorbic acid content) from tomato were estimated. The maximum decrease in dry weight was reported because of the presence of *A. fumigatus*, *A. flavus*, *Alternaria alternata*, *A. niger* and *Alternaria tenuissima*. The maximum loss of protein contents were occurred in *A. fumigatus* and *A. flavus*. The maximum loss of protein contents were occurred by *A. fumigatus* and *A. flavus*. The maximum loss of pectin contents were observed under the action of *Aspergillus flavus*, *A. fumigatus*, *Fusarium moniliforme*, *Alternaria alternata*, *A. tenuissima*, *A. niger* and *F. solani*. The maximum decreasing of total sugar was reported by *Fusarium moniliforme*, *F. solani*, *F. equiseti*, *F. oxysporum*, *Aspergillus flavus* and *A. niger*. The maximum depletion of ash was seen due to *Alternaria alternata*, *A. tenuissima*, *Aspergillus flavus* and *Fusarium moniliforme*. The maximum decreasing of calcium was found to be in the sample infected by *Alternaria alternata*, *A. tenuissima*, *Aspergillus flavus* and *F. equiseti*. *F. moniliforme* and *A. alternata* were responsible for the maximum depletion of phosphorus content. *Fusarium moniliforme*, *A. alternata*, *F. solani*, *Mucor hiemalis*, *M. racemosus*, *A. flavus*, *A. niger* and *Penicillium notatum* caused maximum decrease in the ascorbic acid content.

Keywords:

Post-harvest fungi, Deterioration, Physiological changes, Tomatoes fruits.