ALTERNARIA ALTERNATA STORAGE DECAY OF PEARS[1]

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Abstract

A severe outbreak of Alternaria alternata decay occurred on stored pear, Pyrus communis cv. Clapp Favorite, fruit during the 1972-73 and 1973-74 seasons. This is the first report of A. alternata on pears in Canada. The incidence of A. alternata on other cultivars is noted.

Resume

Un grave foyer d'infestation d'Alternaria alternata s'est declare dans les poires entreposées (Clam's Favorite) durant les campagnes 1972-1973 et 1973-1974. C'est la premiere manifestation déclarée de ce champignon dans les poires au Canada. On a Bgalement relevé la presence d'A. alternata *sur* d'autres cultivars.

Decay in stored pears caused by Alternaria alternata (Fr.) Keissler was observed, in the cultivar Clapp Favorite, for the first time in Nova Scotia during the 1972-73 and 1973-74 storage seasons. The severity of the decay increased as the pears ripened. A. alternata was first reported on some pear cultivars by Messetti (2) in southern Europe in 1937. This is the first known report of this fungus causing a rot of pears in Canada.

The identity of A. alternata was verified by K. A. Pirozynski, Mycology Section. Biosystematics Research Institute, Ottawa. This study gives a description of the decay symptoms and the incidence of A. alternata on the fruit of several pear cultivars over a 2-year period.

Observations

In 1972 and 1973, five 1-bushel lots of each of the pear cultivars Clapp Favorite, Bartlett, and Flemish Beauty and two 1-bushel lots of several other cultivars were stored for varying periods at -1.1 C or 0 C. In 1972 all pears received a preharvest spray or postharvest dip of thiabendazole for the control of Penicillium and Gloeosporium storage rots. However, in 1973 only the cultivars Clapp Favorite, Bartlett, and Flemish Beauty received a postharvest drench of thiabendazole.

Table 1. Incidence of *Alternaria alternata* decay on pear cultivars during ripening after storage at -1.1 C or 0 C; incidence figures averaged for two storage seasons, 1972-73 and 1973-74

Cultivar	Weeks in storage	% fruit infected
Clapp Favorite	13	88
Cayuga	21	16
Ewart	11	15
Aurora	31	10
Conference	16	10
Bartlett	13	8
Flemish Beauty	20	1
Bosc	18	0.1
Anjou	22	0
Comice	24	0

Clapp Favorite pears stored at -1.1 C or 0 C for up to 3 months appeared normal when removed from storage but on ripening (2 days at 18 C followed by 5 days at 10 C) superficial dark brown lesions resembling advanced stages of handling scald developed in 2 to 5 days. By 7 days dark-brown to blackish-brown. firm, irregular rotted areas up to 2 cm diameter and 0.5 cm deep developed

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Figure 1. Pear cv. Clapp Favorite with *Alternaria alternata* decay.

within the scalded areas (Fig. 1). A. alternata was isolated from these decayed areas and the fungus readily produced a rot when inoculated into healthy Clapp Favorite and Bartlett pears from storage. One to several lesions occurred on each affected fruit and the lesions often coalesced in advanced stages of decay. On Clapp Favorite and other pear cultivars stored for more than 3 months circular rots up to 2.5 cm diameter caused by A. alternata were present when pears were removed from storage. During ripening these lesions enlarged and often additional lesions developed.

Clapp Favorite, which is very susceptible to handling scald, was found severely infected with A. alternata during both storage seasons (Table 1). Five cultivars, Cayuga, Ewart, Aurora, Conference, and Bartlett, had a light incidence of A. alternata and two cultivars, Bosc and Flemish Beauty, had a trace to 1% decay. Anjou and cornice were free of A. alternata both seasons, and it did not develop on Clara Frijs, Gorham, Grand Champion, Magness, Precocce de T., Packhams Triumph, and Passe Crassane, which were stored only in 1972–73.

There was no evidence that thiabendazole enhanced the incidence of A. alternata. In other tests with Clapp Favorite pears which were not treated with thiabendazole, there was also a high incidence of A. alternata.

controlled atmosphere storage showed some promise for control of A. alternata. Previously Lockhart (1) reported that no Alternaria decay was found on pears ripening in air after they had been exposed to 2% CO_2 and 2% O_2 for 16 and 20 weeks.

Literature cited

1. Lockhart, C. L. 1973. The influence of storage atmospheres on the incidence of Alternaria alternata on pears. Abstract 0349 in 2nd International Congress of Plant Pathology, Abstracts of Papers, Minneapolis, Minn., U. S. A.

2. Mezzetti, A. 1938. Un marciume di alcune varieta di pere. Abstr. in Biol. Abstr. 12: 9297.