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Incidence of fungal diseases on leaves of apricot and plum cultivars in Hungary

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Summary: In this two-year study, incidence of *Polystigma rubrum* on plum, and *Apiognomonia erytrostoma* on apricot were evaluated on several stone fruit cultivars in Hungary. Results showed that most apricot cultivars expressed symptoms caused by *A. erytrostoma*, graded between 2 and 3 (10–50%) by the end of the summer in 2005 and 2006. The most tolerant apricot cultivars were Budapest and Mandulakajszi while the most susceptible ones were 'Magyar kajszi' and 'Piroska'. Assessments made on plum showed that most of the plum cultivars were tolerant or lowly susceptible to *P. rubrum* such as 'Ageni', 'Althann ringló', 'Bluefre', 'Cacanska najbolja', 'Silvia', 'Ruth Gerstetter', 'Tuleu gras' and 'Utility'. The most susceptible plum cultivars to *P. rubrum* were 'Besztercei clones' and 'Debreceni Muskotály'.

Key words: *Polystigma rubrum*, plum, *Apiognomonia erytrostoma*, apricot

Introduction

Among stone fruit diseases, those fungal pathogens are of great importance which cause early leaf fall. Due to early leaf fall, nutrient accumulation stops from leaves to buds. Consequently, bud formation in summer is delayed and buds cannot develop fully by autumn as well as their susceptibility to frost injury increases during winter and next spring. Fungal pathogens causing early leaf fall include *Polystigma rubrum* on plum and *Apiognomonia erytrostoma* on apricot (*Holb & Erdős*, 2005; *Holb*, 2005).

Some studies evaluated susceptibility of stone fruit cultvars to fungal diseases which cause early leaf fall. On plum, study of *Szabó* (1997b) and *Soltész* (1998) showed that 'Ageni', 'Althann ringló', 'Silvia', 'Ruth Gerstetter', and 'Utility' expressed no or little symptoms caused by *P. rubrum*. In this study, 'Debreceni Muskotály' and 'Korai besztercei' cultivars were highly susceptible to *P. rubrum*. In a Bulgarian study, 'Ahatan', 'Sofia-2', 'Gilej', 'Strinava' and 'Stanley' cultivars were partially resistant, while 'Green gage' and 'Cacanska najbolja' cultivars were highly susceptible to *P. rubrum* (*Borovinova*, 2002). On apricot, *Békési* et al. (2000) demonstrated that cultivars 'Mammia', 'Tomis' and 'Nugget' showed less severe symptoms of *A. erytrostoma* in the rainy years of 1999 than all other apricot cultivars. Study of *Szabó* (1997a) revealed that cultivars 'Magyar kajszi' and 'Piroska' were less susceptible to *A. erytrostoma* compared to commonly grown cultivars in Hungary.

These pathogens are causing severe infections in Hungarian stone fruit orchards if the summer is rainy. The amount of precipitation was higher in summers of 2005 and 2006 which allowed detailed investigation on early leaf fall pathogens on sour cherry cultivars.

Materials and methods

Orchard site and disease assessments

The study was performed at Kecskemét in the experimetal orchards of the Fruit Research Station. At Kecskemét, 13 apricot and 17 plum cultivars were evaluated for infections caused by *A. erytrostoma* and *P. rubrum*, respectively. Assessments were made in late summers of 2005 and 2006. All assessments were made on all the available trees or at least four trees per cultivar. In each tree, 200 leaves were evaluated for symptoms. Assessed leaves were classified into six groups according to their infection degree. Categories were defined on the basis of the area of the infected surface. On the 0–5 scale, the bigger numbers mean stronger infection. Leaves in grade 0 were without symptoms. Leaves in grade 1 were healthy on most part of the leaf-surface, the infected area did not exceed 10% of the total surface. Leaves in grade 2 were still healthy on most part of the leaf-surface, the infected area was between 10 and 25% of the total surface.In grade 3, 25–50% of the leafe-surface was covered with leaf spots. Leaves of grade 4 had an infected area between 50–75%. In grade 5, the infected area was over 75%. Data for each disease and cultivar were averaged and then analysed by using one-way analyses of variance using Excel PC programme.

Results and discussion

Disease incidence in 2005

Assessment made in apricot showed that most cultivars expressed symptoms caused by *A. erytrostoma* grading between 2 and 3 (10-50%) by the end of the summer in 2005. The most tolerant cultivars were 'Budapest' and 'Mandulakajszi' while the most susceptible ones were 'Magyar kajszi' and 'Piroska' (*Table 1*). Assessments made on plum showed that most of the plum cultivars were tolerant or lowly susceptible to *P. rubrum* such as 'Ageni', 'Althann ringló', 'Bluefre', 'Cacanska najbolja', 'Silvia', 'Ruth Gerstetter', 'Tuleu gras' and 'Utility'. The most susceptible cultivars were 'Besztercei clones' and 'Debreceni Muskotály' (*Table 2*).

Table 1 Susceptibility of apricot cultivars to *Apiognomonia erytrostoma* (Kecskemét, 2005)

Cultivars	Disease grade (0–5)
Bergeron	2
Borsi-féle korai rózsa	3
Budapest	1
Ceglédi bíbor	3
Ceglédi óriás	2
Korai piros	3
Liget óriás	2
Magyar kajszi	4–5
Mandulakajszi	1
Pannónia	3
Piroska	4
Rakovszky	3
Rózsakajszi	3

Table 2 Susceptibility of plum cultivars to *Polystigma rubrum* (Kecskemét, 2005)

Cultivars	Disease grade (0–5)
Ageni	0
Althann ringló	0
Besztercei szilva	5
Bluefre	0
Cacanska lepotica	3
C. najbolja	0
C. rodna	3
Centenar	2
Debreceni muskotály	5
Korai besztercei	5
Olaszkék	2
President	2
Ruth Gerstetter	0
Silvia	0
Stanley	2
Tuleu gras	0
Utility	0

Disease incidence in 2006

In 2006, apricot cultivars showed similar susceptibility to *A. erytrostoma* as in 2005. Again, the most tolerant cultivars were 'Budapest' and 'Mandulakajszi' while the most susceptible ones were 'Magyar kajszi' and 'Piroska' (*Figure 1*). Assessments on plum showed that only one plum cultivar was tolerant to *P. rubrum* ('Ageni'), while the most susceptible cultivars were again the 'Besztercei clones' and 'Debreceni Muskotály' (*Figure 2*).

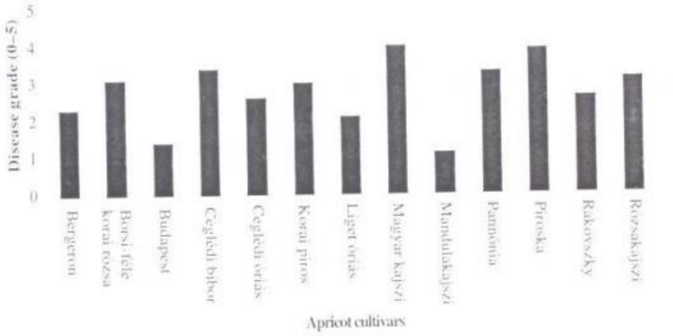

Figure 1 Susceptibility of apricot cultivars to *Apiognomonia erytrostoma* (Kecskemét, 2006)

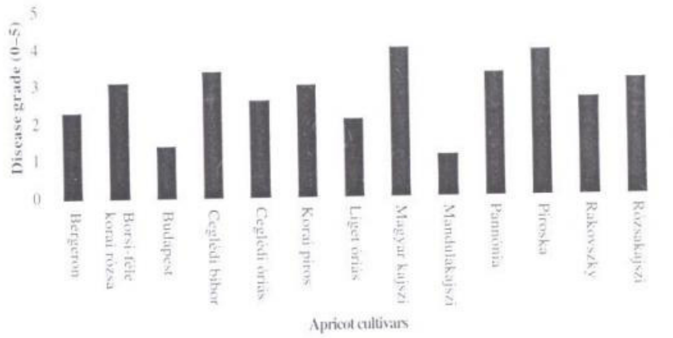

Figure 2 Susceptibility of plum cultivars to *Polystigma rubrum* (Kecskemét, 2006)

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