Species of genus *Cotoneaster* are shrubs of small soil requirements, high drought resistance, high vigour and considerable decorative value. These evergreen plants need to be covered for winter, as all the species are not fully resistant to frost occurring in Poland in wintertime.

It is estimated that genus *Cotoneaster* includes 400 and according to some authors even 500 species (Index Kewensis... 1997). Their natural range covers primarily central and northern Asia (with Himalayas as the centre), while only about a dozen species are found in Europe and three in northern Africa (Phipps et al. 1990).

Out of approximately 100 *Cotoneaster* taxa (80 species and several cultivars) found in the collections of botanical gardens and arboreta in Poland (Jerzak 2002), only about a dozen are offered for sale by nurseries, although the potential for their use in green areas is immense. However, the interest in cotoneasters as important plants of municipal parks, greens and green belts in housing districts has been growing in recent years. In western Europe numerous papers have been published on these plants (Fryer and Hylmö 1995, 1997, Flinck and Hylmö 1998).

A specialist collection of genus *Cotoneaster* including almost all taxa cultivated in Poland of approximately 80 species and 20 cultivars has been established in the Botanical Garden of the Adam Mickiewicz University of Poznań. On the basis of the existing collection several studies and observation series have been carried out.

One of the investigated aspects was the vigour of cotoneasters. It was found that plants considerably attacked by diseases or infested by pests were rare. In most cases single slight damage instances were reported, such as scarce initial scars, single feeding areas or only slight infestation of plants, which did not result in considerable deterioration of their ornamental value. The health status of cotoneasters in Ukrainian botanical gardens in Kiev and in the Crimea was reported by Grevtsova and Kazanskaya in 1997.

The aim of the study in 2003 was to determine the incidence of disease symptoms and identify fungi infesting diseased tissues of plants in case of cultivars of...
species belonging to genus *Cotoneaster*, cultivated in the collection of the Botanical Garden of the Adam Mickiewicz University of Poznań. Pathological changes on flowers, leaves, shoots and fruits were observed on plants representing 11 species of the genus. Regular observations were carried out at two–three week intervals, in the period from May to October.

For isolation of fungi infested plant parts were disinfested in 96% ethyl alcohol (5 s), rinsed in sterile water (3 × 2 min) and transferred onto Petri dishes with PDA. Flowers and fruits were also incubated in wet chambers. After two weeks of incubation fungal cultures were identified. A total of 20 shoots, 60 leaves and 50 fruits were collected for analysis, from which 225 isolates were obtained. A total of 36 isolates were obtained from shoots (16%), 134 isolates derived from infested leaves (59.5%), while from fruits 55 isolates were obtained (24.4%). On flowers grey mould symptoms were observed first, followed by their drying.

On the basis of disease symptoms and microscopic observations the following diseases and their causing agents were found.

Bitter rot of fruits – a disease caused by fungi from genus *Gloeosporium*. Small brown spots appeared on fruits (Phot. 1). With time the spots got more numerous and merged into large clusters. Fruit flesh under spots displayed fast spreading soft rot. The disease symptoms were observed on *C. nanshan*. From fruits of the species *Gloeosporium* sp. was isolated (Table 1).

Scab – a fungal disease caused by *Spilocea pyracanthae*. Initially olive green and next brown spots with distinct edge appeared on leaves (Phot. 2). The symptoms
were sometimes observed also on un lignified shoots. At strong infestation most of
the leaf blade was covered with spot clusters and leaves eventually wilted and were
dropped. The disease symptoms occurred on leaves of C. niger, C. integerrimus, C.
subacutus, C. megalocarpus and C. ignavus, from which S. pyracanthae was isolated (Ta-
ble 1).

Leaf spotting – a disease caused by fungus Entomosporium mespili and Phoma
cotoneastri. Spots of various size appeared on both sides of the leaf blade. Spots fre-
quently merged and were limited only by the midribs. After plant tissue necrosis
clusters of fungal conidiophores were observed in the form of black dots. At strong
infestation leaves turned yellow and were dropped. The disease symptoms were
observed on C. lucidus, from leaves of which E. mespili was isolated (Table 1).

Wood dry rot – a disease caused by Basidiomycetes fungi (Basidiomycotina). In-
fested tissues turned brown and brittle (Phot. 3). Shoots gradually wilted and

<table>
<thead>
<tr>
<th>Species of fungi</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>shoots</td>
</tr>
<tr>
<td>Gloeosporium sp.</td>
<td>0</td>
</tr>
<tr>
<td>Spilocea pyracanthae</td>
<td>0</td>
</tr>
<tr>
<td>Entomosporium mespili</td>
<td>0</td>
</tr>
<tr>
<td>Phoma cotoneastri</td>
<td>0</td>
</tr>
<tr>
<td>Botrytis cinerea</td>
<td>0</td>
</tr>
<tr>
<td>Fusarium oxysporum</td>
<td>5</td>
</tr>
<tr>
<td>Fusarium lateritium</td>
<td>10</td>
</tr>
<tr>
<td>Diplodia sp.</td>
<td>5</td>
</tr>
<tr>
<td>Pestalotiopsis funerea</td>
<td>5</td>
</tr>
<tr>
<td>Phomopsis cotoneastri</td>
<td>8</td>
</tr>
<tr>
<td>Basidiomycotina sp.</td>
<td>3</td>
</tr>
<tr>
<td>Total</td>
<td>36</td>
</tr>
</tbody>
</table>
crumbled. Moreover, overlapping fruiting bodies were also observed. The disease symptoms occurred on shoots of *C. moupinensis*, from which a species of Basidiomycetes was isolated (Table 1).

Grey mould – a common fungal disease caused by *Botrytis cinerea*. The disease was found with considerable intensity under high humidity and at high air temperature. In the second half of summer large necrotic light-brown spots were observed on leaves. Strongly infested leaves were dropped and a typical grey powdery coat appeared on dead residue. The disease symptoms were observed on leaves and flowers of *C. niger*, *C. integerrimus*, *C. ignavus*. From leaves and fruits of these species *B. cinerea* was isolated (Table 1).

Shoot blight – a disease caused by infestation of phloem by following fungi: *Fusarium oxysporum*, *F. lateritium* and...
Diplodia sp. Brown spots occurred on branches, covering the whole circumference of shoots. The shoots died above spots and necrosis spread towards the base (Phots. 4, 5). Fusarium oxysporum was isolated from diseased shoots of C. salicifolius, C. tengyuehensis, C. hjelmqvistii. Fusarium lateritium and Diplodia sp. were also isolated from the shoots (Table 1).

Shoot blight – a disease caused by fungi Pestalotiopsis funerea and Phomopsis cotoneastri. In summer small light-coloured spots appeared on shoots and leaves, which in the course of the disease development increased in size and got darker. Strongly infested shoots wilted. The disease symptoms were observed on C. salicifolius, from shoots of which P. funerea and P. cotoneastri were isolated (Table 1).

The incidence of some of the above mentioned diseases has been described in the scarce literature on the subject (Łabanowski et al. 2000) although detailed investigations are lacking.

Chemical measures are not applied in the Botanical Garden for ecological reasons. Agrotechnical measures are applied and infested parts of plants are being mechanically removed.

**Literature**


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Accepted for publication: 30.06.2006