

First report of *Septoria pachyspora* causing leaf blotch of *Zanthoxylum schinifolium*

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Zanthoxylum schinifolium is cultivated for its seed oil in Korea. The oil is used for medicinal purposes and in special cuisines and consequently is highly valued in the market. Rust caused by *Coleosporium zanthoxyli* is the only disease recorded on this tree in Korea so far (Cho & Shin, 2004).

In 2001, several *Z. schinifolium* leaves with leaf-blotch symptoms were found in Goseong, Korea. The pathogen was identified as a *Septoria* sp. by preliminary microscopy; however, pathogenicity was not confirmed. In August 2005, a number of 10 to 15 year-old trees in Hongcheon, Korea, were found to have typical leaf blotch symptoms, causing premature defoliation. Initial symptoms were circular, brown to dark brown leaf spots, later expanding to occupy half of the leaf. Numerous black conidiomata with conidial horns were formed on the surface of the lesion.

Single conidial isolates formed dark greyish colonies on potato dextrose agar. Conidiomata matured after 5 weeks when plates were incubated under fluorescent illumination for 12 h photoperiods at 25°C. Conidiomata were pycnidial, amphigenous, 85–140 µm in diameter. Conidia were curved to substraight, guttulate, subhyaline, 30–64 × 2–3 µm, 2–7 septate. Based on the morphological and cultural characteristics, the isolates were identified as *Septoria pachyspora* (Saccardo, 1895; Greene, 1964). The collection from 2001 coincided with the 2005 collection in terms of leaf symptoms as well as morphology of conidiomata and conidia. Voucher specimens are housed at Korea University (SMK 18664, 21293) and a conidial isolate is kept in the Korean Agricultural Culture Collection of the National Institute of Agricultural Biotechnology (KACC 42510).

Pathogenicity was confirmed by wound-inoculating the leaves of three 2-year-old seedlings with a conidial suspension (*ca.* 2 × 10⁵ conidia/mL). Three non-inoculated seedlings served as controls. The plants were maintained in a glasshouse at 100% relative humidity for 48 h. After 8 days, typical leaf blotch symptoms, identical to the ones observed in the field, started to develop on the leaves of inoculated plants. No symptoms were observed on control plants. *Septoria pachyspora* was reisolated from the lesions of inoculated plants.

A leaf spot disease associated with *S. pachyspora* has previously been recorded on *Z. americanum* in North America (Greene, 1964) and on *Z. ailanthoides* in Japan (Kobayashi *et al.*, 1983). This is the first report of *S. pachyspora* causing leaf blotch on *Z. schinifolium* worldwide.

References

- Cho WD, Shin HD, eds, 2004. *List of Plant Diseases in Korea*. Seoul, Korea: Korean Society of Plant Pathology.
- Greene HC, 1964. Notes on Wisconsin parasitic fungi XXX. *Wisconsin Academy of Sciences, Arts and Letters* 53, 177–96.
- Kobayashi T, Kawabe Y, Kusunoki M, 1983. Tree diseases in Gozen Mountain Prefectural Natural Park. *Proceedings of the Association for Plant Protection, Tsukuba* 22, 17–20.
- Saccardo PA, 1895. *Sylloge Fungorum Omnium Hucusque Cognitorum*, vol. X. Padova, Italy.

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First report of *Cryphonectria parasitica* on chestnut (*Castanea sativa*) in Azerbaijan

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Since 2003, there have been reports of sweet chestnut mortality from the Great Caucasus region of Azerbaijan. Upon field inspection in 2004, symptoms on the dead and dying trees included crown dieback and cankers on the main stem with yellow to orange, sometimes reddish, fungal stromata. Cankers were collected from the Gabala forestry section in October 2004, and from the Ismailli, Oghuz, and Zagatala forestry sections in 2006.

Cankers had orange to red stromata with embedded pycnidia; cultures from cankers formed pycnidia with conidia that were 2.5–4 × 1.0–1.2 µm. Sequences of the internal transcribed spacer regions and the 5.8S gene of rDNA were determined (White *et al.*, 1990) for 15 isolates from Azerbaijan, and two representative sequences were deposited as Acc. Nos. EF545114 and EF545115. These sequences closely matched sequences of Chinese and Japanese isolates of *Cryphonectria parasitica* (e.g. Acc. Nos. AY141862, AY141863, AY697928, and AY697929).

Pathogenicity of isolates A475 and A480 (deposited at Iowa State University; dried specimens = MAH2821 and MAH2822, deposited in the Central Herbarium at the Institute of Botany, Baku, Azerbaijan) from Gabala was tested on 3-year-old chestnut seedlings in a greenhouse. Wounds (5 mm diameter) to the cambium were made on the stems. Discs (5 mm diameter) from cultures on malt extract agar were then placed, mycelium surface down, into the wounds of 10 seedlings each. After 2–5

months, cankers with stromata and pycnidia formed on the 20 inoculated seedlings, and all seedlings died. Ten control plants similarly treated with sterile MEA discs did not display symptoms.

The Asian fungus *C. parasitica* is well-known on sweet chestnut in Europe (Heiniger & Rigling, 1994). This is the first report of chestnut blight in Azerbaijan and is apparently the easternmost location of the disease on the European continent.

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References

- Heiniger U, Rigling D, 1994. Biological control of chestnut blight in Europe. *Annual Review of Phytopathology* 32, 581–99.
- White TJ, Bruns T, Lee S, Taylor J, 1990. Amplification and direct sequencing of fungal ribosomal RNA genes for phylogenetics. In: Innis MA, Gelfand DH, Sninsky JJ, White TJ, eds. *PCR Protocols: A Guide to Methods and Applications*. San Diego, CA, USA: Academic Press Inc.

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